INSTALLATION INSTRUCTIONS

UNICA RECTANGULAR SHINGLE

Shingle-layer flexible bituminous shingle with glassfiber carrier reinforced by a glass scrim and protected by coloured ceramic-coated basalt grains – Fig. 1.
The shingle has four tabs and self-adhesive points.

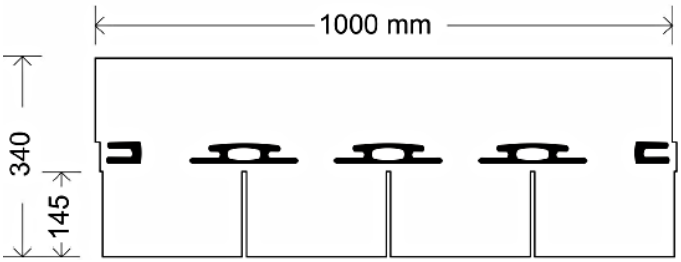

***Fig. 1** - Rectangular shingle dimensions*

1. GENERAL RECOMMANDATIONS

- Stock pallets in a dry, covered and ventilated area.
- Avoid exposing the pallets to the direct sunlight or bad weather for long periods. Do not leave the pallets exposed to temperatures that are too high (>40°C) or too low (<5°C).
- Do not stack pallets on top of each other to avoid sticking of shingles inside the bundle.
- Use only shingles of the same production batch for one roof. Small colour differences between shingles are not to be considered a fault.
- Shingles must be installed on a flat, rigid, continuous, and coplanar surface which will remain so over time.
- Shingles must be applied on pitched roofs with a slope between 5° and 85°.
- The shingles installation method depends on the slope and length of the pitches, as well as on the substrate type - see paragraph 2.
- For nail installation of the shingles, use hot dipped galvanized nails with wide head (≥9,5mm), improved adherence and minimum 25mm length (32mm for the ridge elements), which has anyway to be evaluated depending on the substrate to ensure fastening.
- Shingles must have a minimum temperature of 5° C to be applied.
- Under low outside temperatures, wind or wet conditions, warm the self-adhesive points of the shingles to improve adhesion and if it is necessary, apply the bitumen mastic Bitustick under the tabs.
- At the end of the day, the roofer must always check the good adhesion of the tabs and of the shingles.

2. INSTALLATION METHOD

The installation method of bituminous shingles depends on several factors: type of substrate, length and slope of pitch and type of membrane used. In particular:

- Installation surfaces made with wood panels (plywood or OSB) and similar are defined as nailable substrates.

For standard pitches with a maximum length of 7m, the following applies (summarised in Tab. 1):

- In the case of low roofing slopes (between 5° and 14°) and nailable substrate, is available the Safety R-Evolution N membrane, self-adhesive and self-sealing for nail installation.
- For higher slopes (between 14° and 85°) and a nailable substrate, bituminous shingles can be applied with the nail installation technique, but it is mandatory to use the Startbar underlayer membrane. The number of nails per shingle to be used is specified in Tab. 1, based on the slope of the pitches.

TYPE OF SUBSTRATE	PITCH LENGTH	RANGE OF PITCH SLOPE	INSTALLATION METHOD	TYPE OF MEMBRANE
NAILABLE	≤ 7m	5° - 14° (9%-25%)	BY NAILS (5/shingle)	Safety R-Evolution N membrane
		14° - 60° (25%-173%)	BY NAILS (5/shingle)	Startbar underlayer membrane
		60° - 85° (173%-1100%)	BY NAILS (7/shingle)	Startbar underlayer membrane

Tab. 1 - *Shingle installation method vs pitch slope*

NOTES:

- In case of non-nailable substrate, it is advisable to contact the technical office for further information.
- For pitches between 7 and 10m in length and a nailable substrate, the minimum pitch slope goes up from 14° to 17°. For these roof lengths and a pitch greater than 17°, it is advisable to contact the technical office for further information.
- In case of areas classified as windy or snowy, for constructions with complex geometry (e.g. presence of windows, variations in slope or inclination), situated at altitudes above 1000m or buildings of great height, for pitches longer than 10m, it is advisable to contact the technical office for further information regarding the bituminous shingles fastening and their method of installation.

