RAISE the Roof

A century around tiles

TEJAS BORJA

Unique since 1899

TEJAS BORJA

Unique since 1899

Francisco Ramón Borja

The Award for Internationalisation. This honour was awarded by the Valencia Chamber of Commerce in recognition of the expansion that began more than two decades ago.

The 2012 Alfa Innovation Award. . Awarded by the Spanish Ceramic and Glass Society for the development of SKIN-KER® (an installation system that creates a self-ventilating roof with large-format and extensive flat ceramic façade tiles, wrapping the whole building in a product of equal quality and appearance).

HISPALYT

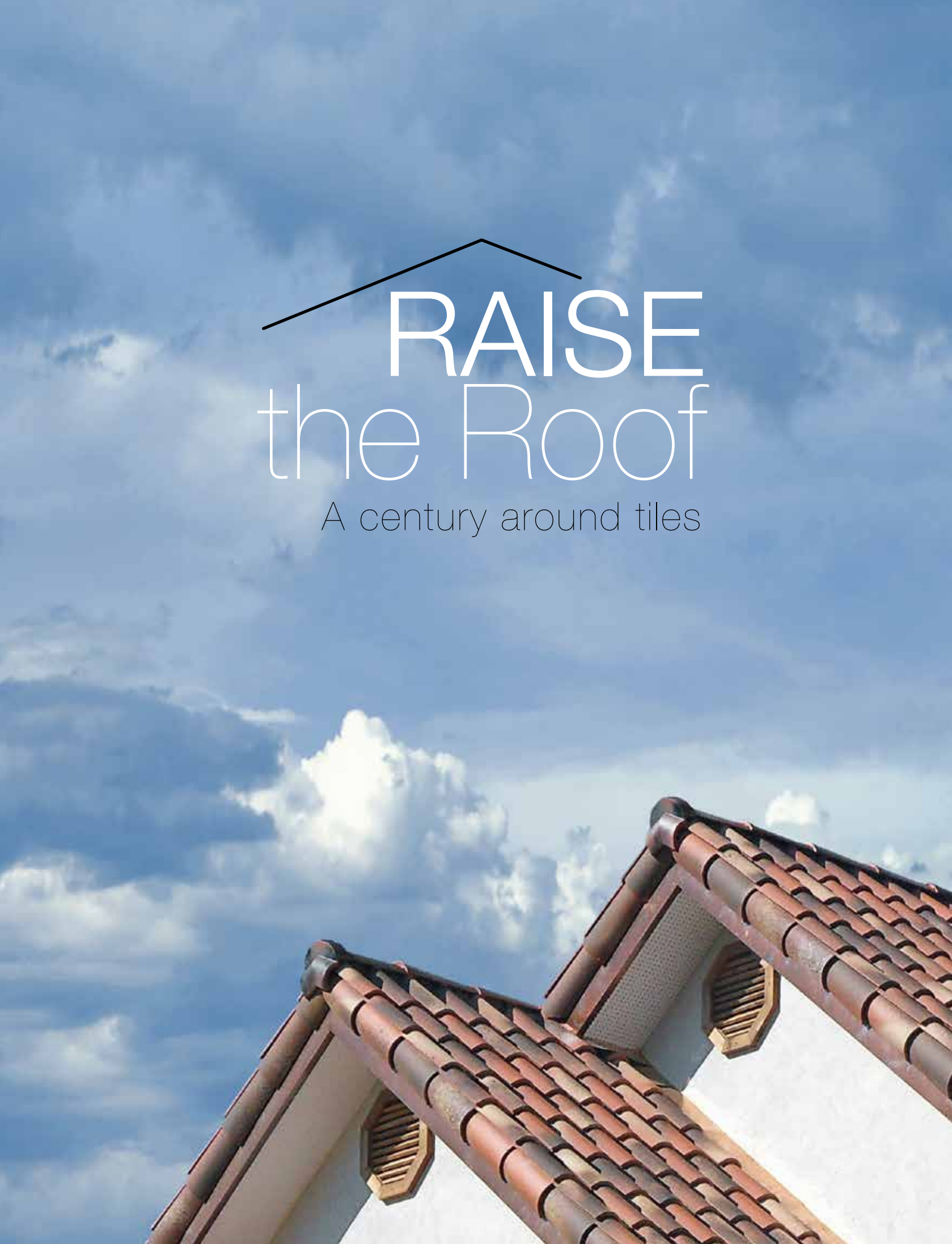
CERÁMICA PARA CONSTRUIR

1st Hispalyt Ceramic Roof Tile Architecture Prize 2013 for the restoration of Las Reales Atarazanas de Barcelona.

RIAI

The Royal Institute of the Architects of Ireland

Best exterior product of the year. Award given to the Flat 10 roof tile by the Editorial Board of Architecture Ireland at Architecture Expo Dublin. (Architecture Expo Show 2014)



RAISE the Roof

A century around tiles

There is a place few people discover and from where one can see everything from a unique perspective.

We have long been aware that we produce much more than a product used to build homes. Through our efforts, we protect people's dreams and the family's houses for whom their home is a project for the future.

It is this philosophy that has made Tejas Borja a unique business.

Knowing that we have achived our long-standing dream is the inspiration that drives us forward to continue improving each day as a ceramic roof tiles specialist.

TEJAS BORJA

Unique since 1899

Francisco Ramón-Borja

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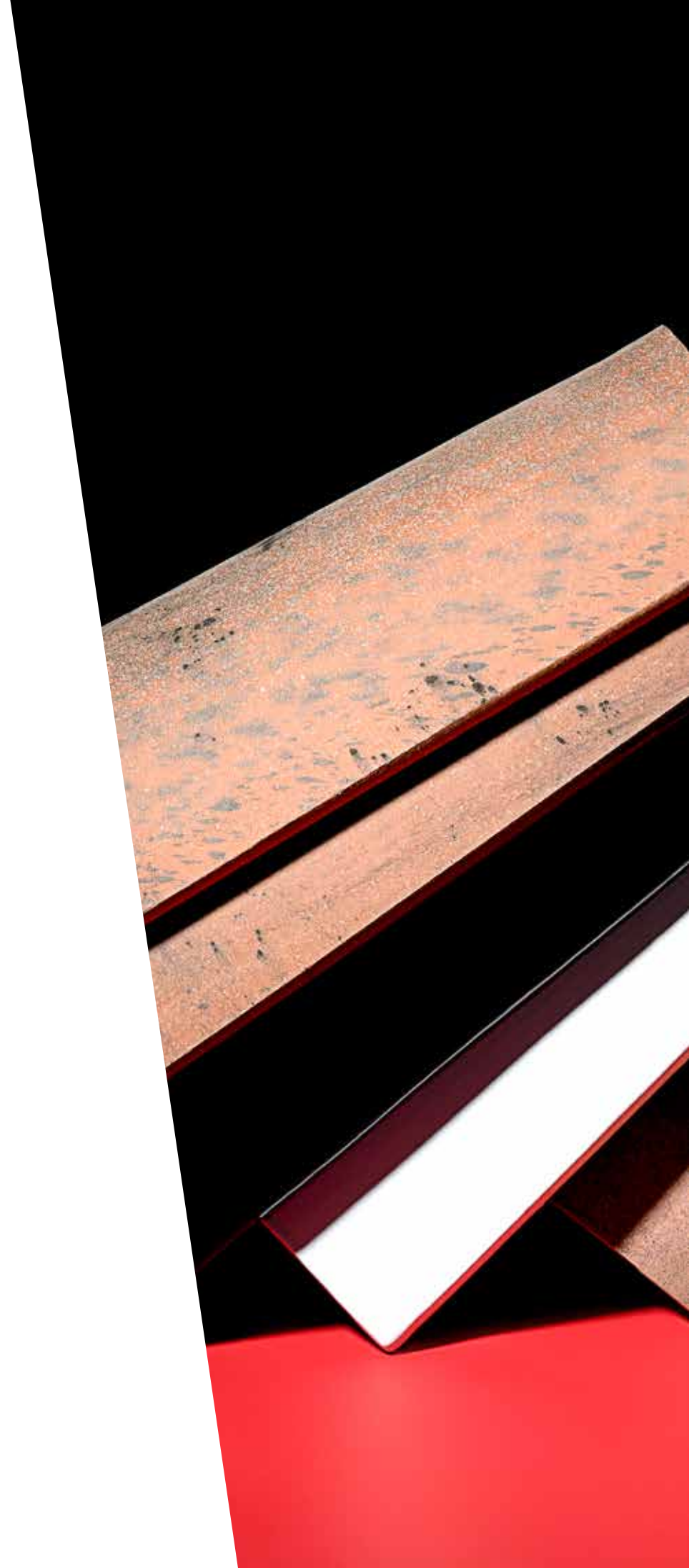


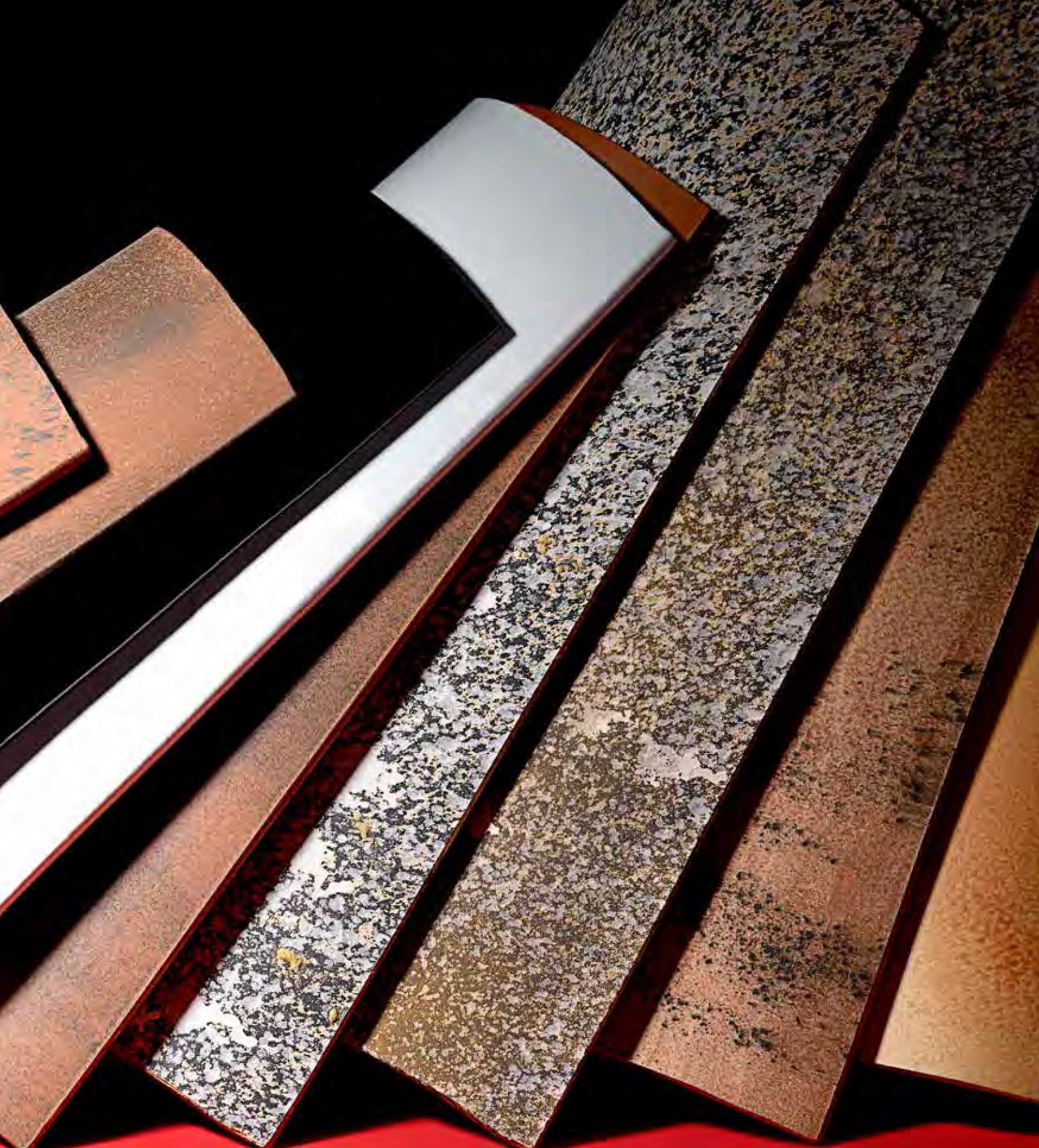
THE COMPANY

THE ROOF TILES

ROOF COMPONENTS

PROJECTS & RESTORATION

INFORMATION



tejasborja.com

Know How

Quality, innovation and service.

True to its values, Tejas Borja is the leading company in the production and international distribution of ceramic roof tiles.

A CENTURY AROUND TILES

Five generations have lent their support to the tradition of a family with a passion for something unique, age-old and timeless: roof tiles. We have been sourcing our clay from the finest quarries in the Mediterranean since 1899. The age-old essence of our roof tiles is the guarantee and experience of a unique brand in the market.

Specialists

The difference is in the people.

Tejas Borja meets all the needs of roofing professionals. Architects, restorers and designers. Our products and services are highly demanded by builders, installers and distributors.

THE DIFFERENCE

Ongoing investment in R+D+i, together with innovation, is part of our philosophy. Tejas Borja is an example to follow in the use of avant-garde technology and the automation of the tile production process. Which, together with the laboratories on our own premises and the implementation of computerised inspections throughout the production process, ensure quality of a standard that sets our roof tiles and accessories apart from those of competitors.

Export

Roof tiles on 5 continents.

Tejas Borja is the leading exporter of ceramic roof tiles in Spain. The guarantee of our brand can be found carried on roofs in more than 65 countries.

INTERNATIONAL AGREEMENTS

We are pioneers in the export of ceramic roof tiles in Spain. Our growth strategy is based on the consolidation of long-term relationships with our customers. We grow through collaboration with our clients and distributors in countries around the world. Today, 4 out of 10 Spanish roof tiles sold overseas are made by Tejas Borja.

100% roof tiles

Accessibility and professional advice.

As a benchmark in the sector, Tejas Borja offers a complete service that meets all of our clients' needs.

MUCH MORE THAN ROOF TILES

Own showrooms. Presence at international exhibitions, congresses and events. Showrooms at selling points. Collaboration with universities. Specialist training courses. Product research and development studies. Seminars for professionals.

The Roof Tiles

EXTREM-KER®
PERFECT TECHNOLOGY
Since 2010

FLAT roof tiles

Latest EXTREM-KER® roof tile

Made in Spain

Flat roof tiles combines all the primary manufacturing standards required by Tejas Borja: a cutting-edge design, latest technology, quality, experience and know-how".

RIAI

The Royal Institute of
the Architects of Ireland

Architect choice awards 2014.
Best exterior building product.

FLAT10 FLAT12

BEST EXTERIOR BUILDING PRODUCT

Awarded by the Royal Institute of Irish Architects (RIAI- Dublin).

(Architecture Expo Show 2014)

Flat Lugo Slate Roof Tiles

PROJECT BY FONT ARQUITECTURA E INTERIORISMO
FAMILY HOUSE (CASTELLÓN)

EXTREM-KER®
PERFECT TECHNOLOGY
Since 2010

WHAT IS EXTREM-KER®?

MAXIMUM FLATNESS
A perfect flat roof tile with no deformations.

VERY LOW WATER ABSORPTION RATE (< 3%)
Tested to stand extreme climatic conditions.

LIGHTNESS
Guarantees a lighter, thinner and resistant roof.

UNALTERABLE COLORS

HIGH RESISTANCE

CE
AENOR Producto Certificado
ES
MIAMI-DADE COUNTY
UKAS TESTING 0013
CSIRO Australia
ATL OF SOUTH FLORIDA American Test Lab of South Florida
Perfectly watertight Moby Dick II tested (CTMNC - Paris)

Check quality approvals at www.tejasborja.com

AVANT-GARDE TECNOLOGY IN AN EXTREM-KER® ROOF TILE

This large format roof tile is not only durable, but offers new and attractive design options for all styles of house construction.

Leon

PROJECT BY ARQ. LUISA MARÍA LÓPEZ PÉREZ
FAMILY HOUSE (GALICIA)

FLAT10
Technical Information

Size	451 mm x 287 mm
Minimum pitch	35% - 19º (*)
Weight	3,70 kg/unit
Units / sq. m.	11-10 tiles
Useful width	255 mm
Useful length VARIABLE	350 mm - 380 mm

AENOR Producto Certificado

UKAS TESTING 0013

CE

CSIRO Australia

ES

ATI OF SOUTH FLORIDA American Test Lab of South Florida

MIAMI-DADE COUNTY

Perfectly watertight Moby Dick II tested (CTMNC - Paris)

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site. Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.

(*) In zone 1 (protected area), arranged in staggered formation with waterproof laminate and batten distance of 350 mm on a skirt of up to 6.5 m. Moby Dick II test (CTMNC - Paris)

Check pitch pannel according to the roof length and the location.

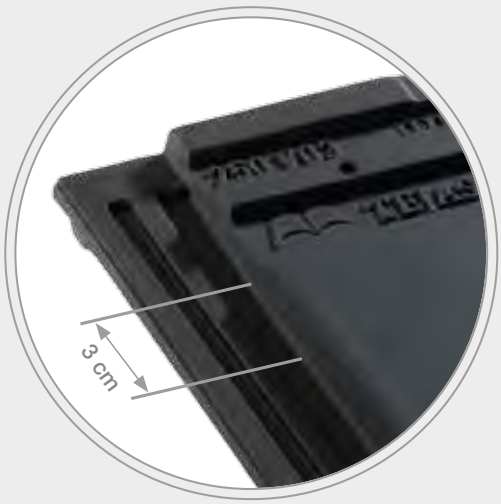
Flat 10 Leon roof tile

FAMILY HOUSE (UK)

ADVANTAGES

1

Large format: 10 u/sq.m.
3 cm adjustable length.
Batten distance adjustable from 350 mm to 380 mm.



