

**ASSEMBLY
GENERAL INSTRUCTIONS**

At a great extent, the final aesthetic and functional result of a construction cladding project, depends on the correct and careful assembly of the cladding materials and flashings.

Next are mentioned the general instructions which should be kept during the assembly of the ECOPANEL.

At the beginning the application study should have taken into account all the technical characteristics and specifications of the for assembly materials as well as their side details. Before the assembly, the geometry of the sub-construction of the building should be checked, especially the support rails of ECOPANEL. The above could be checked within the limits of the equivalent European standards and rules.

For the cuttings of panels, which are necessary to be made on site, it should be used electric saws (fretsaw) or scissors and never wheels or manual axe saws (FIGURE 11).

After the cutting the metal scrap should be cleaned and removed.

The personnel who work on the roof of the building should take all security measures as they are defined by the equivalent European rules.

It is absolutely necessary to use shoes with soft and non-slippery sole.

Many times it is undermined the importance of the phenomenon of bi-metallic electrolysis which is caused from the immediate contact of incompatible between them materials with the simultaneous presence of moisture.

The bi-metallic electrolysis can bring the fast oxidation of the one of the in contact materials. For dealing with this phenomenon, there should be intervened among the materials a thin PVC membrane.

It is also important to clean very well the surface of the cladding materials after the end of the daily works on the roof of the building.

All the useless materials should be removed, such as screws, rods, various metal items, which can cause corrosion, oxidation, spots etc.

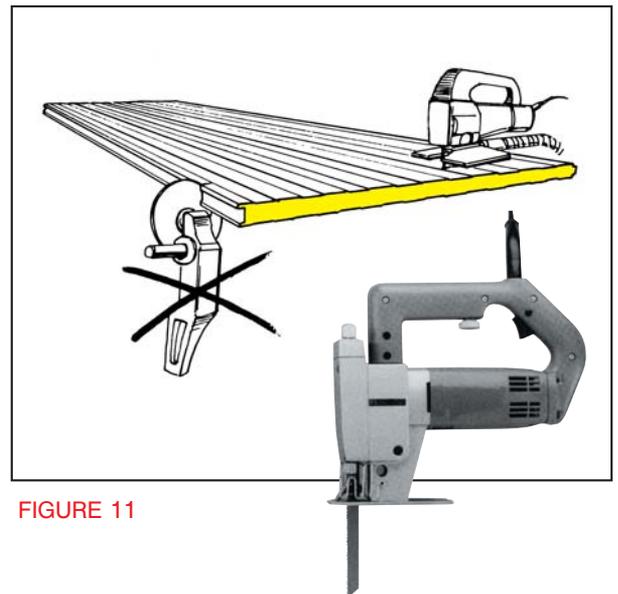


FIGURE 11

ASSEMBLY

The roof and side cladding materials should be lined during assembly and then fixed steadily on the sub-construction of the building with self drilling screws.

The number of the fixing materials depends on the position of ECOPANEL in the building and from the predicted loads (FIGURE 12a και 12β).

CALCULATED NUMBER OF FASTENING FOR ECOPANEL WL - ECOPANEL WLC

INTERMEDIATE AREA



ECOPANEL WL: 2 self-drilling screws per purlin from both sides of joint



ECOPANEL WLC: 1 self-drilling screw per purlin in the joint of male - female

CORNER AREA



ECOPANEL WL: 3 self-drilling screws per purlin



ECOPANEL WLC: 2 self-drilling screws per purlin in the joint of male – female in a distance of 35mm the one below the other.