3. PRELIMINARY OPERATIONS

- Before installing the bituminous shingles, install the gutters or the drips and fix them properly to the substrate through tie-rods – Fig. 2.

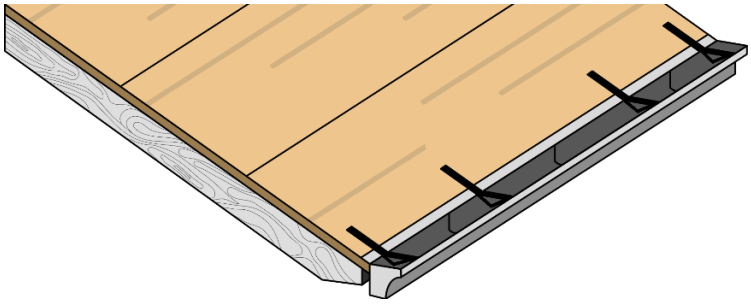

Fig. 2 *- Gutter installation*

- Apply the most appropriate membrane/underlayer according to the shingles installation method (paragraph 2) and ensure an appropriate flap in the gutter / over the drip.

4. TRACING OF THE ROOF

Once the membrane or the underlayer has been installed on the roof, before shingles installation, the pitch must be traced:

- Trace a straight ***x*** (orthogonal to the line of maximum slope) 18 cm from the eaves line, so that the shingle protrudes 1,5 cm from it;
- Locate a point A on line ***x*** and mark points B and C equidistant from A (example 150 cm);
- Starting from B and C, by using a string as a compass, identify the meeting point D, as close as possible to the ridge.
- Join A with D and identify the line ***y***;
- Draw a line ***z***, parallel to line ***y*** distant 12,5 cm;
- Draw horizontal lines parallel to ***x***, each one distant 14.5 cm from the previous, until you reach the ridge - see Fig. 3.

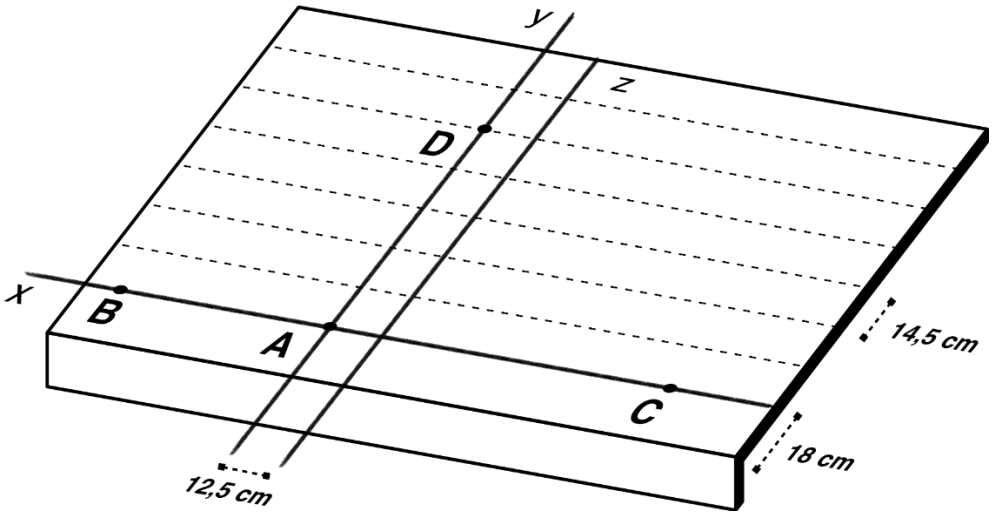

Fig. 3 *- Tracing of the pitch [cm]*

5. NAIL INSTALLATION OF THE SHINGLE

For the nail installation of the shingles, proceed as follows:

- Install the lateral flashing above the membrane/underlayer membrane applied to the roof. Apply a Bitustick bead to the external side of the lateral flashings. Proceed with the shingles installation, as described below, on the lateral flashing leaving a space of about 3cm between the end of the shingles and the edge of the lateral flashing – Fig. 4. Do not use nails less than 25 cm from the flashings.