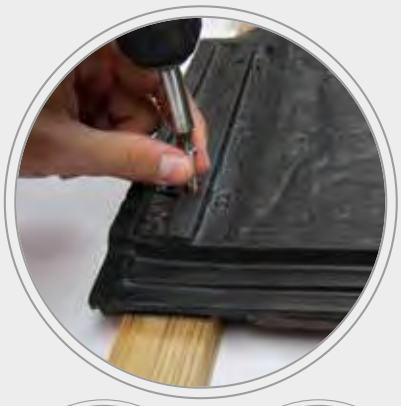
2

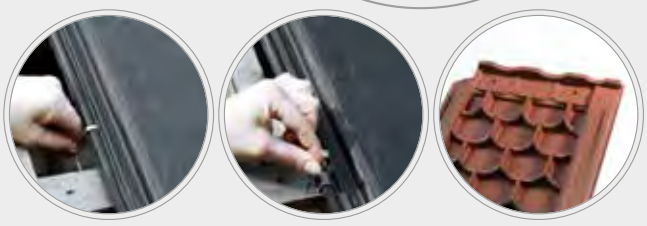
Perfectly watertight:
Deep double interlock (side and lineal).

Perfectly watertight
Moby Dick II tested
(CTMNC - Paris)

3

Ideal for dry installation:
Installation available with clips and a pre-holed continuous holding gap.

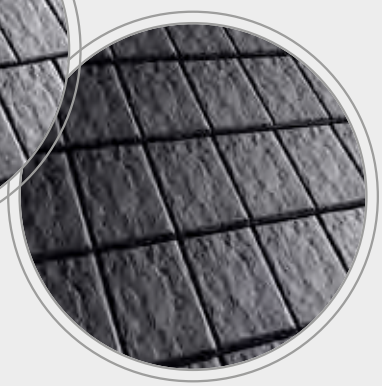




4

Installation options:
Cross-bond or continuous.

Cross-bond



Continuous

FLAT12
Technical Information

Size	397 mm x 267 mm
Minimum pitch	42% - 22,5º (*)
Weight	2,85 kg/unit
Units / sq. m.	12 tiles
Useful width	245 mm
Useful length (batten distance)	330 mm

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site. Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.

(*) Total waterproof of the entire roof surface is required for any pitch.

Check pitch pannel according to the roof length and the location.

0013

American Test Lab of South Florida

Flat 12 Galicia Grey roof tile

RESIDENTIAL DEVELOPMENT (SOUTH KOREA)
* *installation done on a waterproofed roof surface.

ADVANTAGES

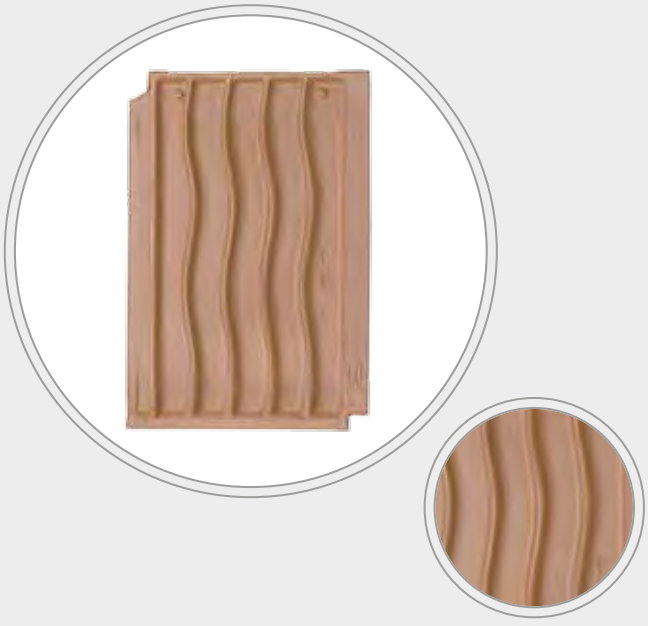
1

EXTREM-KER®
PERFECT TECHNOLOGY
Since 2010

Water absortion: < 3 %
High Strength
Flatness: Maximum

2

High resistance. Wavy ribs.



3

Light weight, 34.2 Kg./sq.m.

Transport optimization

FLAT roof tiles
Colours

Originally designed as an alternative to the natural slate, two format Flat roof tiles are presented in 6 unalterable colours: timelessly attractive and durable.

FLAT roof tiles an ideal option for all styles of house construction.


Rioja Red


Asturias Brown


Lugo Slate


Navarra Grey

TEXTURED


Leon


Galicia Grey

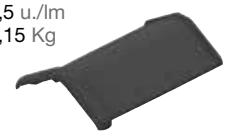
Check colour availability by roof tiles.

Flat Leon roof tile

HOUSE (MADRID)
* Roof tiles fitted on a waterproofed roof surface.

FLAT roof tiles
Accessories

2,5 u./lm
3,15 Kg



Angular Ridge
42 l 31 w 9,7 h

2,83 Kg

Angular Hip Starter
42,2 l 29,3 w 10 h

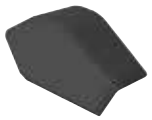
4,37 Kg

Angular 3 Ways
45,2 l 29,3 w 10 h

6,50 Kg

Angular 4 Ways
46 l 41,5 w 16,5 h

2,65 Kg



Universal Straight End Cap
8,5 l 28,5 w 12,5 h

3 u./lm
2,80 Kg

Bretagna 2 Ridge
(Lugo Slate - Leon)
36,2 l 25,1 w 12,5 h

3,45 Kg

Bretagna 2 Ridge
(Lugo Slate - Leon)
42,8 l 25 w 12,5 h

2,40 Kg

Bretagna 2 Straight End Cap
(Lugo Slate - Leon)
6 l 25 w 27 h

2,22 u./lm
4,15 Kg

Angular 100° Ridge
(Lugo Slate - Leon)
48 l 25,5 w 12,5 h

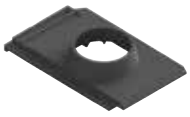
3,30 Kg

Angular 100° Hip Starter
(Lugo Slate - Leon)
38 l 25,5 w 12 h

1,75 Kg

Angular 100° Straight End Cap
(Lugo Slate - Leon)
28,5 l 27,5 w 6,5 h

4,10 Kg

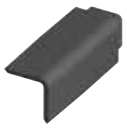


Flat 10 Chimney Carrier
45 l 28,7 w 7,8 h

2,6-3 u./lm
2,50 Kg

Flat Straight Edges(Left/Right)
40,4 l 12,4 w 12,4 h

2,5 u./lm *(On monopitch)*
3 Kg

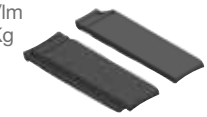


Universal Angular Edge
43 l 14,5 w 14,5 h

1,3-1,4 u./lm
1,5-2 Kg

Half Flat 10 Roof Tile
(Left/Right)
45 l 13/16 w 3 h

1,5 u./lm
1,45 Kg



Half Flat 12 Roof Tile
(Left/Right)
39,6 l 13,5 w 2,5 h

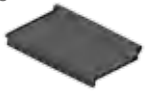
3,70 Kg

Flat 10 Ventilation
45 l 28,7 w 7,5 h

3,90 Kg

Flat 12 Ventilation
39,7 l 26,5 w 7,8 h

4 u./lm
1,27 Kg



Flat 12 Starter Roof Tile
17 l 26,5 w 2,6 h

1,70 Kg

Universal Ventilation Cap
24,5 Øext 22 Øint 6 h

Dimensions in cm.
Check colours availability for accessories.

Flat 10 Leon roof tile

WOODEN HOUSE (MADRID)

TECHNICAL INFORMATION FLAT ROOF TILES

		FLAT10	FLAT12
Dimensions		451mm x 287mm	397mm x 267mm
Minimum pitch	35% - 19º (*)	42% - 22,5º	42% - 22,5º
Weight		3,70 kg/unit	2,85 kg/unit
Useful length (batten distance)	350 mm	380 mm	330 mm
Useful width		255 mm	245 mm
Lateral overlap		32 mm	22 mm
Head overlap	101 mm	71 mm	67 mm
Units per sq. m.	11,0 tiles	10,0 tiles	12,0 tiles
Weight per sq. m.	40,7 Kg	37,0 Kg	34,2 Kg
Units per ml eave line		4 tiles	5 tiles
Roof Tiles per pallet		240 units / 785 units	264 units / 766 units
Waterproofing	Waterproof membrane	Breathable membrane	Waterproof membrane for any pitch
Battens per sq. m	2,86	2,63	3,30

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site.
(*) In zone 1 (protected area), arranged in staggered formation with waterproof membrane and batten distance of 350 mm on a roof deck of up to 6.5 m. Moby Dick II test (CTMNC - Paris)

WHY DRY INSTALLATION?

Dry installation has significant advantages over conventional installation, as well as improving the performance of the roof during both summer and winter.

To ensure that the roof is installed correctly, air must circulate continuously in the space under the roof tiles. This micro-ventilation will allow air to enter via the eave lines and leave through the ridge lines, increasing through the use of ventilation roof tiles distributed along the roof.

During the summer this air chamber will reduce the amount of heat received by the support for the roof tile and, therefore, the heat transferred into the building, reducing air conditioning costs. In winter, indoor ventilation will prevent condensation from forming on the materials used to build up the roof (roof tiles, insulation, support, etc.), as they harm their durability. Furthermore, this condensation can affect the comfort of the building, producing moisture that is conducive to the formation of moss and bacteria that reduce the quality of the air inside.

With regards fittings, the use of mortar is not recommended due to its poor reaction with ceramics and the rigidity of joints. Roof tiles should be fixed mechanically or with adhesives made specifically for roof tiles, since these give the materials the necessary room to allow for the movements caused by expansion and changes in temperature.

ROOF SLOPES

Each roof must be planned taking into account where it should be built and the length of the deck, in accordance with the technical standards applicable in each territory. It is for this reason that for each area and location, must take into account of the minimum slopes for installation and the roof length.

Pitch panel according to the roof length and the location.
(according to UNE - 136020)

Location	Roof length up to 6.5 m	Roof length from 6.5 to 9 m	Roof length from 9 to 12 m
Protected	42% - 22,5º	50% - 26,5º	55% - 29º
Normal	50% - 26,5º	55% - 29º	65% - 33%
Exposed	65% - 33%	75% - 37º	85% - 40,5º

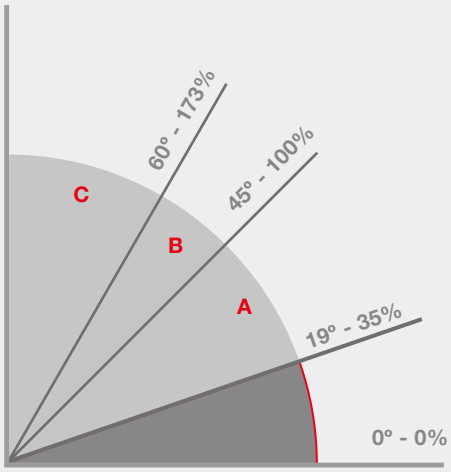
Use the breathable/waterproof membrane on the support.
A special study should be carried out for roof length more than 12m in length (ask us).

FITTING

Roof tiles on the roof surface must be fixed to the support to a greater or lesser extent, depending on the pitch. In the case of singular points such as eave lines, edges, hip lines, valleys, joints and the ridge line, all roof tiles and accessories of these joints must be fixed to the battens.

We recommend that all roof tiles that form the perimeter of each skirt be fixed mechanically.

Batten type:	Metallic
	Treated wood
Dry installation:	Self-drilling stainless screws or nails (depending on the support)
	Other clips and brakets available (upon enquire)



Less than 35% - Not recommended.

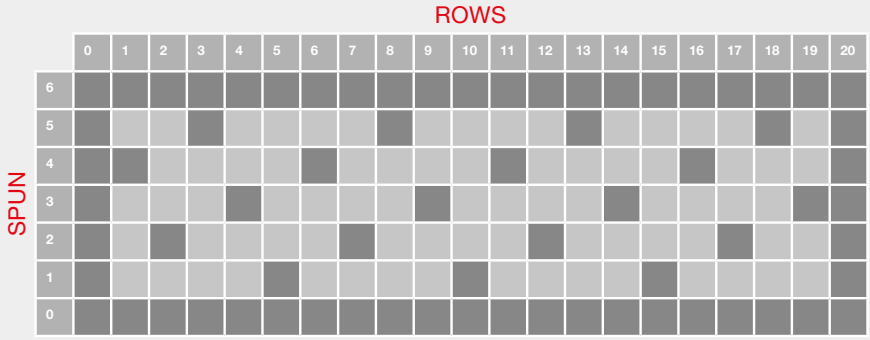
FLAT10

A 35% - 100% The roof tiles will rest on battens, since they are provided with nib support.

B 100%-173% All the roof tiles around the perimeter of each roof surface must be fixed and at least one in every five should be fixed in a regular manner.

C > 173% In areas with strong winds, exposed areas or areas with basic seismic acceleration of > 0.12g, all roof tiles should be fixed mechanically to the battens.

Esquema de Fitting NIVEL B



FLAT12

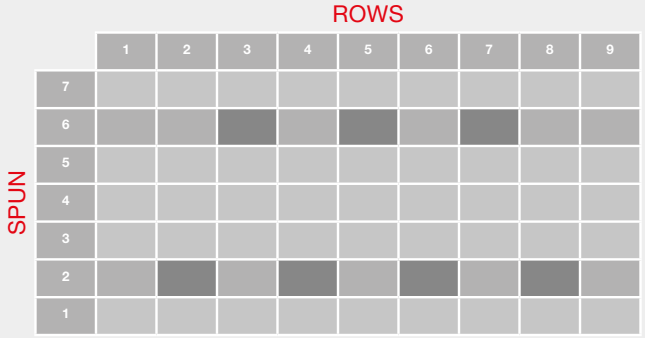
All roof tiles must be fixed mechanically to the battens at all times.

VENTILATION

Under-tile ventilation is necessary at all times. This will guarantee the durability of the material used to build the roof with their optimal characteristics, improving the hygrothermal performance of the roof tiles against the moisture resulting from condensation.

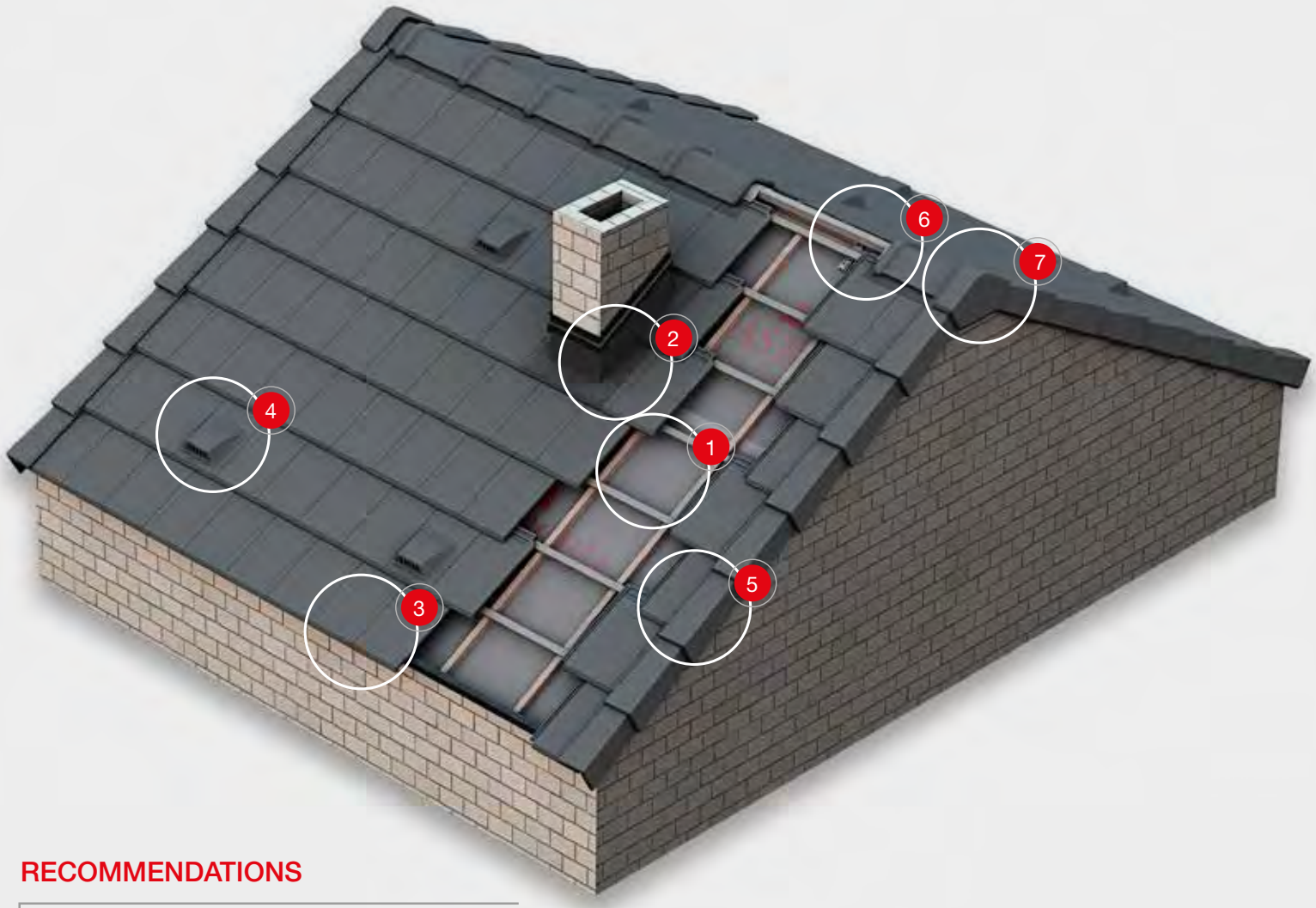
There must be a continuous air flow between eave lines and ridge line. To this end, a space must be left between the roof tiles and the support. As a result, eave lines, ridge lines and singular points must never be filled in with mortar, as this will impede micro-ventilation.

Ventilation roof tiles will also be installed in a uniform manner across the surface of the roof. In case of dry installation, it is recommended that at least 1 ventilation roof tile be used every 10 sq.m. and 4 ventilation roof tiles per the roof surface.



Example case of distribution of ventilation roof tiles on a 7m x 9m rectangular roof surface (63 sq. m.)

FITTING INSTRUCTIONS FLAT ROOF TILES

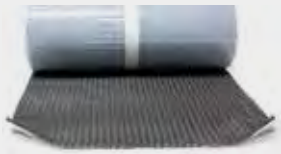


RECOMMENDATIONS

To ensure their optimal installation, Flat Roof Tiles should be fixed to a support previously prepared with a double batten layout.