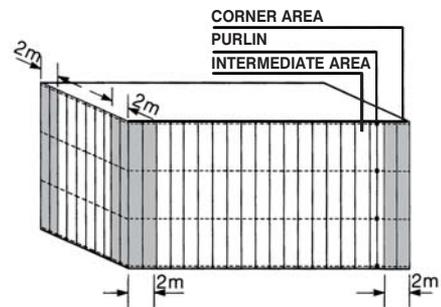


FIGURE 12α

CALCULATED NUMBER OF FASTENING FOR ECOPANEL RL

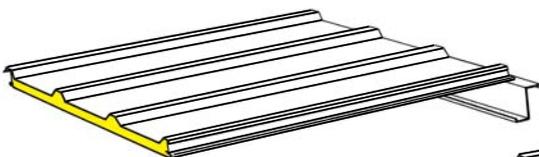


END PANEL: 3 self-drilling screws per purlin
MIDDLE PANEL: 2 self-drilling screws per purlin

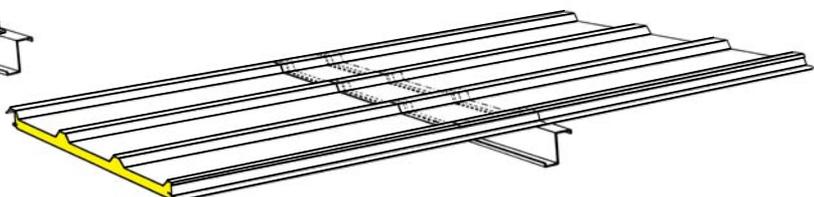


MIDDLE PANEL: 2 self-drilling screws per purlin.

MINIMUM ALLOWED ROOF INCLINATION FOR ECOPANEL RL



For roofs without joint per length $\geq 5^\circ$ (8,8%)



For roofs with joint per length $\geq 7^\circ$ (12,3%)

FIGURE 12β



For the assembly of roof and side cladding materials we propose the suitable fastening materials.

As a main material to fasten ECOPANEL to the sub-construction, we use the self drilling screws with two different threads one in the bottom point and the other in the upper one. (FIGURE 13).

These screws are specially designed, so that by going through the panels, fastening them steady in the building's sub-construction and at the same time waterproofing them at the point of their contact with the external steel sheet, without additional tools and previous drilling of the metal sub-construction to be the appropriate fastening material for this use.

The drilling ability of each type of screw needs to be greater than the thickness of the metal which we want to drill.

For metal thicknesses from 1,2 mm up to 5 mm the drilling ability is 6.

For metal thicknesses from 5 mm up to 12 mm the drilling ability is 12.

As secondary fixing materials are the self-stitching screws with one thread and different heads, according to the use, as well as the rivets (FIGURE 14).

They are used for the prolongation of ECOPANEL, wherever necessary, as well as for the fastening of the flashings on the panels and the flashings among themselves.

The drilling and fastening process have to be made with suitable tools (screw gun).

It is important for the watertight and the sealing of the drilling point the tool to have the correct power of constricting the self drilling screws as well as to have the correct compression of the rubber of the burr so that it can dry and not distort the surface of the ECOPANEL (FIGURE 15).