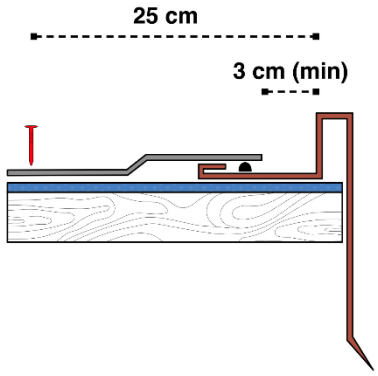

Fig. 4 *– Lateral flashing detail*

- Alternatively, fix a triangular-section batten along the lateral edge of the roof, before the membranes/underlay. Position the membrane/underlay above the triangular batten and lay the shingle on top, cutting it at the vertex of the batten. Once the pitch is completed, apply a perimeter metal flashing over the shingles. - Fig. 5.

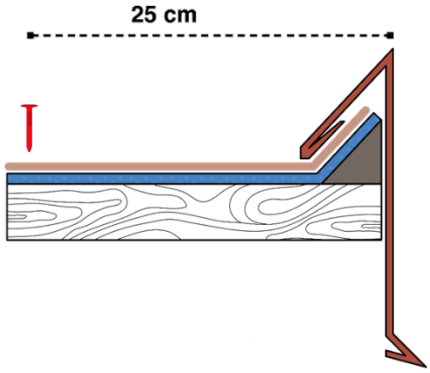

Fig. 5 *– Lateral flashing detail with triangular wooden batten*

- Arrange the shingles for the starting row cutting the tabs, as shown in Fig. 6;

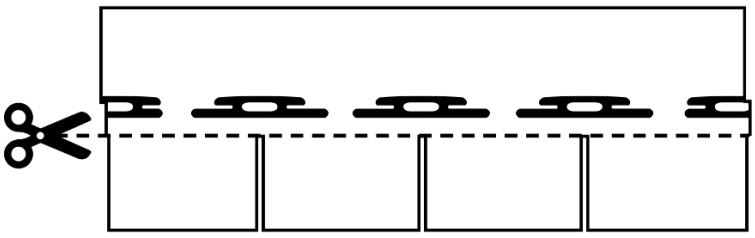

Fig. 6 *– Starting row preparation*

- Apply over the membrane/underlayer a bead of bituminous adhesive Bitustick close to the gutter line - Fig. 7;

- Then, proceed with the installation of the shingles of the starting row: align the lateral edge of the first shingle on the vertical ***y*** and the upper edge on the horizontal ***x***. Fix the shingle to the substrate with nails placed at the upper ends of the shingle. Arrange and nail the other shingles of the starting row, adjacent, following the same method of fixing.
- All the cutting and alignment operations between the shingles are facilitated by special references (cuts on the upper edge and shaped lateral profiles).
- Proceed with the installation of the first row of shingles: align the lateral edge of the first shingle on the vertical ***z*** and the upper edge on the horizontal 14,5 cm from ***x*** – Fig. 7. Nail the shingle to the substrate by placing 5 nails per shingle, in the centre of the self-adhesive points, as per Fig. 8 a). In the event of pitched slopes between 60° and 85°, place 2 additional nails close to the second and fourth nail, for a total of 7 nails per shingle, as per Fig. 8 b). Proceed by placing all the shingles in the first row.