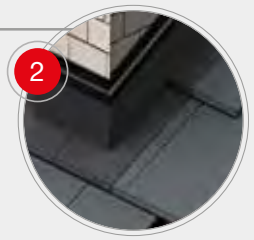
A breathable waterproof membrane should be laid on the support of the roof and the main battens (L1) should be installed every 50/70 cm, parallel to the steepest slope. The horizontal support battens (L2) for the roof tiles should be fixed to the main battens depending on the useful length of each roof tile (the useful length must be calculated on site).

Waterproof and breathing membrane

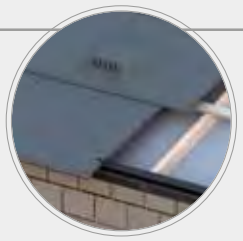


Multi-use PREMIUM

To adequately solve roof joints and chimneys, multi-use (Premium or Aluminium) waterproofing bands should be used. Once attached to the clean dry surface, they must then be finished with the Counter flashing profile, sealing the upper line with a continuous line of putty.



See more ROOF COMPONENTS on page 92 or at www.tejasborja.com



To prevent birds from entering the roof and allow ventilation, Eave ventilation comb should be installed.

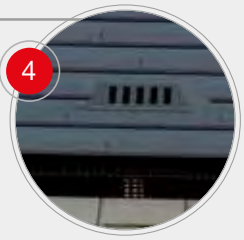
The first batten to be installed on the eaves must be 2 cm taller that the others. To achieve this effect, a taller batten or a Eave Ventilation Comb Profile, which combines both products, can be installed in this area.

Flat roof tiles are installed from right to left, and from the eave to the ridge line. The first row of roof tiles have variable overhanging, depending on the model and installation.

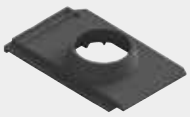
Bird stop grate

Eaves comb profile

Ventilation roof tiles are installed in the same manner as other roof tiles, interlocking into each other laterally and from the top. These roof tiles should be distributed along the roof surface in acordance with the function and type of installation.



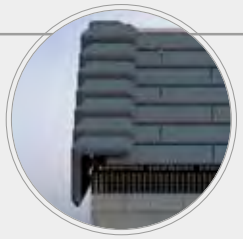
Flat 10 Ventilation



Flat 10 Chimney Carrier

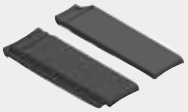
Universal Ventilation Cap

Flat 12 Ventilation

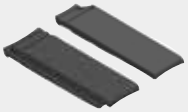


Edges clay accessory (left and right) should be installed overlapping the roof tiles and following the direction of the tile. To complete the slope on the left it should be placed on the roof tile or half-tile, depending on the width of the roof surface and method of installation (straight or in staggered formation).

Flat Straight Edges



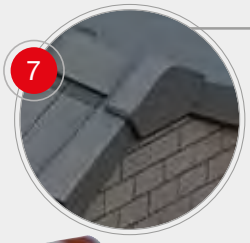
Half Flat 10 Roof Tiles

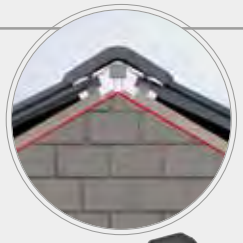


Half Flat 12 Roof Tiles

Soporte rastrel caballete

The batten installed on the ridge line should be attached to the Cantilevel supports. To install the battens, they must be installed to the Cantilevel support at the required pitch and height so that the ridges are directly supported on the roof tiles in the last row.





The Under ridge roll tape (mixed, aluminium or Roof ridge pvc vent brush) should be placed on the ridge batten and fixed with clips or nails. The rolls have adhesive strips of butyl to attach to the profile of the roof tiles and waterproof joints. Finally, the Ridges and End Caps clay accessory should be installed with screws/nails and ridge clips.

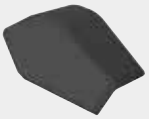
Under ridge mixed roll

Angular Ridge

Angular Hip Starter

Angular 3 Ways

Angular 4 Ways



Universal Straight End Cap

See more ROOF COMPONENTS on page 92 or at www.tejasborja.com

S-INTERLOCKING roof tiles

The safest option

Practical and easy to install

We offer three formats that combine curved profiles.

Thanks to more advanced production processes and the quality of clay used by Tejas Borja, our S-Interlocking roof tiles are the best solution for roof protection.

TB-4® TB-12® TB-10

THE WORLD'S BEST-SELLING ROOF TILES

Courtesy of their aesthetic and architectural versatility, S-Interlocking roof tiles are the most commonly used across all five continents.

S-Interlocking roof tiles

RESIDENTIAL DEVELOPMENT (TAIWAN)

Trade model

TB-4® Quattro®
Technical Information

Size	442 mm x 258 mm
Minimum pitch	30% - 17º (*)
Weight	3,40 kg/unit
Units / sq. m.	12,8 tiles
Useful width	205 mm
Useful length (batten distance)	370 mm

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site.
A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.
Type: Double lateral overlapping and double Lengthinal overlapping. Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
(*) Check pitch pannel according to the roof length and the geographical area.

TB-4 Quattro® Vilaterra®
RESIDENTIAL HOUSE (ALGERIA)

ADVANTAGES

1

Maximum fixing play. Adaptable to rounded areas. Free lateral interlocking. Curved roof tile aesthetic eect of 50 tiles per sq. m.

2

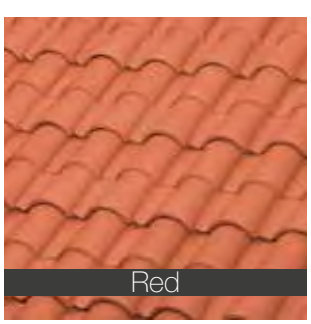
High resistance.
Back ribs reinforcement.

3

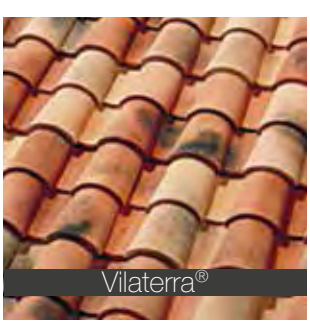
Stability.
Level fixing with double nib support.

TB-4 Quattro®
Colours

NATURE


Red


Fosca


Vilaterra®

TB-4 Quattro® Red

TOWNHOUSE (PANAMA)

TB-12®
Technical Information

Size	439 mm x 260 mm
Minimum pitch	30% - 17° (*)
Weight	3,15 kg/unit
Units / sq. m.	12,8 tiles
Useful width	205 mm
Useful length (batten distance)	370 / 380 mm

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site. A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.
Type: Double lateral overlapping and double Lengthinal overlapping. Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
The certified characteristics for the NF Terracotta tiles are : Structural faults, the geometric characteristics , resistance to flexural strength , impermeability , frost resistance for all products made with red mixture. AFNOR Certification / 11 rue Francis de Pressensé / 93571 LA PLAINE / SAINT-DENIS CEDEX / www.marque-nf.com
(*) Check pitch pannel according to the roof length and the geographical area.

TB-12® Red

ADVANTAGES

1

The best seller roof tile in the market.
Over half a million houses worldwide.

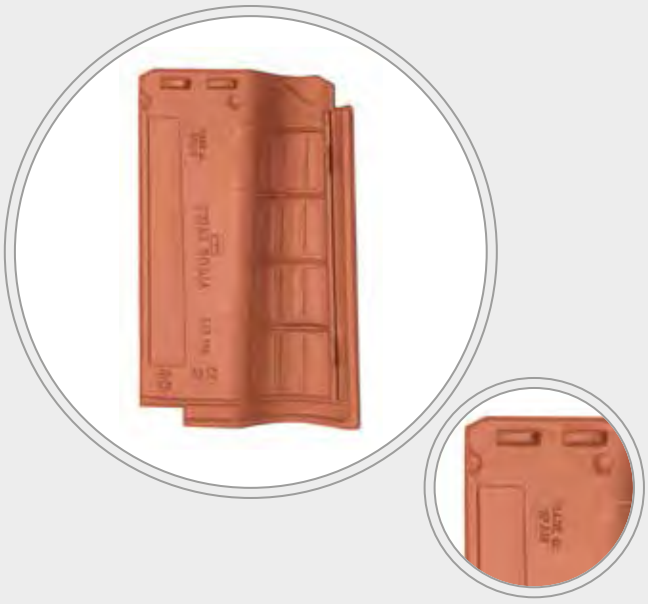
500 thousand houses

2

Multiple discontinuous interlocks designed for watertight assembly.

3

Perfect alignment, level fixing to the structure with double nib support.



4

High resistance thanks to the reinforcement ribs back.

TB-12®
Colours

CENTENARIA®


Ground


Mediterrània®

NATURE


Red


Aged Red


Fosca

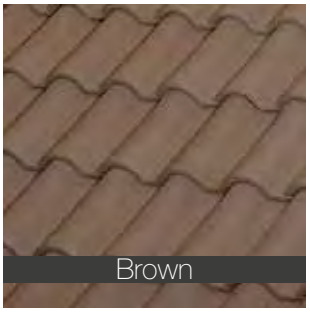

Manoir®


Vilavella®


Rosarena®


Lamalou®


Bidasoa®


Brown


Castilla


Black

TB-12® Centenaria® Ground

RESORT (SOUTH KOREA)

TB-10
Technical Information

Size	470 mm x 294 mm
Minimum pitch	30% - 17º (*)
Weight	4,10 kg/unit
Units / sq. m.	10,8 tiles
Useful width	230 mm
Useful length (batten distance)	385 mm

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site. A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.

Type: Double lateral overlapping and double Lengthinal overlapping. Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.

The certified characteristics for the NF Terracotta tiles are : Structural faults, the geometric characteristics , resistance to flexural strength , impermeability , frost resistance for all products made with red mixture. AFNOR Certification / 11 rue Francis de Pressensé / 93571 LA PLAINE / SAINT-DENIS CEDEX / www.marque-nf.com

(*) Check pitch pannel according to the roof length and the geographical area.

TB-10 Lamalou®

ADVANTAGES

1

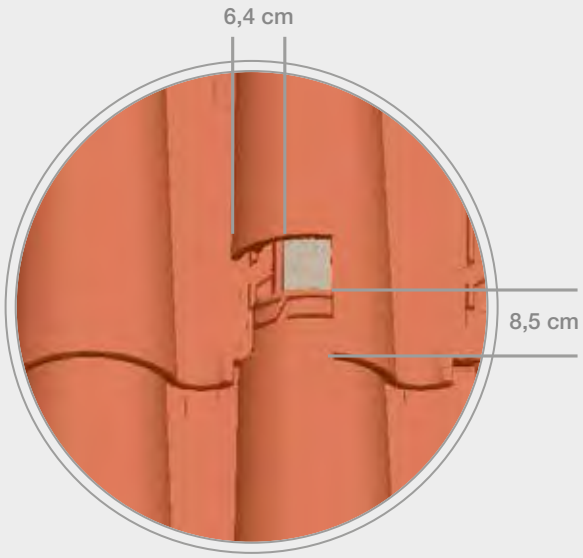
Perfect imitation of curved roof tile.

2

Maximum stability,
with double nib support.

3

Maximum Lengthinal
and transversal overlap.



4

Compatible with s-type profile layers.

TB-10
Colours

CENTENARIA®


Ground


Sand

NATURE


Red


Fosca


Manoir®


Vilavella®


Edetania®


Lamalou®

TB-10 Centenaria® Ground

RESORT (SOUTH KOREA)

S-INTERLOCKING roof tiles
Accessories

2,50 u./lm
2,85 Kg

Circular Ridge
43 l 23 w 9 h

2,95 Kg

Circular Hip Starter
43 l 20 w 8,5 h

4,20 Kg

Circular 3 Ways
37,5 l 23 w 9,5 h

4,50 Kg

Circular 4 Ways
38,5 l 44,5 w 13,5 h

2,40 Kg

Universal Circular Straight End Cap
7,5 l 24,5 w 27,9 h

2,80 Kg

Universal Circular Curved End Cap
17,5 l 26,7 w 27 h

2,50 u./lm
3,50 Kg

Cover+ Ridge
44,5 l 28,5 w 10,5 h

3,20 Kg

Cover+ Hip Starter
43,5 l 23 w 8,5 h

3,10 Kg

Cover+ 3 Ways
32,5 l 42,5 w 14,5 h

4,00 Kg

Cover+ 4 Ways
40,5 l 40,5 w 14 h

2,00 Kg

Universal Cover+ Straight End Cap
6,5 l 27 w 31 h

2,25 Kg

Universal Cover+ Straight End Cap
14,7 l 27,5 w 29,5 h

5,00 u./lm (on monopitch)
0,80 Kg

Universal Cover+ Straight End Cap
24 l 12,2 w 5,6 h

2,50 u./lm
3,00 Kg

Universal Straight Edge (Left/Right)
47 l 9 w 17 h

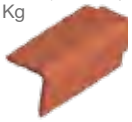
2,50 u./lm
3,25 Kg

Universal Curved Edge (Left/Right)
47 l 18,7 w 16 h

2,50 u./lm
2,55 Kg

TB-4® Curved Edge (Left/Right)
43 l 13,5 w 14 h

2,50 u./lm *(On monopitch)*
3,00 Kg



Universal Angular Edge
43 l 14,5 w 14,5 h

2,5 u./lm
1,83 Kg

Half TB-4® Roof Tile
44 l 15,5 w 6 h

5 u./lm
1,83 Kg

TB-4® Cover Decocurva®
44 l 15,5 w 6 h

5 u./lm
2,30 Kg

One Half TB-4®
25 l 26 w 6 h

5 u./lm
1,80 Kg

Half TB-12® Roof Tile
44 l 16 w 6,5 h

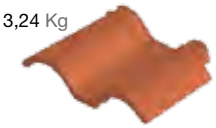
2,50 u./lm
4,50 Kg

TB-12® Tile and a Half
43,6 l 36 w 7 h

5,00 u./lm
2,20 Kg

2/3 TB-12®
30,5 l 26,5 w 7 h

3,24 Kg

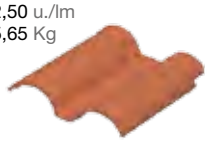


2/3 Tile and a Half TB-12®
30 l 36,2 w 7 h

2,50 u./lm
2,50 Kg

Half TB-10 Roof Tile
47,5 l 19,2 w 9,5 h

2,50 u./lm
5,65 Kg



TB-10 Tile and a Half
47 l 43 w 7,5 h

5,00 u./lm
3,00 Kg

2/3 TB-10
33,5 l 29,5 w 7 h

3,50 Kg

TB-4® Ventilation
43,5 l 26 w 10 h

3,20 Kg

TB-12® Ventilation
44 l 26 w 7 h

4,10 Kg

TB-10 Ventilation
47,5 l 29,5 w 8,5 h

4 Kg

TB-4® Chimney Carrier
43,5 l 26 w 18 h 16 D 13 d

4,15 Kg

TB-12® Chimney Carrier
43,5 l 25,5 w 11 h 16 D 13 d

4,40 Kg

TB-10 Chimney Carrier
47 l 29,5 w 12 h 18,5 D 16 d

2,15 Kg

130 Universal Chimney
20,4 D 18 d 23,5 h

2,35 Kg

140 TB-10 Chimney
22,5 D 20 d 23,5 h

1,70 Kg

Universal Ventilation Cap
24,5 D 22 d 6 h

5 u./lm
0,60 Kg

Universal Eave Closure
13,8 l 7,1 w 6,8 h

5 u./lm
1 Kg

One Half TB-4® Cover Decocurva®
25 l 16 w 5,5 h

5,00 u./lm
2,60 Kg

TB-4® Cover Decocurva®
46 l 16 w 6 h

5,00 u./lm
2,00 Kg

TB-12® Cover Decocurva®
37 l 17 w 7 h

5,00 u./lm
2,50 Kg

TB-12® Pan Decocurva®
47 l 16 w 7 h

5,00 u./lm
2,50 Kg

TB-10 Cover Decocurva®
47 l 19,5 w 9,5 h

5,00 u./lm
2,60 Kg

TB-10 Pan Decocurva®
49,5 l 15 w 7 h

Dimensions in cm.
Check colours availability for accessories.

TB-10 Manoir®

RESIDENTIAL DEVELOPMENT (TAIWAN)

TECHNICAL INFORMATION S-INTERLOCKING ROOF TILES

	TB-4®	TB-12®	TB-10
Dimensions	442 mm x 258 mm	439 mm x 260 mm	470 mm x 294 mm
Weight	3,40 kg/unit	3,15 kg/unit	4,10 kg/unit
Useful length (batten distance)	370 mm	370 / 380 mm	385 mm
Useful width	205 mm	205 mm	230 mm
Lateral overlap	55 mm	55 mm	64 mm
Head overlap	69 mm	69 / 59 mm	85 mm
Units per sq. m.	12,8 tiles	12,8 tiles	10,8 tiles
Weight per sq. m	44 Kg	40 Kg	44 Kg
Units per ml eave line	5,0 tiles	5,0 tiles	5,0 tiles
Roof Tiles per pallet	120 / 180 / 240 units	240 / 248 units	174 units
Waterproofing	Waterproof membrane	Waterproof membrane	Waterproof membrane
Battens per sq. m.	2.7	2.7	2.6

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site. A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.
Type: Double lateral overlapping and double Lengthinal overlapping. Installation must comply with the Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
(*) Check pitch panel according to the roof length and the geographical area.

WHY DRY INSTALLATION?

Dry installation has significant advantages over conventional installation, as well as improving the performance of the roof during both summer and winter.

To ensure that the roof is installed correctly, air must circulate continuously in the space under the roof tiles. This micro-ventilation will allow air to enter via the eave lines and leave through the ridge lines, increasing through the use of ventilation roof tiles distributed along the roof.

During the summer this air chamber will reduce the amount of heat received by the support for the roof tile and, therefore, the heat transferred into the building, reducing air conditioning costs. In winter, indoor ventilation will prevent condensation from forming on the materials used to build up the roof (roof tiles, insulation, support, etc.), as they harm their durability. Furthermore, this condensation can affect the comfort of the building, producing moisture that is conducive to the formation of moss and bacteria that reduce the quality of the air inside.

With regards fittings, the use of mortar is not recommended due to its poor reaction with ceramics and the rigidity of joints. Roof tiles should be fixed mechanically or with adhesives made specifically for roof tiles, since these give the materials the necessary room to allow for the movements caused by expansion and changes in temperature.