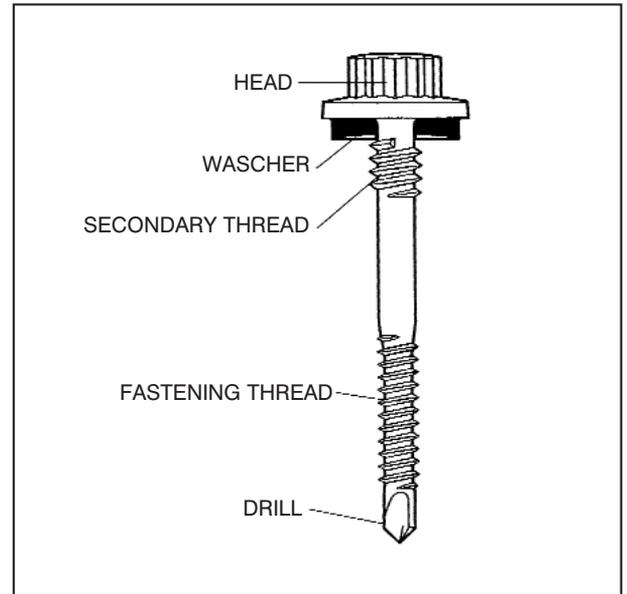


FIGURE 13

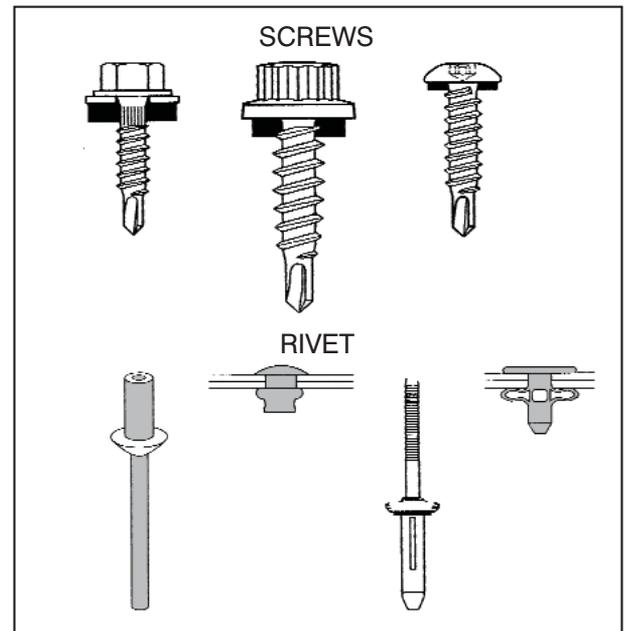


FIGURE 14

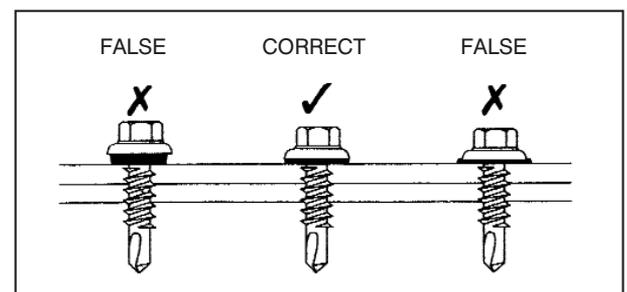


FIGURE 15



The **ECOPANEL RL** can be assembled in roofs made from steel, wood and reinforced concrete with built in metallic profile.

The minimum widths of the support purlins are for the intermediate ones ≥ 60 mm while for the end ones ≥ 40 mm (FIGURE 16 a, b, c, d, e).

For the maximum allowed spans consult the load tables in the corresponding unit.

The minimum allowed roof inclination for the panels without joint per length is $\geq 5^\circ$ (8,8%) while with joint per length is $\geq 7^\circ$ (12,3%).

(FIGURE 12 β).

During the assembly there should be noticed the direction that the wind is blowing in the area.

The way to assemble the panels should be opposite to the direction of the wind (FIGURE 17).

INTERMEDIATE SUPPORT

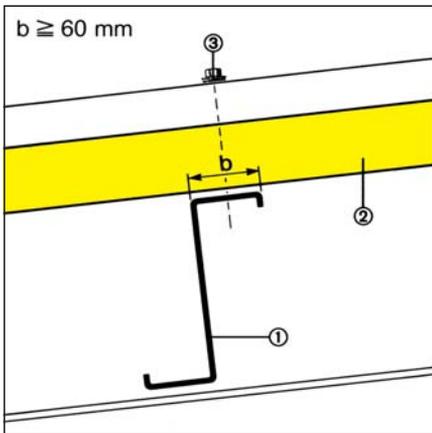


FIGURE 16a

- 1 "Z" Purlin
- 2 ECOPANEL RL
- 3 Self-drilling screw

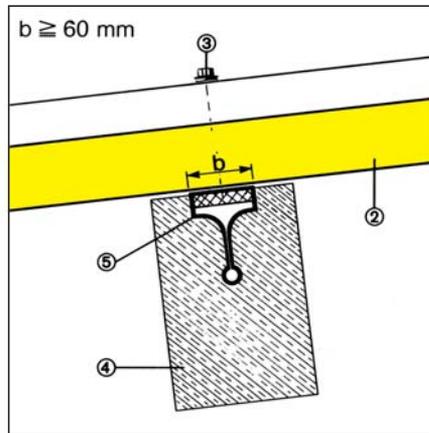


FIGURE 16b

- 2 ECOPANEL RL
- 3 Self-drilling screw
- 4 Concrete purlin
- 5 Built in metallic profile