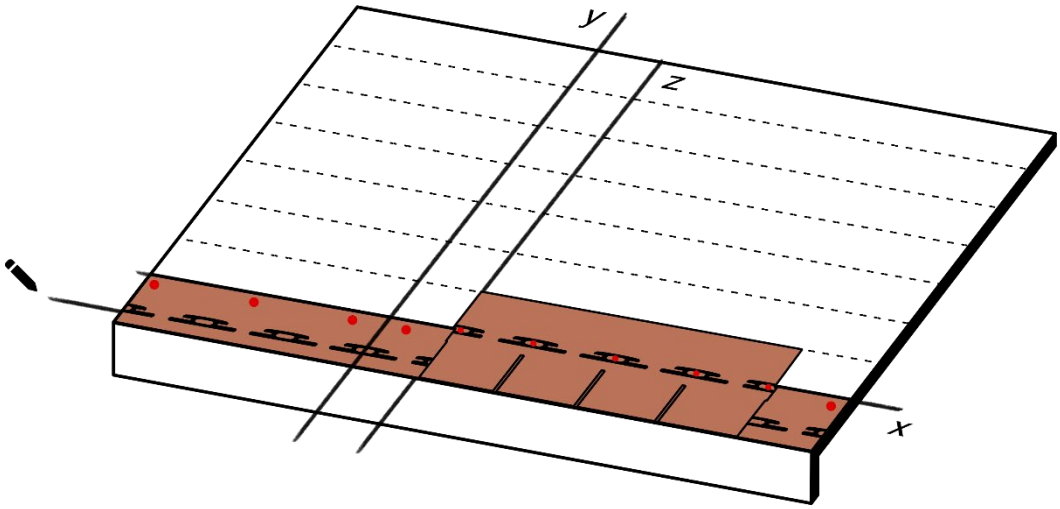

Fig. 7 *– Shingles installation*

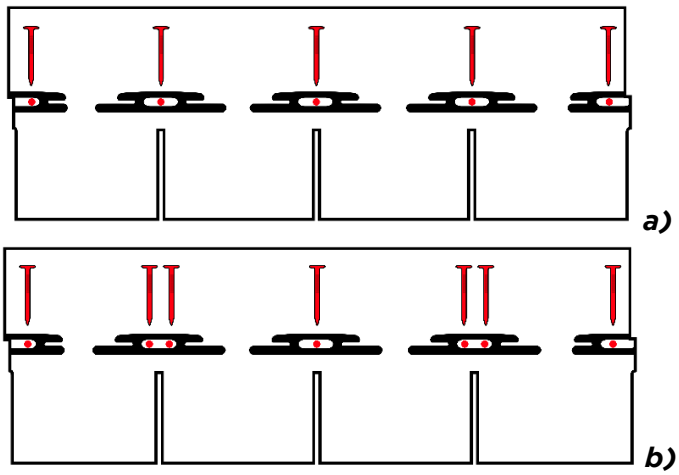

Fig. 8 *– Shingle nailing* ***a)*** *slopes <60°;* ***b)*** *slopes >60°*

- Move forward with the installation of the second row of shingles starting from the vertical line ***y*** and aligning the upper edge of the shingle to the horizontal line 29 cm from ***x***.

- Repeat the procedure of installation of the bituminous shingles in rows, until the full coverage of the pitch to the ridge.
- The last row of bituminous shingles must protrude above the ridge line; the excess part will be folded over the ridge line and must be fixed with two nails - Fig. 9.
- Repeat the same steps for the other pitch.

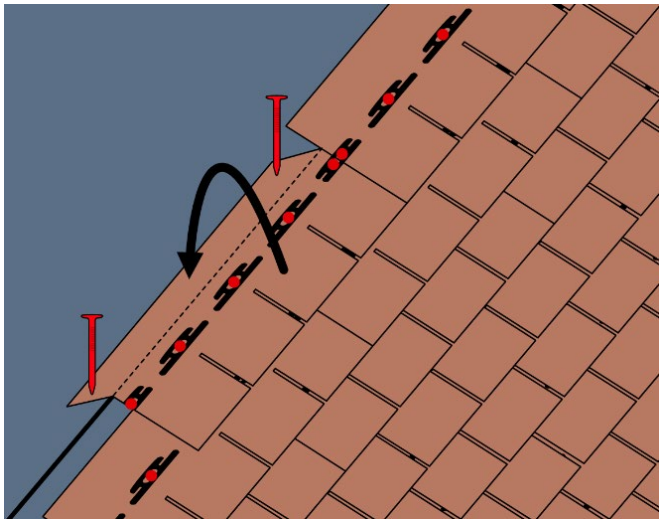

***Fig. 9** – Shingles installation at the ridge*

- Arrange the ridge elements by cutting an entire shingle into four pieces and shaping the top with a certain angle of cut – Fig. 10.