ROOF SLOPES

Each roof must be planned taking into account where it should be built and the length of the deck, in accordance with the technical standards applicable in each territory. It is for this reason that for each area and location, must take into account of the minimum slopes for installation and the roof length.

Pitch panel according to the roof length and the location. (according to UNE - 136020)

	Location	Roof length up to 6.5 m	Roof length from 6.5 to 9 m	Roof length from 9 to 12 m
Zone 1	Protected	25% - 14º	26% - 15º	27% - 15,5º
	Normal	25% - 14º	28% - 16º	32% - 18º
	Exposed	33% - 18,5º	35% - 19,5º	42% - 23º
Zone 2	Protected	25% - 14º	28% - 16º	30% - 17º
	Normal	27% - 15,5º	32% - 18º	35% - 19,5º
	Exposed	37% - 20,5º	39% - 21,5º	45% - 24,5º
Zone 2	Protected	27% - 15,5º	30% - 17º	35% - 19,5º
	Normal	30% - 17º	36% - 20º	40% - 22º
	Exposed	40% - 22º	43% - 23,5º	50% - 26,5

Use the breathable/waterproof membrane on the support.
A special study should be carried out for roof length more than 12m in length (ask us).

FITTING

Roof tiles on the roof surface must be fixed to the support to a greater or lesser extent, depending on the pitch. In the case of singular points such as eave lines, edges, hip lines, valleys, joints and the ridge line, all roof tiles and accessories of these joints must be fixed to the battens.

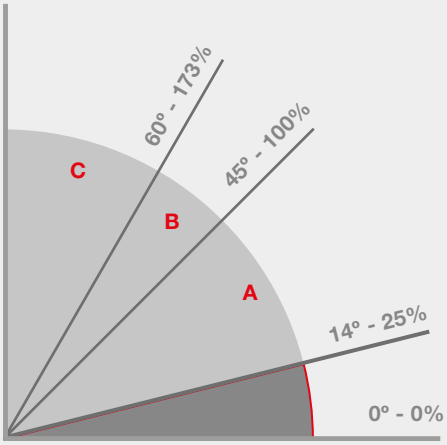
We recommend that all roof tiles that form the perimeter of each skirt be fixed mechanically.

Batten type:	Metallic
	Treated wood
Dry installation:	Self-drilling stainless screws or nails (depending on the support)

A 25% - 100% The roof tiles will rest on battens, since they are provided with nib support.

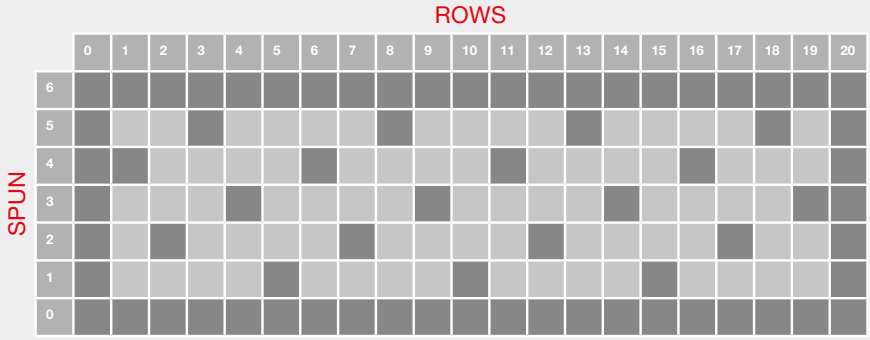
B 100%-173% All the roof tiles around the perimeter of each roof surface must be fixed and at least one in every five should be fixed in a regular manner.

C > 173% In areas with strong winds, exposed areas or areas with basic seismic acceleration of > 0.12g, all roof tiles should be fixed mechanically to the battens.

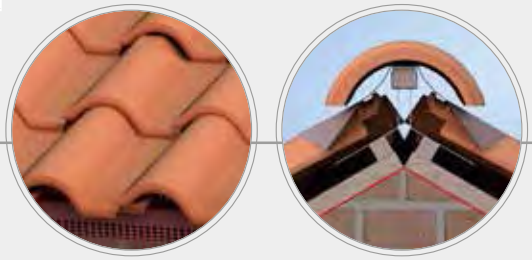


Less than 25% - Not recommended

Fitting system LEVEL B



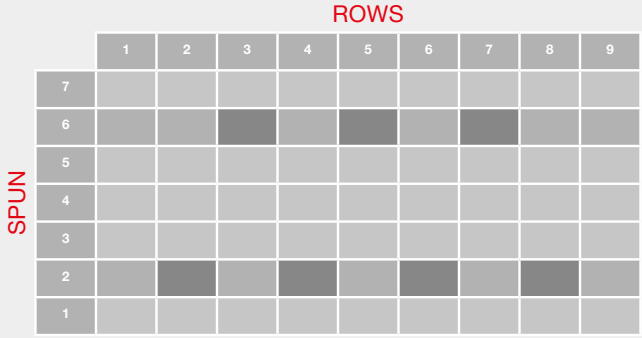
VENTILATION



Under-tile ventilation is necessary at all times. This will guarantee the durability of the material used to build the roof with their optimal characteristics, improving the hygrothermal performance of the roof tiles against the moisture resulting from condensation.

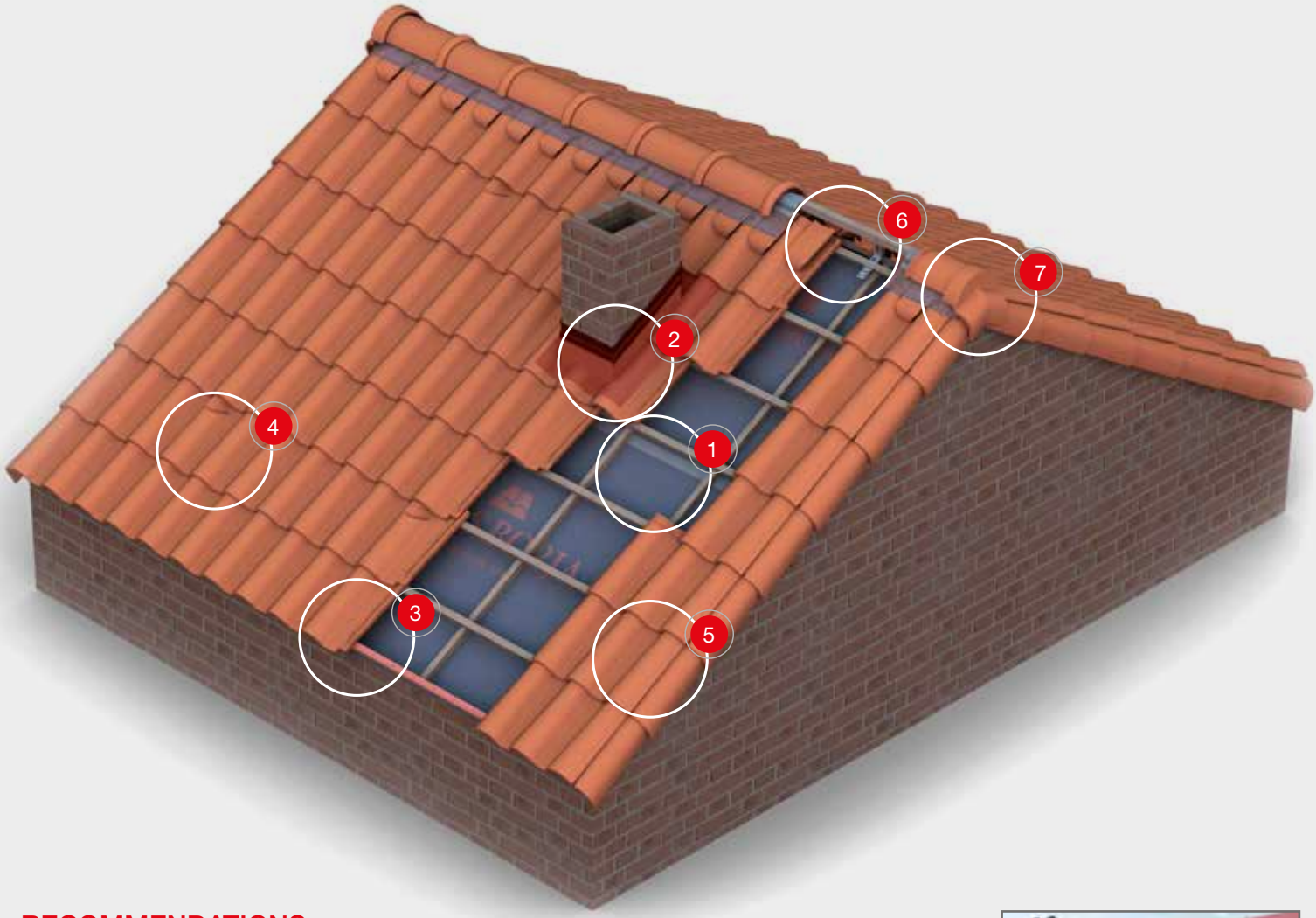
There must be a continuous air flow between eave lines and ridge line. To this end, a space must be left between the roof tiles and the support. As a result, eave lines, ridge lines and singular points must never be filled in with mortar, as this will impede micro-ventilation.

Ventilation roof tiles will also be installed in a uniform manner across the surface of the roof. In case of dry installation, it is recommended that at least 1 ventilation roof tile be used every 10 sq.m. and 4 ventilation roof tiles per the roof surface.



Example case of distribution of ventilation roof tiles on a 7m x 9m rectangular roof surface (63 sq.m.)

FITTING INSTRUCTIONS S-INTERLOCKING ROOF TILES



RECOMMENDATIONS

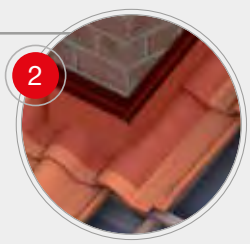
To ensure their optimal installation, S-Interlocking roof tiles should be fixed to a support previously prepared with a double batten layout.
For more information on the dry installation of S-Interlocking roof tiles, watch the explanatory video at www.tejasborja.com

A breathable waterproof membrane should be laid on the support of the roof and the main battens (L1) should be installed every 50/70 cm, parallel to the steepest slope. The horizontal support battens (L2) for the roof tiles should be fixed to the main battens depending on the useful length of each roof tile (the useful length must be calculated on site).

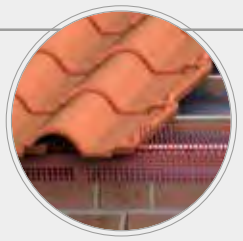
Waterproof and breathing membrane

Multi-use PREMIUM

To adequately solve roof joints and chimneys, multi-use (Premium or Aluminium) waterproofing bands should be used. Once attached to the clean dry surface, they must then be finished with the Counter flashing profile, sealing the upper line with a continuous line of putty.



See more ROOF COMPONENTS on page 92 or at www.tejasborja.com

To prevent birds from entering the roof and allow ventilation, Eave ventilation comb or Eave Closure (clay accessory) should be installed.

The first batten to be installed on the eaves must be 2 cm taller that the others. To achieve this effect, a taller batten or a Eave Ventilation Comb Profile, which combines both products, can be installed in this area.

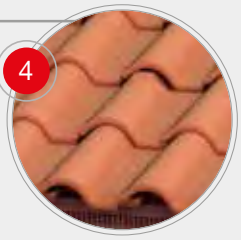
S-Interlocking roof tiles are installed from left to right, and from the eave to the ridge line. The first row of roof tiles have variable overhanging, depending on the model and installation.


Universal Eave Closure


Bird stop grate


Eaves comb profile

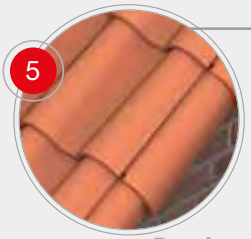
Ventilation roof tiles are installed in the same manner as other roof tiles, interlocking into each other laterally and from the top. These roof tiles should be distributed along the roof surface in acordance with the function and type of installation.




TB-12® Ventilation

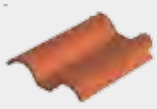

TB-10 Ventilation


TB-4® Quattro® Ventilation




Edges clay accessory (left and right) should be installed under the roof tiles and following the direction of the tile. To complete the slope on the left it should be placed on the roof tile or half-tile, depending on the width of the roof surface.

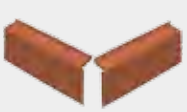

Half TB-12® Roof Tile

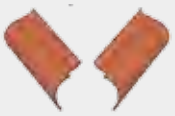

TB-12® Tile and a Half


Half TB-10 Roof Tile


TB-10 Tile and a Half


Half TB-4 Quattro® Roof Tile


Universal Straight Edges


Universal Curved Edges


TB-4® Quatro® Curved Edges


Cantilever support


Universal Under Ridge

The batten installed on the ridge line should be attached to the Cantilevel supports. To install the battens, they must be installed to the Cantilevel support at the required pitch and height so that the ridges are directly supported on the roof tiles in the last row and the Universal Under Ridge (clay accessory).


The Under ridge roll tape (mixed, aluminium or Roof ridge pvc vent brush) should be placed on the ridge batten and fixed with clips or nails. The rolls have adhesive strips of butyl to attach to the profile of the roof tiles and waterproof joints. Finally, the Ridges and End Caps clay accessory should be installed with screws/nails and ridge clips.


Circular Ridge


Circular Hip Starter


Circular 3 Ways


Circular 4 Ways


Universal Circular Straight End Cap


Universal Circular Curved End Cap

Also available Cover+ clay accessories.

PLANA ALICANTINA

A classic roof tile profile

The most versatile roof tile

This was the first mechanical roof tile available on the domestic market.

At Tejas Borja, we have been producing this type of roof tile for more than three generations.

It is designed with two curved channels to allow water drainage.

FROM TRADITION TO AVANT-GARDE IN CERAMIC ROOF TILES

A format that remains elegant and stylish over the years. These roof tiles are used at all latitudes and in the most diverse of climate conditions.

Plana Alicantina Red

RESORT (CONAKRY)

PLANA ALICANTINA

Technical Information

Size	430 mm x 252 mm
Minimum pitch	40% - 22° (*)
Weight	3,15 kg/unit
Units / sq. m.	12,3 tiles
Useful width	215 mm
Useful length (batten distance)	370 mm

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site.
A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.
Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
(*) Check pitch pannel according to the roof length and the location.

ADVANTAGES

1

First pressed roof tile
in the market.

2

Roof tile profile and colours range that assists
renovation and roofing restoration.

3

Strapped packages.
Easy handling on deck.

PLANA ALICANTINA
Colours

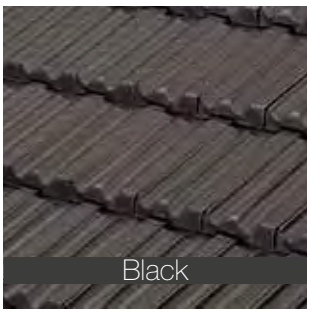
NATURE


Red


Fosca


Litoral


Nortegna


Black

Plana Alicantina Litoral

RESTORATION OF CHURCH MARE DE DEU DEL ROSER (BARCELONA)

PLANA ALICANTINA
Accessories

2,50 u./lm
3,15 Kg

Angular Ridge
42 l 31 w 9,7 h

2,83 Kg

Angular Hip Starter
42,2 l 29,3 w 10 h

4,37 Kg

Angular 3 Ways
45,1 l 47,5 w 13,8 h

6,50 Kg

Angular 4 Ways
46 l 41,5 w 16,5 h

2,65 Kg

Universal Straight
End Cap
8,5 l 28,5 w 12,5 h

2,50 u./lm *(On monopitch)*
3,00 Kg

Universal Angular Edge
43 l 14,5 w 14,5 h

1,25 u./lm
1,80 Kg

Half Plana Alicantina
Roof Tile (Left/Right)
43 l 15 w 4,5 h

3,70 Kg

Plana Alicantina Ventilation
43 l 25,5 w 9 h

4,00 Kg

Plana Alicantina
Chimney Carrier
43 l 25,5 w 12 h 15,5 D 13,5 d

2,15 Kg

130 Universal Chimney
20,4 D 18 d 23,5 h

1,70 Kg

Universal Ventilation Cap
24,5 D 22 d 6 h

Dimensions in cm.
Check colours availability for accessories.

Plana Alicantina Black

COUNTRY HOUSE (ARAGON)

TECHNICAL INFORMATION PLANA ALICANTINA

PLANA ALICANTINA

Size	430 mm x 252 mm
Weight	3,15 kg/unit
Useful length (batten distance)	370 mm
Useful width	215 mm
Lateral overlap	60 mm
Head overlap	37 mm
Units per sq. m.	12,3 tiles
Weight per sq. m.	39 Kg
Units per ml eave line	5,0 tiles
Roof Tiles per pallet	140 / 210 / 280 units
Waterproofing	Waterproof membrane
Battens per sq. m.	2,7

Approximate values: If the roof tiles are installed on battens, the useful length must be calculated on site.
A tolerance of ± 2% is allowed on the dimensions of the roof tiles according to UNE - EN 1024.

WHY DRY INSTALLATION?

Dry installation has significant advantages over conventional installation, as well as improving the performance of the roof during both summer and winter.

To ensure that the roof is installed correctly, air must circulate continuously in the space under the roof tiles. This micro-ventilation will allow air to enter via the eave lines and leave through the ridge lines, increasing through the use of ventilation roof tiles distributed along the roof.

During the summer this air chamber will reduce the amount of heat received by the support for the roof tile and, therefore, the heat transferred into the building, reducing air conditioning costs. In winter, indoor ventilation will prevent condensation from forming on the materials used to build up the roof (roof tiles, insulation, support, etc.), as they harm their durability. Furthermore, this condensation can affect the comfort of the building, producing moisture that is conducive to the formation of moss and bacteria that reduce the quality of the air inside.

With regards fittings, the use of mortar is not recommended due to its poor reaction with ceramics and the rigidity of joints. Roof tiles should be fixed mechanically or with adhesives made specifically for roof tiles, since these give the materials the necessary room to allow for the movements caused by expansion and changes in temperature.

ROOF SLOPES

Each roof must be planned taking into account where it should be built and the length of the deck, in accordance with the technical standards applicable in each territory. It is for this reason that for each area and location, must take into account of the minimum slopes for installation and the roof length.

Pitch panel according to the roof length and the location. (according to UNE - 136020)

Location	Roof length up to 6.5 m	Roof length from 6.5 to 9 m	Roof length from 9 to 12 m
Protected	35% - 19,5º	40% - 22º	50% - 26,5
Normal	40% - 22º	50% - 26,5º	60% - 31º
Exposed	60% - 31º	70% - 35º	80% - 39º

Use the breathable/waterproof membrane on the support.
A special study should be carried out for roof length more than 12m in length (ask us).

FITTING

Roof tiles on the roof surface must be fixed to the support to a greater or lesser extent, depending on the pitch. In the case of singular points such as eave lines, edges, hip lines, valleys, joints and the ridge line, all roof tiles and accessories of these joints must be fixed to the battens.

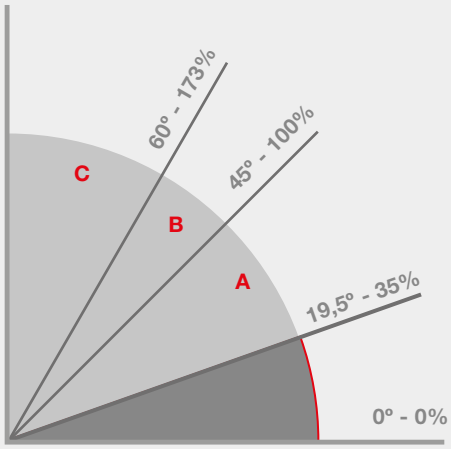
We recommend that all roof tiles that form the perimeter of each skirt be fixed mechanically.

Batten type:	Metallic
	Treated wood
Dry installation:	Self-drilling stainless screws or nails (depending on the support)

A 35% - 100% The roof tiles will rest on battens, since they are provided with nib support.

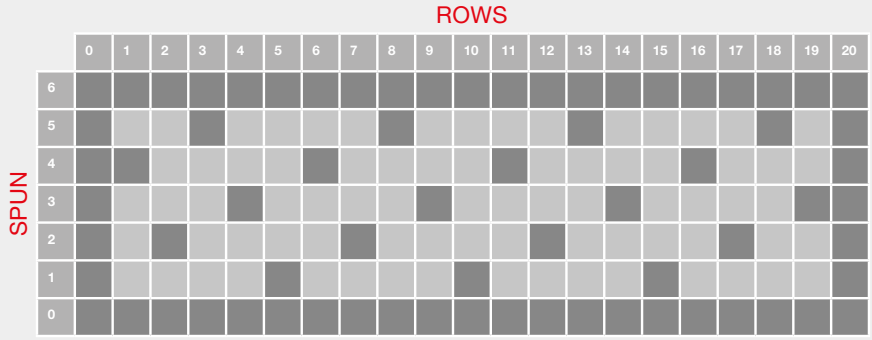
B 100%-173% All the roof tiles around the perimeter of each roof surface must be fixed and at least one in every five should be fixed in a regular manner.

C > 173% In areas with strong winds, exposed areas or areas with basic seismic acceleration of > 0.12g, all roof tiles should be fixed mechanically to the battens.

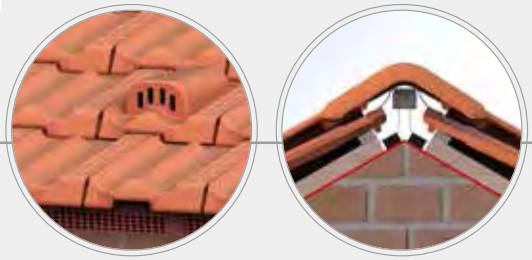


Less than 35% - Not recommended

Fitting system LEVEL B



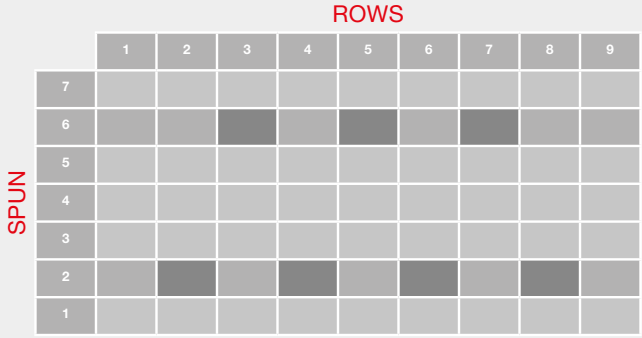
VENTILATION



Under-tile ventilation is necessary at all times. This will guarantee the durability of the material used to build the roof with their optimal characteristics, improving the hygrothermal performance of the roof tiles against the moisture resulting from condensation.

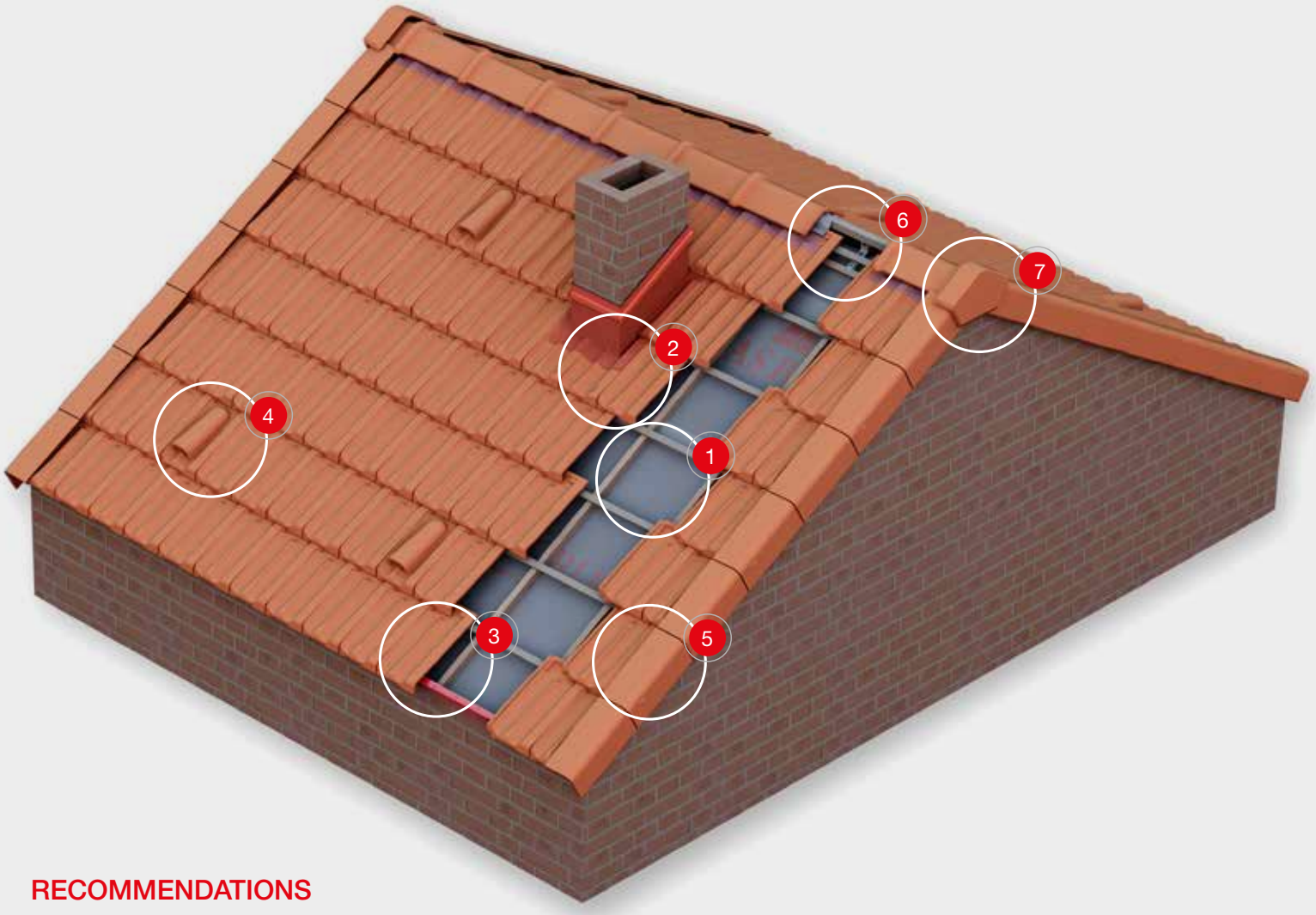
There must be a continuous air flow between eave lines and ridge line. To this end, a space must be left between the roof tiles and the support. As a result, eave lines, ridge lines and singular points must never be filled in with mortar, as this will impede micro-ventilation.

Ventilation roof tiles will also be installed in a uniform manner across the surface of the roof. In case of dry installation, it is recommended that at least 1 ventilation roof tile be used every 10 sq.m. and 4 ventilation roof tiles per the roof surface.



Example case of distribution of ventilation roof tiles on a 7m x 9m rectangular roof surface (63 sq. m.)

FITTING INSTRUCTIONS PLANA ALICANTINA ROOF TILES



RECOMMENDATIONS

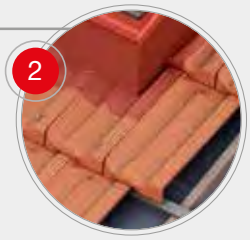
To ensure their optimal installation, Plana Alicantina Roof Tiles should be fixed to a support previously prepared with a double batten layout.

A breathable waterproof membrane should be laid on the support of the roof and the main battens (L1) should be installed every 50/70 cm, parallel to the steepest slope. The horizontal support battens (L2) for the roof tiles should be fixed to the main battens depending on the useful length of each roof tile (the useful length must be calculated on site).

Waterproof and breathing membrane

Multi-use PREMIUM

To adequately solve roof joints and chimneys, multi-use (Premium or Aluminium) waterproofing bands should be used. Once attached to the clean dry surface, they must then be finished with the Counter flashing profile, sealing the upper line with a continuous line of putty.



See more ROOF COMPONENTS on page 92 or at www.tejasborja.com

To prevent birds from entering the roof and allow ventilation, Eave ventilation comb should be installed.

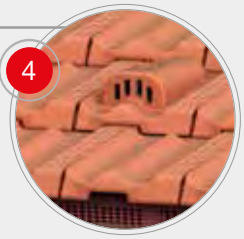
The first batten to be installed on the eaves must be 2 cm taller that the others. To achieve this effect, a taller batten or a Eave Ventilation Comb Profile, which combines both products, can be installed in this area.

Plana Alicantina roof tiles are installed from right to left, always in staggered formation and from the eave to the ridge line. The first row of roof tiles have variable overhanging.

Bird stop grate

Eave Ventilation Comb

Ventilation roof tiles are installed in the same manner as other roof tiles, interlocking into each other laterally and from the top. These roof tiles should be distributed along the roof surface in acordance with the function and type of installation.

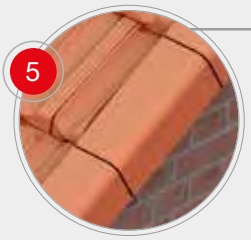


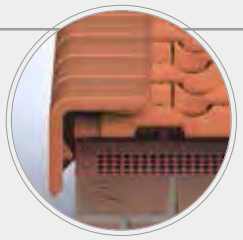
Plana Alicantina Ventilation

Plana Alicantina Chimney Carrier

130 Universal Chimney

Universal Ventilation Cap





Universal Angular Edges - clay accessory should be installed overlapping the roof tiles and half-tiles on the right and left sides.

Universal Angular Edge

Half Plana Alicantina Roof Tile (Left - Right)

Cantilever support

The batten installed on the ridge line should be attached to the Cantilevel supports. To install the battens, they must be installed to the Cantilevel support at the required pitch and height so that the ridges are directly supported on the roof tiles in the last row.

The Under ridge roll tape (mixed, aluminium or Roof ridge pvc vent brush) should be placed on the ridge batten and fixed with clips or nails. The rolls have adhesive strips of butyl to attach to the profile of the roof tiles and waterproof joints. Finally, the Ridges and End Caps clay accessory should be installed with screws/nails and ridge clips.

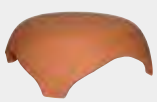
Under ridge mixed roll

Angular ridge

Universal Angular

Angular Hip Starter

Angular 3 Ways



Angular 4 Ways

Curved roof tiles

Tradition and quality

Made with avant-garde technology

Curved roof tiles are the classic material used on sloping roofs.

With this format, the same pieces are used to create the pans, covers and joints of the tile.

Produced via an extrusion process, they are available in a range of sizes and can be adapted to any construction purpose. Their design allows for different levels of overlap between roof tiles.

Celler® 50x21

Curved 40x19

Curved 45x20

Curved 40x15

THE VALUE OF TRADITION

A wide range of sizes, finishes and textures makes them suitable for any type of tiling and environment. This is the most widely-used tile format.

Curved Centenaria® Mediterrania® roof tile

PRIVATE VILLA (ELCHE)

Curved Roof Tiles Technical Information

Celler® 50x21

Size	500 mm x 210 mm / 170 mm
Weight	2,40 kg/unit
Units per sq.m.	18 tiles

Curved 45x20

Size	450 mm x 200 mm / 160 mm
Weight	1,85 kg/unit
Units per sq.m.	25 tiles

Curved 40x19

Size	408 mm x 180 mm / 140 mm
Weight	1,60 kg/unit
Units per sq.m.	30 tiles

Curved 40x15

Size	408 mm x 150 mm / 116 mm
Weight	1,35 kg/unit
Units per sq.m.	33 tiles

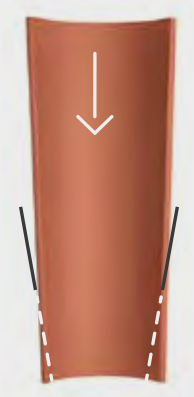
Approximate values: Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
Check quality approvals for each roof tile format at www.tejasborja.com

Centenaria® Ground

ADVANTAGES

1

Perfect installation without cuts.
Dimensional continuity.



2

High breakage resistance.

Maximum Lay-flatness**.**

3

Automatic strapped packaging.
Easy handling on deck.

Robotised

4

Rounded edges.

Curved roof tiles
Colours

CENTENARIA®

Ground
50x21 / 40x15 (sin textura)

Mediterrània®
50x21 (sin textura)

Sand
50x21 / 40x19 (sin textura)

NATURE

Red
50x21 / 45x20 / 40x19 / 40x15

Aged Red
40x19 / 40x15

Fosca
50x21 / 40x15

Manoir®
50x21

Vilavella®
50x21 / 40x19

Edetania®
50x21

Lamalou®
50x21

Red Musgo
45x20

Brown
50x21 / 40x15

Montseny
50x21

Curved Celler® 50x21 Red And Green Glazed

MODERN HOUSE RENOVATION (BARCELONA)

Step Celler® 50x21
Technical Information

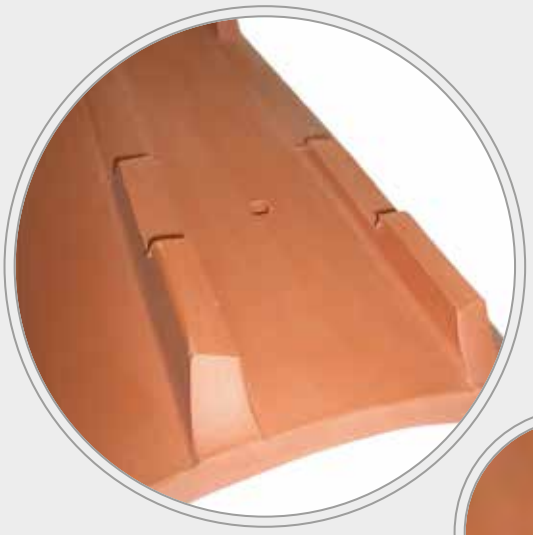
Size	500 mm x 205 mm / 165 mm
Minimum pitch	30% - 17°
Weight	2,50 kg/unit
Units / sq. m.	10 tiles
Useful length (batten distance)	330 mm

Approximate values: Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.

ADVANTAGES

1

Dry installation.
Pre-drilled hole.



Step Celler® 50x21
Colours


Red


Manoir®

Curved roof tiles
Accessories

2,80 Kg

Celler® 50x21 Hip Starter
50 l 17,5 w 7,5 h

2,70 Kg

Celler® 50x21 - 3 Ways
32,5 l 30,5 w 15 h

5,50 Kg

Celler® 50x21 - 4 Ways
40,5 l 37,5 w 15,5 h

5 u./lm (on monopitch)
0,80 Kg

Universal Cover+ Straight End Cap
24 l 12,2 w 5,6 h

3,20 Kg

Celler® 50x21 Chimney Carrier
50 l 21,5 / 17,5 w 18 h 16 D 12 d

2,60 Kg

Celler® 50x21 Ventilation
50 l 21 w 17,4 h

2,15 Kg

130 Universal Chimney
20,4 D 18 d 23,5 h

1,70 Kg

Universal Ventilation Cap
24,5 D 22 d 6 h

2,10 Kg

45x20 Ventilation
45,5 l 20 / 16 w

1,70 Kg

49x19 Ventilation [1]
40,5 l 18 / 14 w

1,70 Kg

40x15 Ventilation
40,5 l 15 a

1,35 Kg

Booster 40x15
40,5 l 15 w 7 Cutted lenght

5,5 u./lm (on monopitch)
0,62 Kg

45x20 Under Ridge
21,5 l 11,3 w 5,5 h

4 u./lm
0,90 Kg

Celler® 50x21 Eave Closure
27 l 9,7 w 11 h

Also compatible with Edges and Ridges from S-Interlocking roof tiles, page 46.

Dimensions in cm.
Check colours availability for accessories.