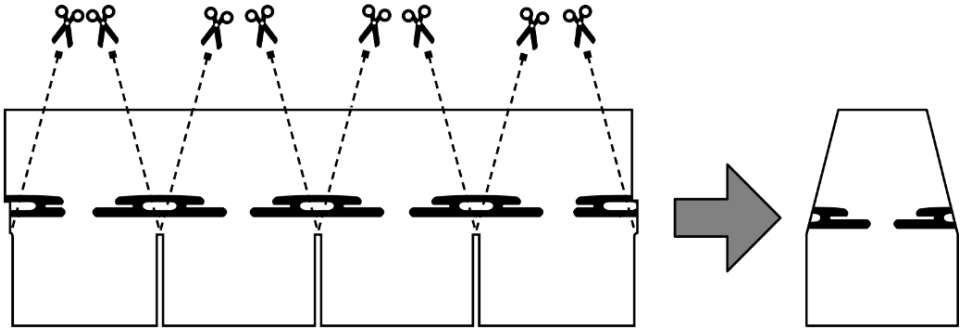

***Fig. 10** – Ridge elements preparation*

- Fix the first ridge element with 2 galvanized nails at least 32mm long, one nail on each side - Fig. 11. Proceed with the installation of the other ridge elements in sequence, leaving an exposed part of 14,5 cm between one element and the next one.

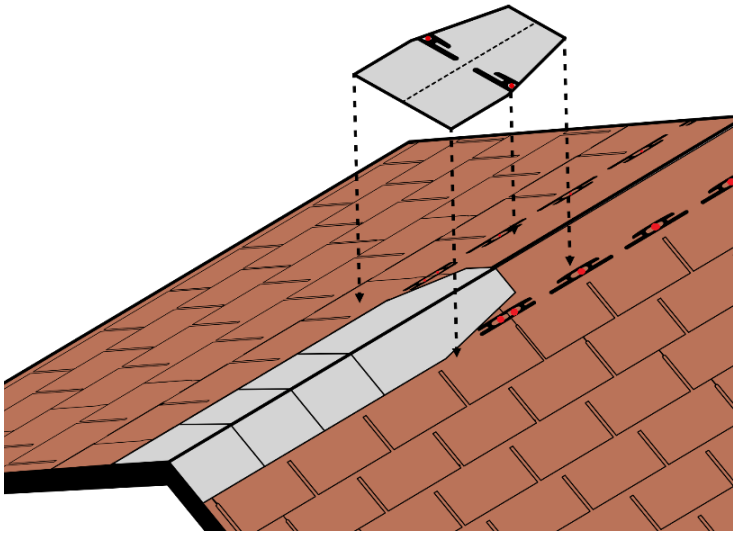

Fig. 11 – *Ridge elements installation*

- Follow the same instructions also for the shingle installation at the hips.
- As for the roof valleys, prepare a band of bituminous membrane R-evolution N about 100cm wide, to ensure its waterproofing - Fig. 12. Install the starting row making it rise 30 cm above the valley line. Fix the starting row by nail, up to and beyond 30 cm from the valley line. Place a strip of Bitustick to secure the shingle beyond the 30 cm from the valley line. Once the shingles have been placed on the valley, it is good practice to cut them following a line parallel to the valley line at a distance of 30 cm from the valley line - Fig. 12.

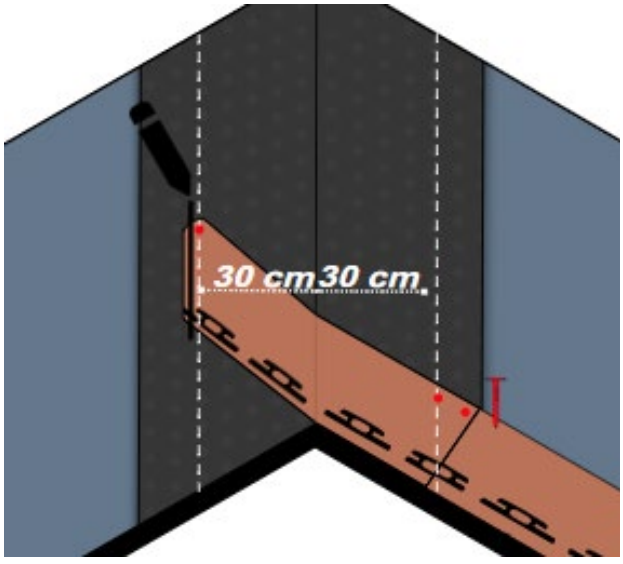

Fig. 12 *– Shingles installation at valleys*

- Repeat the same procedure for the first row of shingles and for the following ones.
- Once you have completed the first pitch for the entire length of the valley, move to the adjacent pitch. Start installing the shingles from the starting row and continue in successive rows. The last shingle in each row must reach at least the axis of the valley - Fig. 13.