Curved Centenaria® Mediterrania® roof tile

FAMILY HOUSE (ALICANTE)

TECHNICAL INFORMATION CURVED ROOF TILES

	Celler® 50x21	Curved 45x20	Curved 40x19	Curved 40x15	Step Celler® 50x21
Size	500 mm x 210 mm / 170 mm	450 mm x 200 mm / 160 mm	408 mm x 180 mm / 140 mm	408 mm x 150 mm / 116 mm	500 mm x 205 mm / 165 mm
Weight	2,40 kg/unit	1,85 kg/unit	1,60 kg/unit	1,35 kg/unit	2,50 kg/unit
Units per sq. m.	18,0 tiles	25,0 tiles	30,0 tiles	33,0 tiles	10,0 tiles
Weight per sq. m.	43 Kg	46 Kg	48 Kg	45 Kg	25 Kg
Units per ml eave line	8,0 tiles	10,0 tiles	12,0 tiles	12,0 tiles	4,0 tiles
Units per lm ridge / lm edge	2,5 tiles	3,0 tiles	3,0 tiles	3,0 tiles	2,5 Tiles Celler 50x21
Roof Tiles per pallet	225 / 250 units - 200 units (Centenaria®)	275 / 550 units	312 / 360 / 624 / 720 units	364 / 728 units	160 units
Recommended support	Metallic or Treated wood Battens (*) Under-tile roof sheet	Under-tile roof sheet	Under-tile roof sheet	Under-tile roof sheet	Metallic or Treated wood Battens (*)
Dry installation using	Curved roof tile fixing clip	Curved roof tile fixing clip	Curved roof tile fixing clip	Curved roof tile fixing clip	Screws or nails (depending on the support)
Max.-min. overlap	190 mm - 80 mm	210 mm - 80 mm	170 mm - 80 mm	150 mm - 80 mm	170 mm - 80 mm

Approximate values: Installation must comply with Code of practice for the design and fixing of roofs with clay roofing tiles for the region and Tejas Borja specifications.
(*) Ideal dry Installation in for Celler® 50x21 and Step Celler® 50x21 roof tiles.

WHY DRY INSTALLATION?

Dry installation has significant advantages over conventional installation, as well as improving the performance of the roof during both summer and winter.

To ensure that the roof is installed correctly, air must circulate continuously in the space under the roof tiles. This micro-ventilation will allow air to enter via the eave lines and leave through the ridge lines, increasing through the use of ventilation roof tiles distributed along the roof.

During the summer this air chamber will reduce the amount of heat received by the support for the roof tile and, therefore, the heat transferred into the building, reducing air conditioning costs. In winter, indoor ventilation will prevent condensation from forming on the materials used to build up the roof (roof tiles, insulation, support, etc.), as they harm their durability. Furthermore, this condensation can affect the comfort of the building, producing moisture that is conducive to the formation of moss and bacteria that reduce the quality of the air inside.

With regards fittings, the use of mortar is not recommended due to its poor reaction with ceramics and the rigidity of joints. Roof tiles should be fixed mechanically or with adhesives made specifically for roof tiles, since these give the materials the necessary room to allow for the movements caused by expansion and changes in temperature.

ROOF SLOPES

Each roof must be planned taking into account where it should be built and the length of the deck, in accordance with the technical standards applicable in each territory. It is for this reason that for each area, must take into account of the minimum slopes for installation and minimum overlap.

Pitch panel according to the geographical area and minimum overlap. (according to UNE - 136020)

Zone 1	Pitch	26%-15º	28%-16º	30%-17º	32%-18º	34%-19º	36%-20º	38%-21º	40%-22º	42%-23º	44%-24º	> 46%-25º
	Overlap	15	14	13,5	13	12,5	12	11,5	11	10	10	7
Zone 2	Pitch	26%-15º	28%-16º	30%-17º	32%-18º	34% 19º	36%-20º	38%-21º	40%-22º	42%-23º	44%-24º	> 46%-25º
	Overlap	X	15	14,5	14	13,5	13	12,5	12	11	10	7
Zone 3	Pitch	26%-15º	28%-16º	30%-17º	32%-18º	34% 19º	36%-20º	38%-21º	40%-22º	42%-23º	44%-24º	> 46%-25º
	Overlap	X	X	X	15	14,5	14	13,5	13	12	11	7

Use the breathable/waterproof membrane on the support.
A special study should be carried out for roof length more than 12m in length (ask us).

FITTING

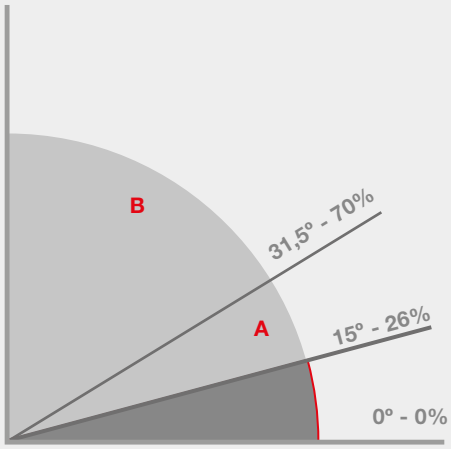
Roof tiles on the roof surface must be fixed to the support to a greater or lesser extent, depending on the pitch. In the case of singular points such as eave lines, edges, hip lines, valleys, joints and the ridge line, all roof tiles and accessories of these joints must be fixed to the battens.

We recommend that all roof tiles that form the perimeter of each skirt be fixed mechanically.

Batten type:	Metallic
	Treated wood
Dry installation:	Self-drilling stainless screws or nails (depending on the support)

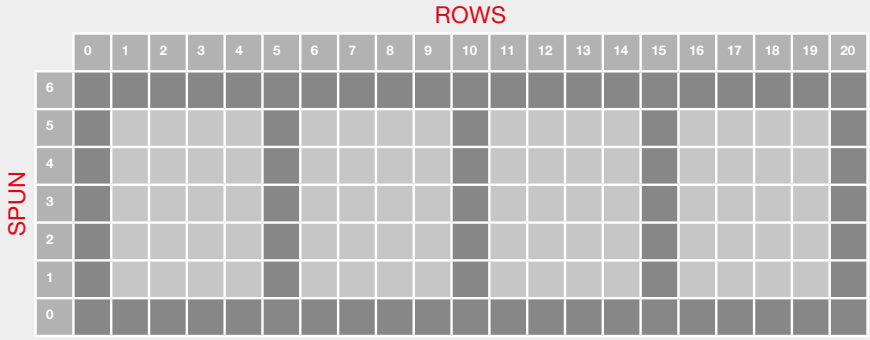
A 26%-70% All roof tiles in pan and cover position must be fixed that form every 5 rows.

B > 70% All pans and covers should be fixed mechanically.

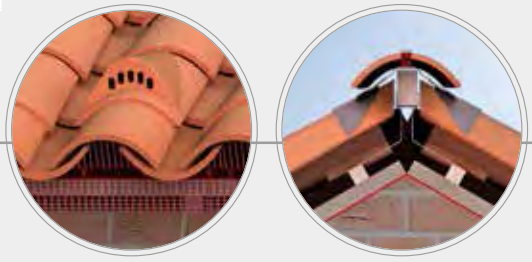


Less than 26% - Not recommended

Fitting system LEVEL A



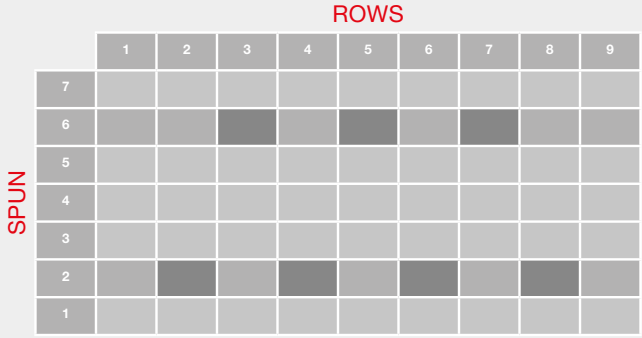
VENTILATION



Under-tile ventilation is necessary at all times. This will guarantee the durability of the material used to build the roof with their optimal characteristics, improving the hygrothermal performance of the roof tiles against the moisture resulting from condensation.

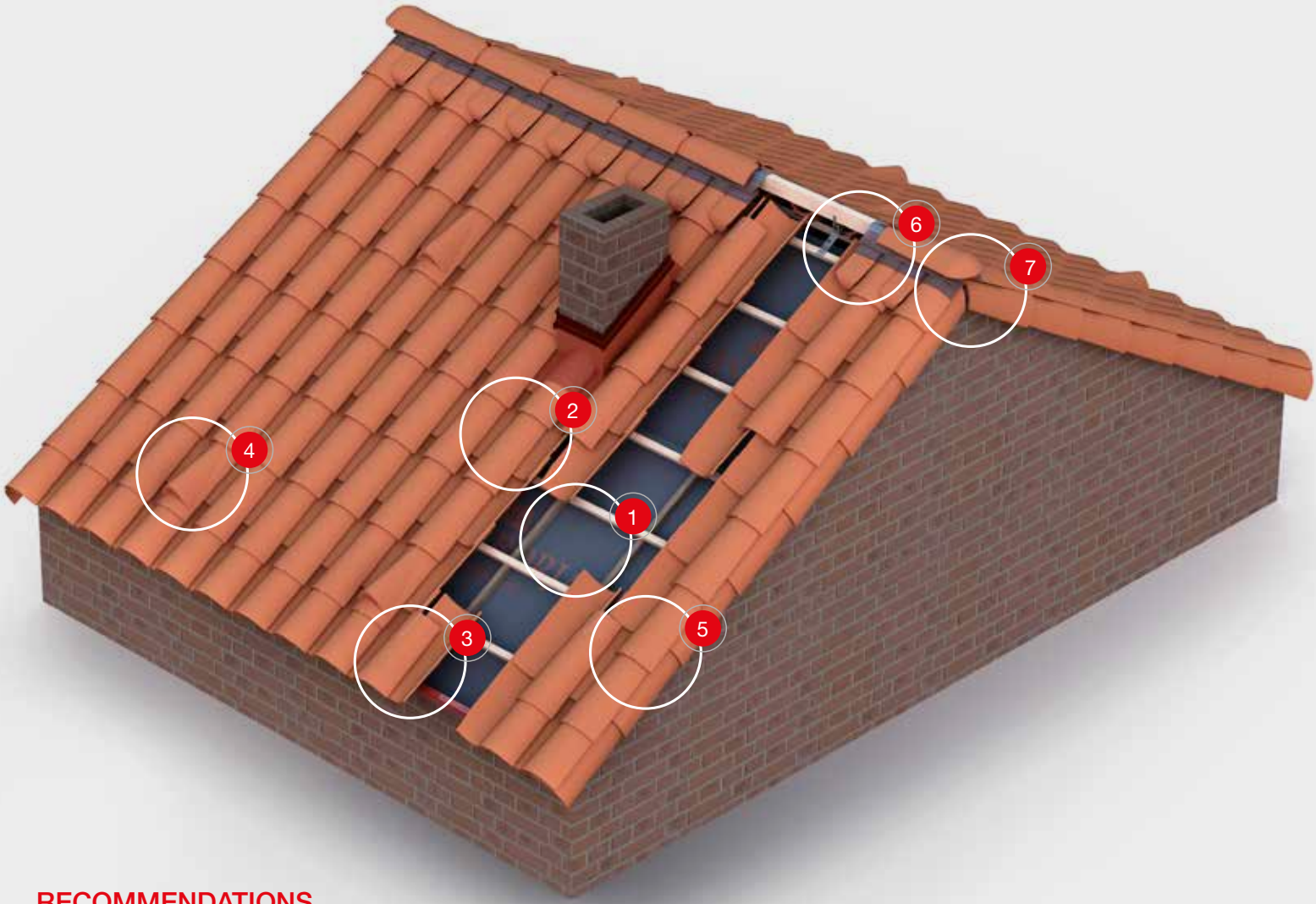
There must be a continuous air flow between eave lines and ridge line. To this end, a space must be left between the roof tiles and the support. As a result, eave lines, ridge lines and singular points must never be filled in with mortar, as this will impede micro-ventilation.

Ventilation roof tiles will also be installed in a uniform manner across the surface of the roof surface. In case of dry installation, it is recommended that at least 1 ventilation roof tile be used every 10 sq.m. and 4 ventilation roof tiles per the roof.



Example case of distribution of ventilation roof tiles on a 7m x 9m rectangular roof surface (63 sq. m.)

FITTINGS INSTRUCTIONS CURVED ROOF TILES



RECOMMENDATIONS

To ensure their optimal installation, Celler® 50x21 roof tiles should be installed using the Step Celler® 50x21 as a pan and should be fixed to a support previously prepared with a double batten layout. Curved roof tiles can also be dry installed on under-tile Corrugated bitumen sheet or Fiber cement sheets

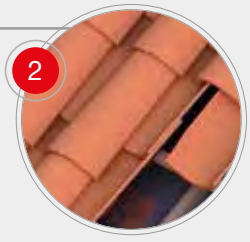
Double batten layout structure. Battens of at least 3cm in height. Primary battens (L1) are installed perpendicular to the steepest slope 50-70 cm apart and equally spaced out along the length of the roof surface. Secondary battens (L2) are installed distributing the roof tiles according to their useful length. The useful length must be calculated on site and depends on the location and the pitch of the roof (see the Code of practice for installation of roofs with clay roofing tiles applicable in each zone of application). The second L2 depends on the (flight) of the eave line and the useful length of each tile.

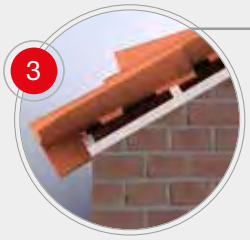
Structure with under-tile Corrugated bitumen sheet or Fiber cement sheets. Follow Guide for installation in force for these products.

Waterproof and breathing membrane

Curved roof tile fixing clip

For the dry installation of cover roof tiles, special clips should be used, so that the overlap remains constant on all rows of the roof surface. On steep slopes, it is also recommended that the joint also be secured with a spot of special foam for tiles.





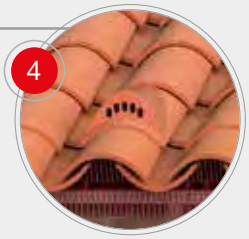

Curved roof tiles are installed starting with first row of tiles, ensuring that the distance between battens is constant and leaving a gap of 3-7cm for water to pass through on the pan roof tiles. The curved roof tiles should overhang more than 5cm. The overlap of the tiles should be determined according to the area and pitch of the roof.

Celler® 50x21 Eave Closure

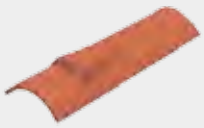
Bird stop grate

Eaves comb

Use ventilation roof tiles to increase the circulation of air underneath the tiles. Ventilation roof tiles are installed in accordance with the Code of practice for installation of roofs with clay roofing tiles.



Celler® 50x21 Ventilation



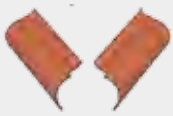
45x20 Ventilation

40x19 Ventilation

40x15 Ventilation

Edges clay accessories are installed so that they are always underneath the covers that form each side, and in the same direction as the pan curved roof tile.

Universal Straight Edge



Universal Curved Edge

The batten installed on the ridge line should be attached to the Cantilevel supports. To install the battens, they must be installed to the Cantilevel support at the required pitch and height so that the ridges are directly supported on the roof tiles in the last row and the Under Ridge (clay accessory).

Cantilever support

Universal Under Ridge

45x20 Under Ridge

The Under ridge roll tape (mixed, aluminium or Roof ridge pvc vent brush) should be placed on the ridge batten and fixed with clips or nails. The rolls have adhesive strips of butyl to attach to the profile of the roof tiles and waterproof joints. Finally, the Ridges and End Caps clay accessory should be installed with screws/ nails and ridge clips.

Under ridge mixed roll

Celler® 50x21 Hip Starter

Celler® 50x21 - 3 Ways

Celler® 50x21 - 4 Ways

Compatible with family of accessories of Circular Ridge and Cover + Ridge.

PRESSED CURVED ROOF TILE

A decorative roof tile, ideal for use in small areas.

Curved 25x12
Technical Information

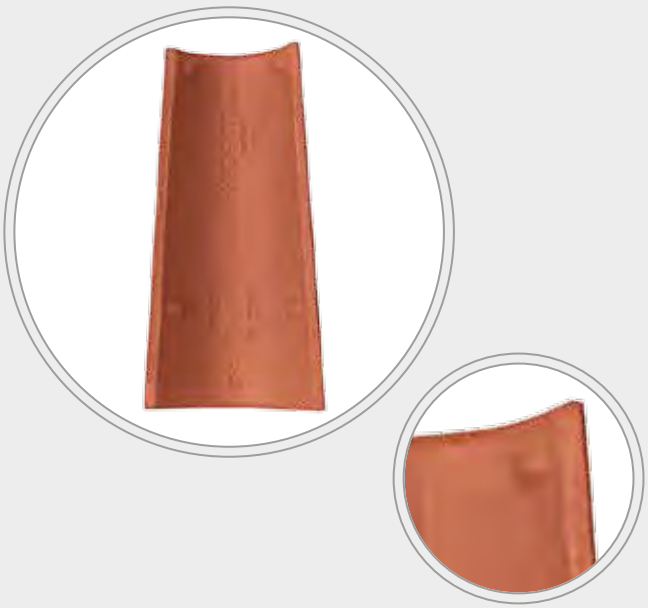
Size	250 mm x 120 mm / 95 mm
Weight	0.65 Kg
Units / sq. m.	70 tiles
Units per ml eave line	14 tiles
Units per lm ridge	5 tiles

Approximate values: Total waterproof of the entire roof surface is required for any pitch.
Note: 25x12 Curved roof tile is considered decorative accessory used to complement the roof. Therefore is Included in AENOR certificates of the main roof tile (see accessories).

ADVANTAGES

1

Excellent aesthetic finishing.
The only pressed curved roof tile in the market.



2

Packaged in boxes (42 units).
Transport optimization.

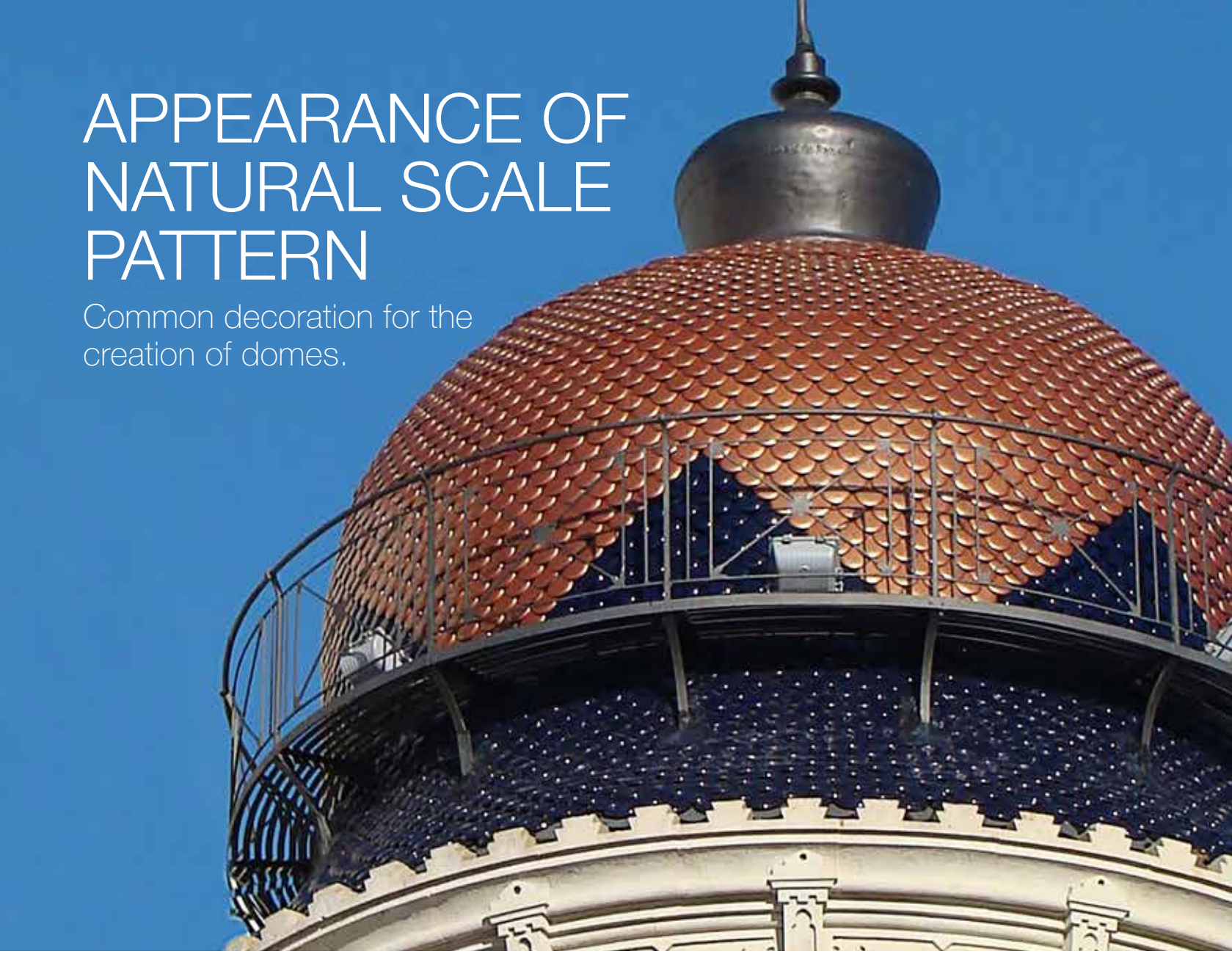
Curved 25x12
Colours


Red


Vilavella®

APPEARANCE OF NATURAL SCALE PATTERN

Common decoration for the creation of domes.



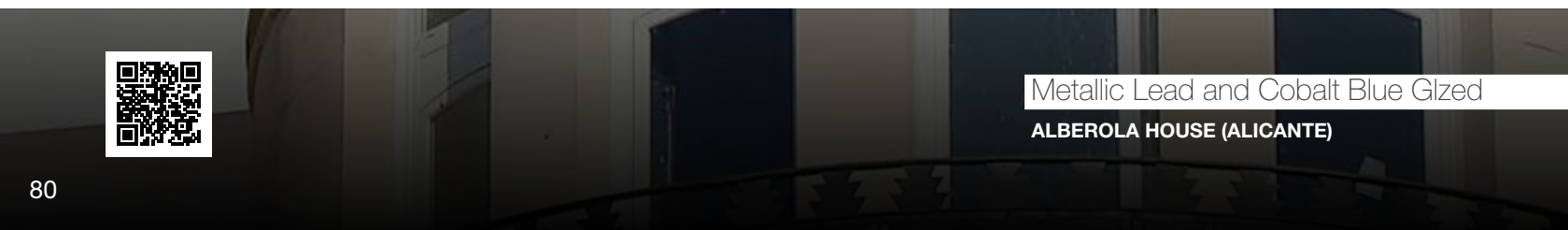
ESCAMA

Technical Information

Size	195 mm x 150 mm
Weight	0.40 kg/unit
Units / sq. m.	78 tiles
Units per ml eave line	9 tiles

CE

Approximate values: Total waterproof of the entire roof surface is required for any pitch.



Metallic Lead and Cobalt Blue Glzed

ALBEROLA HOUSE (ALICANTE)

ADVANTAGES

1

Replacement and Restoration.

2

Decorative interior cladding.

ESCAMA
Accessories

4,5 u./lm
0,75 Kg

"Gallon" Ridge
25 l 17,5 w 9,7 h

4,5 u./lm
0,85 Kg

"Gallon" Ridge with Ball
25 l 17,5 w 13 h

1,95 Kg

Winged Dragon End Ridge
40 l 15 w 16 h

2,19 Kg

Achantus Leaf End Ridge
32 l 15 w 26,5 h

Dimensions in cm.

Accessories

One half and 2/3 roof tiles

Soporte chimenea

Ventilation Cap

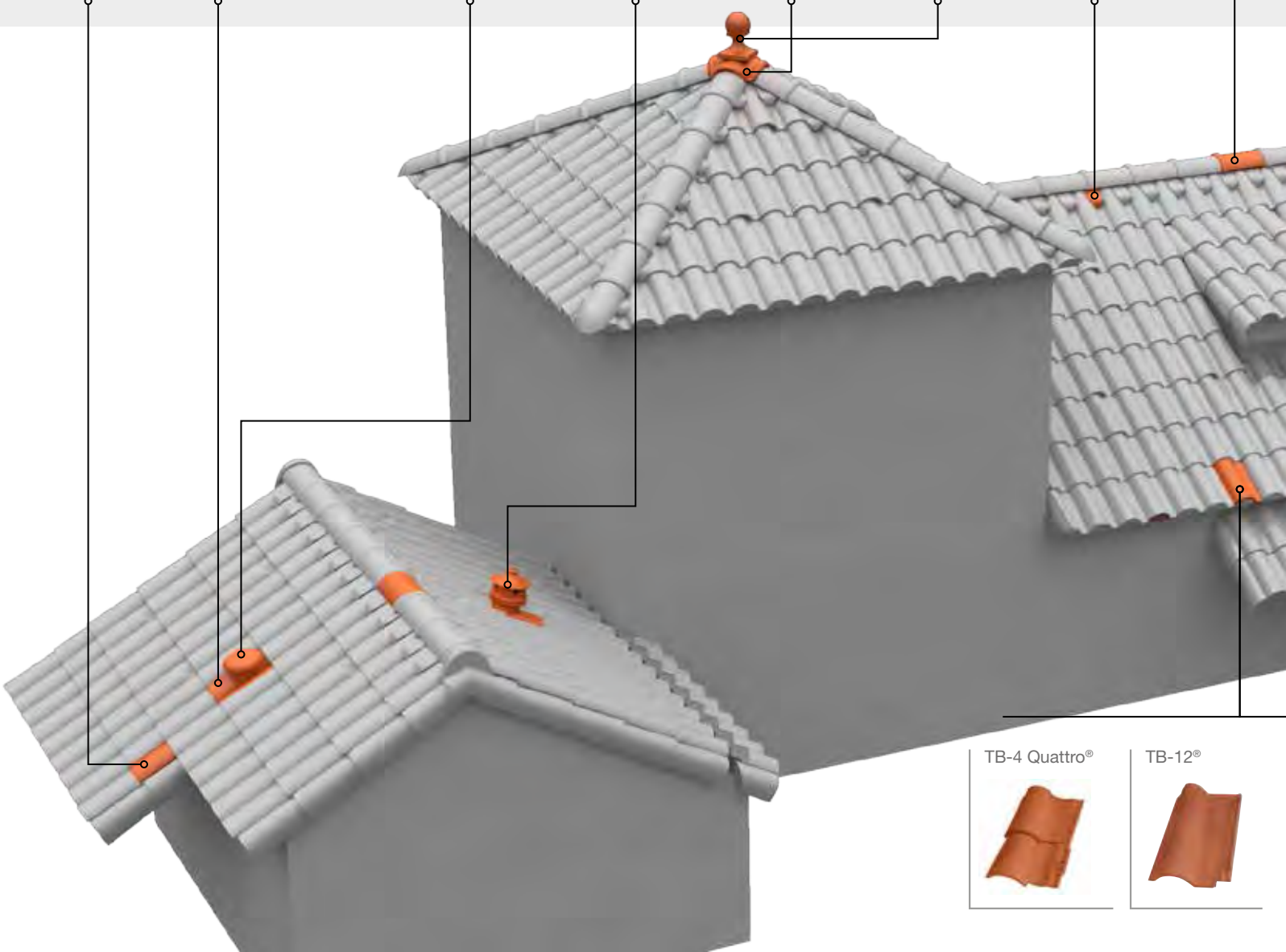
Chimney

4 Ways

Decorative pieces

Ridges

Universal Under Ridge



TB-4 Quattro®

TB-12®

Ventilation

Half roof tile

Edges

End Cap

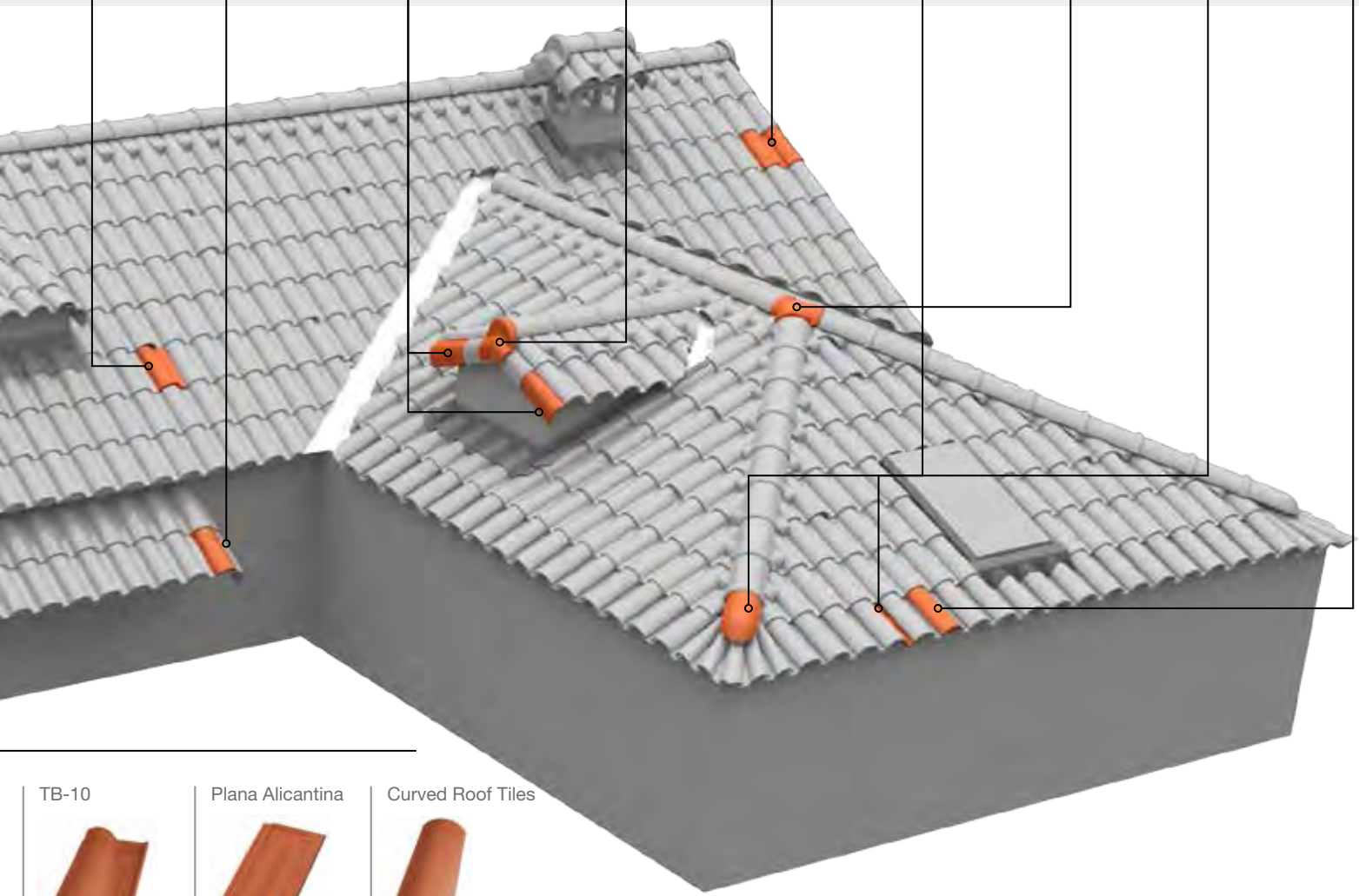
Tile and a half

Hip Starter

3 Ways

Pan Decocurva®

Cover Decocurva®



TB-10

Plana Alicantina

Curved Roof Tiles

More information can be found at www.tejasborja.com

Decorative
PIECES

4,30 Kg

A Ball
21 B 31,5 h

3,15 Kg

B Acorn
20,5 B 34 h

5,20 Kg

C Pine Cone
21,5 B 43 h

4,00 Kg

D Lollipop
16 B 48 h

1,54 Kg

E Gallego Lollipop
16 B 37 h

1,90 Kg

F Tulip
16 B 31 h

1,60 Kg

G Tower
16 B 43 h

1,25 Kg

H Pigeon
26 B 29 h Base: 8.5

Check colours availability for accessories

Bretagna
RIDGE

2,3 u./lm
3,50 Kg

Red Bretagna 1 Ridge
44,5 l 27 w 12,5 h

2,3 um
3,50 Kg

Brown Bretagna 1 Ridge
44,5 l 27 w 12,5 h

3 u./lm
3,15 Kg

Red Bretagna 2 Ridge
36,2 l 25,1 w 12,5 h

3 u./lm
3,15 Kg

Brown Bretagna 2 Ridge
36,2 l 25,1 w 12,5 h

3 u./lm
3,15 Kg

Bretagna 2 Ridge
Lugo Slate-Leon
36,2 l 25,1 w 12,5 h

3,45 Kg

Bretagna 2 Hip Starter
Lugo Slate-Leon
42,8 l 25 w 12,5 h

2,40 Kg

Bretagna 2 Straight End Cap
Lugo Slate-Leon
6 l 25 w 27 h

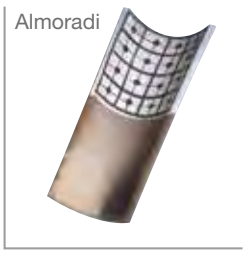
Dimensions in cm.

Hand Decorated
EAVES

We decorate by hand using natural and arabesque symbols.
We create artisan pieces inspired by roofs from another time.

Useful length decorated according to Curved roof tiles available.

Celler® 50x21	22 cm
Curved 40x19	20 cm
Curved 40x15	20 cm



BORJA decor®

Roofs inspired by colour

A roof tile of unchangeable beauty

This line of roof tiles combines exclusive finishes and unbeatable visual sensations in a roof. Finishes with applications that are unique in their execution.

Iridescent colours for avant-garde homes.

Glazed roof tiles to highlight the tiling or finishes that give roof tiles a satin, soft and elegant appearance.

The advantages of this family of roof tiles provide features that prevent the premature ageing of the tile, slowing the growth of moss.

THE WIDEST RANGE OF COLOURS IN THE MARKET

From daring colours to tones that evoke the colours of nature with shiny, satin and matt finishes.

Plana Alicantina roof tile

RESTORATION OF BORN MARKET PLACE (BARCELONA)

BORJA decor®
Colours

TAMIZADOS (TB-4 Quattro® • TB-12® • Plana Alicantina • Curved Roof Tiles • Escama)


Slate


Grey


Green


Brown


Blue

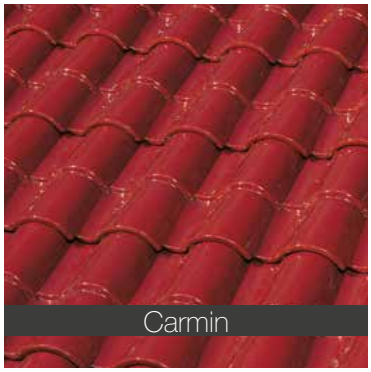
GLAZED (TB-4 Quattro® • TB-12® • Plana Alicantina • Curved Roof Tiles • Escama)


Cognac


Green


Cobalt Blue


Alicante Blue

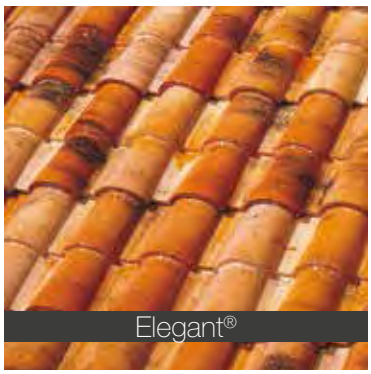

Carmin


White

Combination of standard and non-standard colours

CRYSTAL (TB-4 Quattro® • TB-12® • Plana Alicantina • Curved Roof Tiles • Escama)


Crystal Red


Elegant®

METALLIC (TB-4 Quattro® • TB-12® • Plana Alicantina • Curved Roof Tiles • Escama)

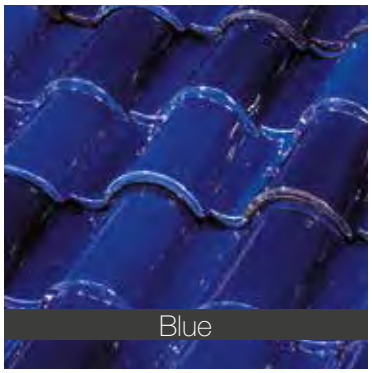

Copper


Lead

IRISADOS (TB-4 Quattro®)


Cognac


Green


Blue

INSPIRATION (TB-4 Quattro®)


Ocre


Indigo

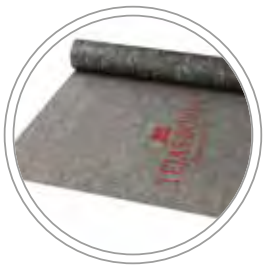

Lienzo de Mar

Roof
COMPONENTS

Dry installation

Tejas Borja has a wide range of components and solutions for the ventilation, waterproofing, illumination and dry installation of roof tiles.