- Nail the shingles up to 30 cm from the axis of the valley. Once the installation of the shingles is completed even for the second pitch, trace the axis of the valley. Then cut the shingles of the second pitch following the valley line. Cross-cut the top edge of the shingle at the valley - Fig. 13, so as to convey the descending water along the axis of the valley. Lift the shingles one at a time and fix them with the Bitustick- Fig. 13.

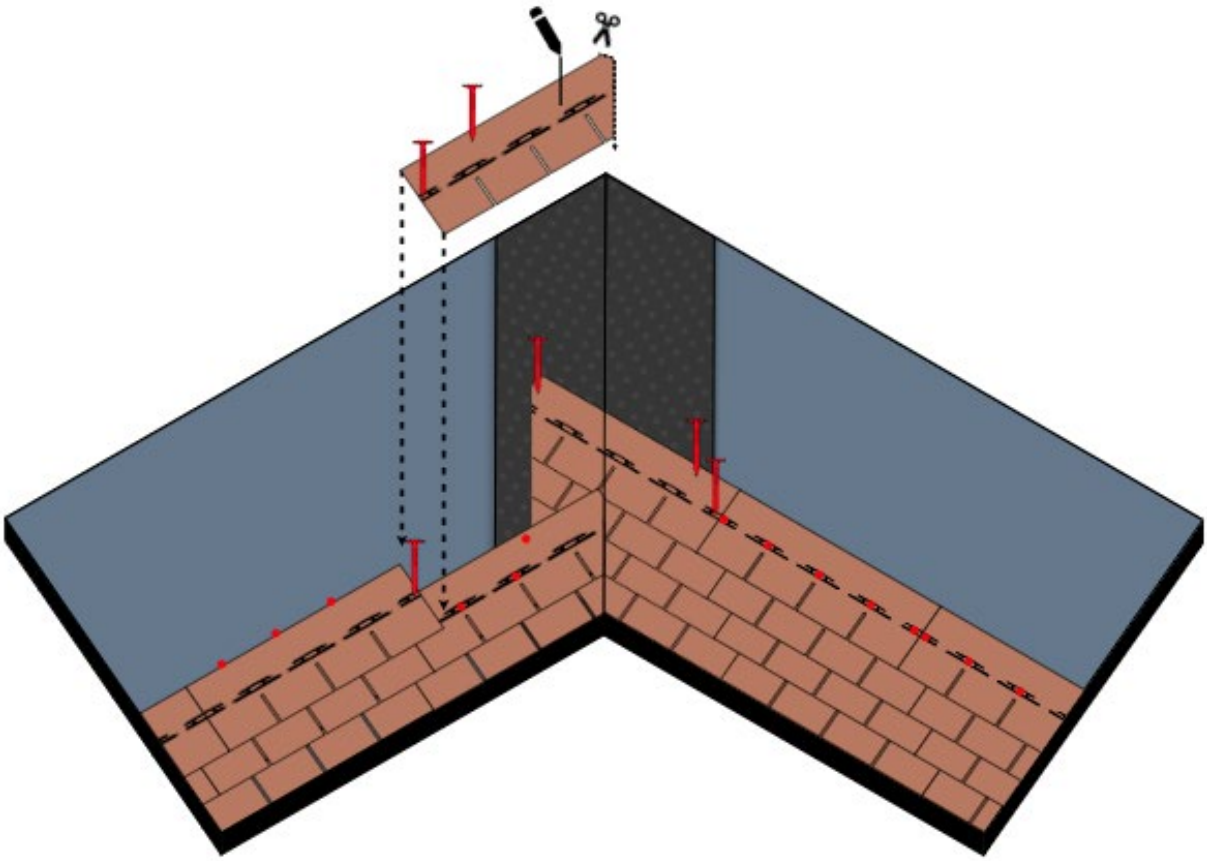

Fig. 13 *– Shingles installation at valleys*

6. FINISHES AND INSTALLATION DETAILS

All finishes for flashings, valleys, chimneys, snow stops, etc. can be performed with aluminium or other compatible metals. For their installation refer to the specific installation instructions.

The Rectangular shingle model is equipped with self-adhesive points that softens with the heat at 30°C and thus allows the gluing of the shingle tabs of the subsequent rows. If necessary, you can force their activation with a heat gun. It is important to verify the adhesion of the tabs and of the shingles, at the end of the day, once the shingles installation is completed.