More information can be found at
www.tejasborja.com



Waterproof and breathing membrane 130

References	Dimensions	Roll
7/0534	1,5 x 50 m	75 m²

CE

Waterproof and breathing membrane 180

References	Dimensions	Roll
7/0573	1,5 x 50 m	75 m²

CE

Multi-use Premium flashing

References	Dimensions	Box
Red 7/0520 Brown 7/0521 Black 7/0522	0.30 x 5 m	5 ml

CE

Multi-use Alu flashing

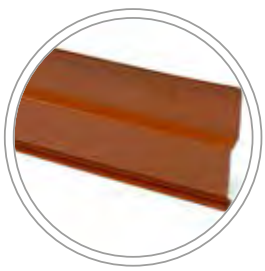
References	Dimensions	Box
Red 7/0523 Brown 7/0524 Black 7/0525	0.30 x 5 m	5 ml

CE

Nail sealing tape

References	Length	Box
7/0549	30 m	360 ml

CE



Counter flashing profile

References	Length	Box
Red 7/0536 Brown 7/0537 Black 7/0538	2 m	40 ml

CE

Roofing adhesive tape 50 mm

References	Length	Box
7/0527	25 m	300 ml

CE

Fiber cement sheets 234 gray reinforced

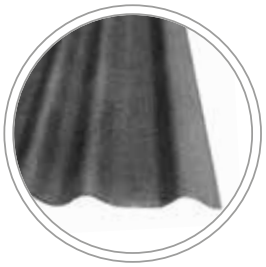
References	Dimensions	Palet
7/0539	0,98 x 2,50 m	60 units

CE

Corrugated bitumen sheet for tiles with battens

References	Dimensions	Palet
7/0567	0,96 x 2 m	150 units

CE



Corrugated bitumen sheet for curved roof tiles

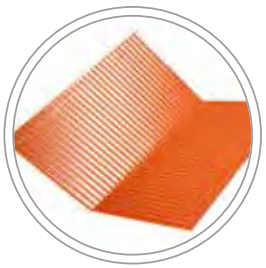
References	Dimensions	Palet
7/0566	1,05 x 2 m	150 units

CE

Corrugated bitumen roofing sheet

References	Dimensions	Palet
7/0568 7/0569 7/0570 7/0571	0,95 x 2 m	150 units

CE



Roof valley adjustable alu flashing

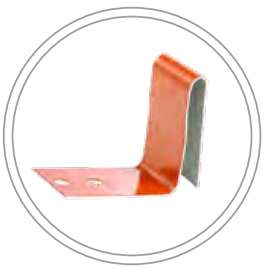
References	Dimensions	Box
Red 7/0517	0,50 x 2 m	30 ml

CE

Roof valley wedge

References	Length	Box
Red 7/0518	1 m	200 ml

CE



Roof valley clip

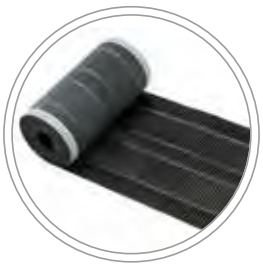
References	Length	Box
Red 7/0579	70 mm	50 units

CE

VENTILATION

Under ridge mixed roll tape

References	Dimensions	Box
Red 7/0508 Brown 7/0509 Black 7/0510 Beige 7/0575	0,39 x 5 m	20 ml



Under ridge alu roll tape

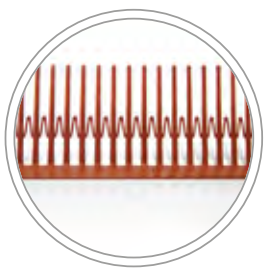
References	Dimensions	Box
Red 7/0505 Brown 7/0506 Black 7/0507 Beige 7/0574	0,40 x 5 m	20 ml

Roof ridge pvc vent brush

References	Length	Box
Red 7/0503	1 m	20 ml

Ventilation comb 60 mm

References	Length	Box
Red 7/0500 Brown 7/0501 Black 7/0502	1 m	200 ml

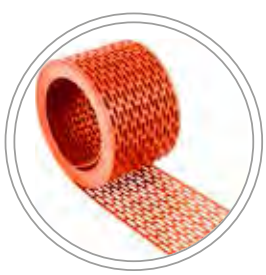


Ventilation comb 100 mm

References	Length	Box
Red 7/0497 Brown 7/0498 Black 7/0499	1 m	50 ml

Eaves comb profile 90 mm

References	Length	Box
Red 7/0553 Brown 7/0554 Black 7/0555	1 m	50 ml



Bird stop grate 80 mm

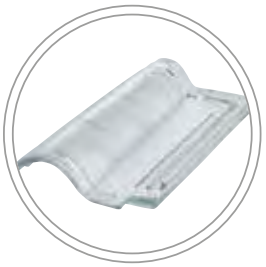
References	Length	Box
Red 7/0556 Brown 7/0557 Black 7/0558	5 ml	100 ml

Experts in roofing

In addition to being a leader in the production of ceramic roof tiles, we work on a daily basis with technicians and expert installers to offer our clients the best roofing solutions.

Our range of components for dry installation includes all of the products required in order for your roof to be effective, light and have a long life spam. In addition to improving comfort, by way of these installation techniques we meet health and waterproofing requirements established in the new Technical Building Code for roofs.

LIGHTING



Glass TB-12® roof tile

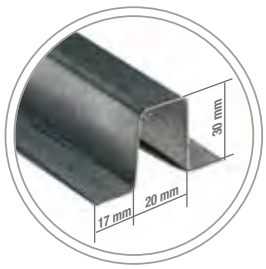
References	Compatible	Box
7/0532	TB-12®	6 units

Glass Plana Alicantina roof tile

References	Compatible	Box
7/0535	Plana Alicantina	6 units

* For other products or different sizes, colours or finishes, enquire with the Sales department or write to: info.complementos@tejasborja.com

* Approximate values. Catalogue product range is constantly being expanded.



Metallic batten 30x20 mm

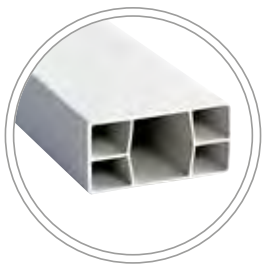
References	Length	Box
7/0550	5 m	25 ml

CE

Ventilated batten 30x20 mm

References	Length	Box
7/0562	2,5 m	67,5 ml

CE



PVC batten 40x20 mm

References	Length	Box
7/0572	2 m	20 ml

CE

Ridge batten support 40

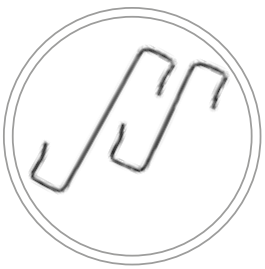
References	Box
7/0515	50 units

CE

Ridge batten adjustable support 40

References	Box
7/0552	50 units

CE



Curved roof tile fixing clip

References	Length	Box
7/0514 7/0496	72 mm 120 mm	1.000 units

CE

Universal ridge capping clamp

References	Box
Red 7/0513	100 units

CE

Ridge capping clamp

References	Box
Circular, Angular & Cover+	100 units

CE

Projects & Renovation

Customised assistance and production

Tejas Borja offers an integrated roof installation service. This is a value-added service provided by our company, and guarantees success in the projects of our clients.

The product development department and roof restoration area at Tejas Borja participate in a significant number of projects around the world.

Our collaboration with architects and design companies is diverse including the intervention in iconic buildings, the restoration of centennial churches, avant-garde architecture projects and new uses for ceramic roof tiles as a building material are some examples.

UNIQUE PROJECTS

Many professionals and architects come to Tejas Borja for assistance. We are involved in new construction and restoration projects around the world.

Plana Alicantina Red and Tamizado Slate

RESIDENTIAL HOUSES (NAVARRA)

Asturias

Malaga

Antilles

Portugal

Curacao


Caribbean

Hotels
around the world

The use of ceramic tiles on the roofs of resorts and hotels is increasingly common. Tejas Borja products and accessories are used in projects around the world.


Dominican Republic


Huelva


Martinique

Building Ca L'Alfaro Barcelona

The roof of this modernist colonial building was restored with Cognac glazed Plana Alicantina roof tiles. The project was able to recreate the beauty of the original tiling, a roof that inspires distinction and personality.

La Llibertat Market Place

The roof was replaced with Plana Alicantina roof tiles and accessories in two finishes (Honey and Black), faithfully reproducing the original glazed colours by firing the roof tiles at high temperature. To do this, there was a focus on the decorative geometric formations and the technical specifications of this project in Barcelona.

After

Before

Masia
in the mountains Engarceran

Detached family home in a mountainous valley in Castellón. For this project, Flat roof tiles combined with exterior of natural stone, are perfectly integrated into their natural environment.

Family home in Castellón

Exclusive family home with avant-garde design. The use of Flat roof tiles shall acquire a new dimension in this project. The construction of roofs with different pitches and their use as lining material makes this project unique.

Family home in France

Family home built with carefully selected materials, in which TB-12® Lamalou® roof tiles are combined with wood panelling.

TB-12® Red

TB-10 Manoir®

Projects in the Caribbean

Ceramic roof tiles are an environmentally-friendly and long-lasting product. Thanks to our wide range of natural colours, a large number of tiling jobs in these paradise islands are being done using our roof tiles.

Plana Alicantina Litoral

Sabaris
Manor House

Centenaria® Tierra Curved roof tiles are perfect for recreating the original roofs of this Galician manor house, which was built in the 17th century.

House in Alicante

Centenaria® Mediterrania® Curved roof tiles are an ideal choice for this home on the Costa Blanca.

Churches in Vitoria Gasteiz

Two of the largest and most representative churches in the old city have been restored using the TB-4® Vilaterra® S-Interlocking roof tile. This format is perfectly suited to the needs of these buildings, which are of great historic importance.

The Borja Ducal Palace Gandia

Tejas Borja has collaborated in the restoration of roof tiles in the most iconic area, the “Galería Dorada”, which is notable for its Baroque style.

The management of restoration works on the palace required that the roof tiles be of a size, shape and finish complementing the existing tiles and preserving the historical value of the palace.

To this end, glazed finishes in Blue, White, Yellow and Green were obtained on hand-made curved roof tile made specifically for the project.

White roof tiles

The roofs made from tiles with a White glazed finish are pure illumination and beauty.

They provide a visual impact that has amazed clients around the world.

Alicante

Florida (EE.UU.)

Valencia

Naves Cross

L'Espai Baronda

La Bobila Roca

La Ricarda

Colonia Güell

Restoration and new uses

Tejas Borja has collaborated in a number of projects to restore iconic and unique buildings. Projects that have given very unique buildings new uses. From industrial properties to museums, from museums to university, from former markets to exhibition spaces, from former factories to tourist buildings: these are some of the project where our roof tiles have been used in a variety of formats and colours, both standard and made to measure.

Reales Atarazanas
1st Hispalyt Ceramic Roof Tile Architecture Prize

Mas Tramontano

Museo Naval

Antigua Lonja

Cooperativa Celler

INFORMATION

Ceramic roof tiles have been traditionally used in roofing for centuries, providing protection from the weather and adding aesthetic value to the roof of any type of building.

Originally designed to cover houses, roofs are now used for new purposes in buildings, increasingly to protect building facades.

Ceramic tiles are a natural, durable and environmentally friendly product, as they do not harm the environment. At Tejas Borja we look after the product, monitoring the process at all stages from the rigorous selection of our clays to the final stage of the manufacturing process.

CHARACTERISTICS OF CERAMIC TILES

Our ceramic roof tiles easily meet all requirements associated with mechanical resistance, flexion, durability, waterproofing and thermal insulation. We also try to manufacture products that are easy to install on site, in order to make life easier for installers.

RESISTANCE

The mechanical resistance of roof tiles is of vital importance, given that people will occasionally have to walk on them in order to perform repairs or maintenance. For this reason, Tejas Borja roof tiles are the most resistant to flexion among those of its rivals.

DURABILITY

The durability of tiles is of great importance, due to the fact that they will be exposed directly to the elements without any additional protection.

Our tiles are guaranteed to perform well in frost and in accordance with current regulations (UNE - EN 1304, UNE - EN 539-1, UNE - EN 539-2). However, to ensure that a roof is effective and has a long useful life, it should be remembered that its quality will depend both on the tiles and the quality of the installation. For this reason, tiles must be installed in accordance with UNE - 136020 and our specifications.

WATERPROOFING

To prevent humidity as a result of condensation and leaks in the roof, the inner face of the tiles must have adequate ventilation. This ventilation will generate a continuous current of air, so as to remove moisture from the tiles and, in doing so, preventing them from being saturated with water.

In addition, an appropriate gradient will allow water to escape quickly and help avoid saturation. It is essential that minimum gradient requirements (determined as a function of weather conditions in the area where the project is located and the length of the skirts) be met. Under no circumstances can this gradient be less than 30%.

THERMAL INSULATION

Due to the importance of thermal insulation, both from a comfort and an energy-saving point of view, the performance of the materials chosen for the roof is relevant. In this regard, tests carried out at specialised institutions reveal that ceramic tiles perform best in terms of these parameters when compared to other roofing materials used for this purpose.

INSTALLATION

To ensure the good performance of our products installed on site and in order to meet the basic requirements referred to above, it is essential that the tiling be installed in accordance with their technical specifications.

The method of installation is the responsibility of the installer, and must comply with regulations in force. In addition, it should be remembered that for other unique work necessary in some roofs and which has not been foreseen in our instructions, good building practice for the installation must be observed at all times and the instructions contained in the relevant rules in force must be adhered to. In the event of any questions, contact our Technical Department.

You can find more information on the correct installation of ceramic roof tiles on our website, www.tejasborja.com

SAFETY CONDITIONS IN THE WORKPLACE

- All general provisions applicable in the general ordinance on workplace hygiene and safety will be adhered to.
- Materials collected in the roof will be disposed of. When necessary, the load will be distributed using slabs or elements that serve a similar purpose.
- No work will be done close to high-voltage power lines.
- Work will be suspended in the event of rain, snow or wind at speeds of more than 50 km/h. In the case of the latter, materials and tools that can be removed will be removed.
- Always use the necessary EPIs depending on each case, and in accordance with regulations in force.

DIFFERENCES IN TONE AND SUPERFICIAL ASPECTS OF THE ROOF TILES
(UNE - EN 1304)

Variations in tones inherent to the ceramic roof tile production process comply with regulations in force.

“Difference in tone” refers to variation in tone within the same colour and, by extension, different colours within the same production process. For monochromatic tiles, variations in tone inherent to the ceramic tile production process are tolerated in accordance with current regulations. Complaints are not accepted on the grounds of such variations. For more information, confirm with the plant before installation.

Indeed, during the production of ceramic tiles and their respective accessories, slight variations in tone can occur, which, being natural, can accentuate a very pleasant aesthetic impact if certain precautions are taken.

At all times, we recommend that before installation, tiles from different pallets allocated to the project be mixed in together so that, when they are installed, the various tones are as widely dispersed as possible.

In addition, during the production, packaging, handling and carriage of the ceramic tiles, scratches, abrasions or signs of friction can appear on the surface of the tiles. Together with possible creases in the clay, these features cannot be considered defects due to the fact that they do not affect the fundamental mechanics of the tiles (RESISTANCE, DURABILITY, WATERPROOFING AND THERMAL INSULATION), but rather are an aesthetic defect.

CRAQUELURE (superficial cracking)

Superficial microcracking can appear on some tiles with the application of enamels, producing only an aesthetic effect and not the structure of the tiles. As a result, such microcracking is not considered a defect under EN 1304.

EFFLORESCENCE

Some tiles can have a thin white film on them that becomes apparent shortly after installation. This can have a varying effect on the normal colour of the surface. In most cases, this efflorescence is temporary and due to soluble salts and impurities found in water, cement and aggregates in mortar, which will gradually disappear from the surface with precipitation and will not affect the functional characteristics of the tiles showing signs of efflorescence.

However, the weather will produce slight changes in tone over time.

ROOF MAINTENANCE

The accumulation of micro-organisms, moss, plants and other detritus on tiles, valley beams and gutters can hinder the movement of rainwater and the drying of roof tiles. This can pose a problem and cause leaks.

Roof tiles are made from a natural material. As a result, they must not be treated with any product that could alter their reaction to adverse weather conditions.

It is recommended that tiling and all of its parts, ceramics, insulation, evacuation channels, joints and support structure be inspected on a periodical basis. Whenever necessary, damaged elements must be repaired or replaced. All ceramic parts and evacuation channels must be cleared of any detritus and moss that has accumulated, so that drainage systems are not obstructed. Under the TBC (Technical Building Code), periodical inspections must be carried out every 1 to 3 years, depending on the component.

APPLICABLE CERTIFICATION STANDARDS

Tejas Borja complies with the following norms and certification standards:

- EN 1304. Clay roofing tiles for discontinuous laying. Product definitions and specifications.
- EN 1024. Geometric characteristics.
- EN 998-2. Specification for mortar for masonry. Part 2: Masonry mortar.
- EN 539-1. Impermeability (test conducted in accordance with Method 1 and Class 1).
- EN 539-2. (Frosting) Frost resistance (test conducted in accordance with C and E method).
- EN 538. Flexural strength.
- TBC (Technical Building Code).
- UNE - 136020. Code of practice for the design and installation of roofs made from ceramic roofing tiles.
- RP 34.02. Specific AENOR regulations for tiles and auxiliary parts made from clay.
- RP 34.00. Specific AENOR regulations for ceramic materials made from clay.
- ISO 9001. Quality management systems. Requisites.
- CE marking.
- ASTM C1167. Standard specifications for clay roof tiles.
- Miami Dade. Test procedure for wind and wind driver rain resistance of discontinuous roof system.
- DTU on building works.
  - NF P 31-201/202 (DTU 40.21) building works / Roof coverings made of slipping or grooved clay tiles.
  - NF P 31-201 (DTU 40.22) building works / Roof covering made from hollow terracota tiles.
- NF 063 certification benchmark. Clay roofing tiles. Certification benchmark for clay roofing tiles.

A century around tiles

TEJAS BORJA

Unique since 1899

Francisco Ramón Borja

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TEJAS BORJA, S.A.U.

Ctra. Llíria a Pedralba, Km. 3
46160 Llíria, Valencia, SPAIN
Tel.: +34 96 279 80 14
Fax: +34 96 278 25 63
Email: info@tejasborja.com

tejasborja.com