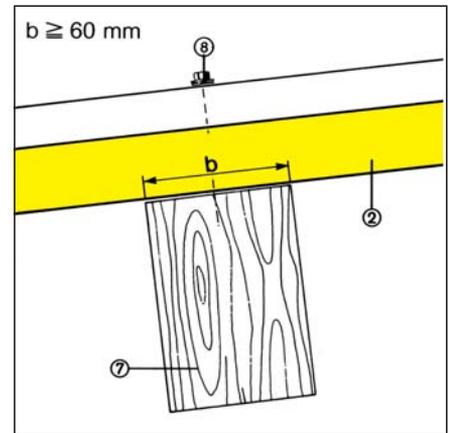


FIGURE 16c

- 2 ECOPANEL RL
- 7 Wooden purlin
- 8 Self-tapping screw

END SUPPORT

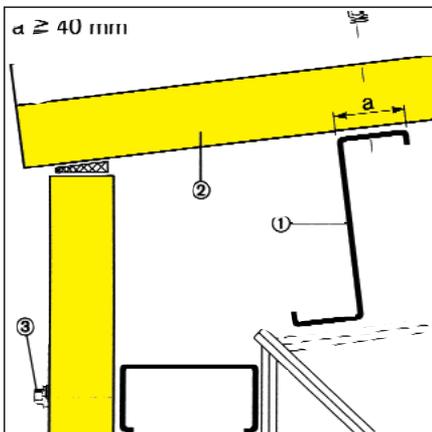


FIGURE 16d

- 1 "Z" Purlin
- 2 ECOPANEL RL
- 3 Self-drilling screw

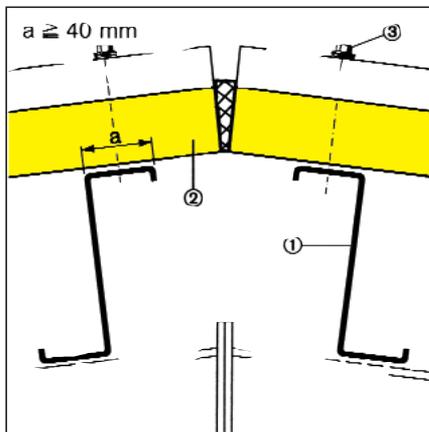


FIGURE 16e

- 1 "Z" Purlin
- 2 ECOPANEL RL
- 3 Self-drilling screw

ECOPANEL RL JOINT

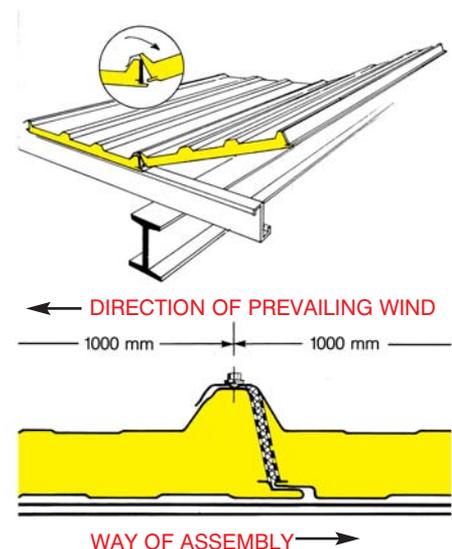


FIGURE 17



In case we want to cover wide roof surfaces (roof side > 16.0 M) and there is the need to join per length, the **ECOPANEL RL** is produced with external overlapping of trapezoidal steel profile. The upper trapezoidal steel sheet of the panel is bigger in length from the bottom steel sheet and without insulation. During the join per length, the one trapezoidal steel sheet covers the other and seals by pre-compressed seal. The length of the overlapping varies between 150 mm to 300 mm according to the inclination of the roof.

The typical is 200mm. There are two types of panels with overlapping. The Right=D and the Left=L. Looking at the **ECOPANEL RL** from the side of overlapping when the rib of side overlapping is visible on the right then the panels are considered **RIGHT** whereas when the rib of side overlapping is visible on the left then the panels are considered **LEFT** (FIGURE 23)

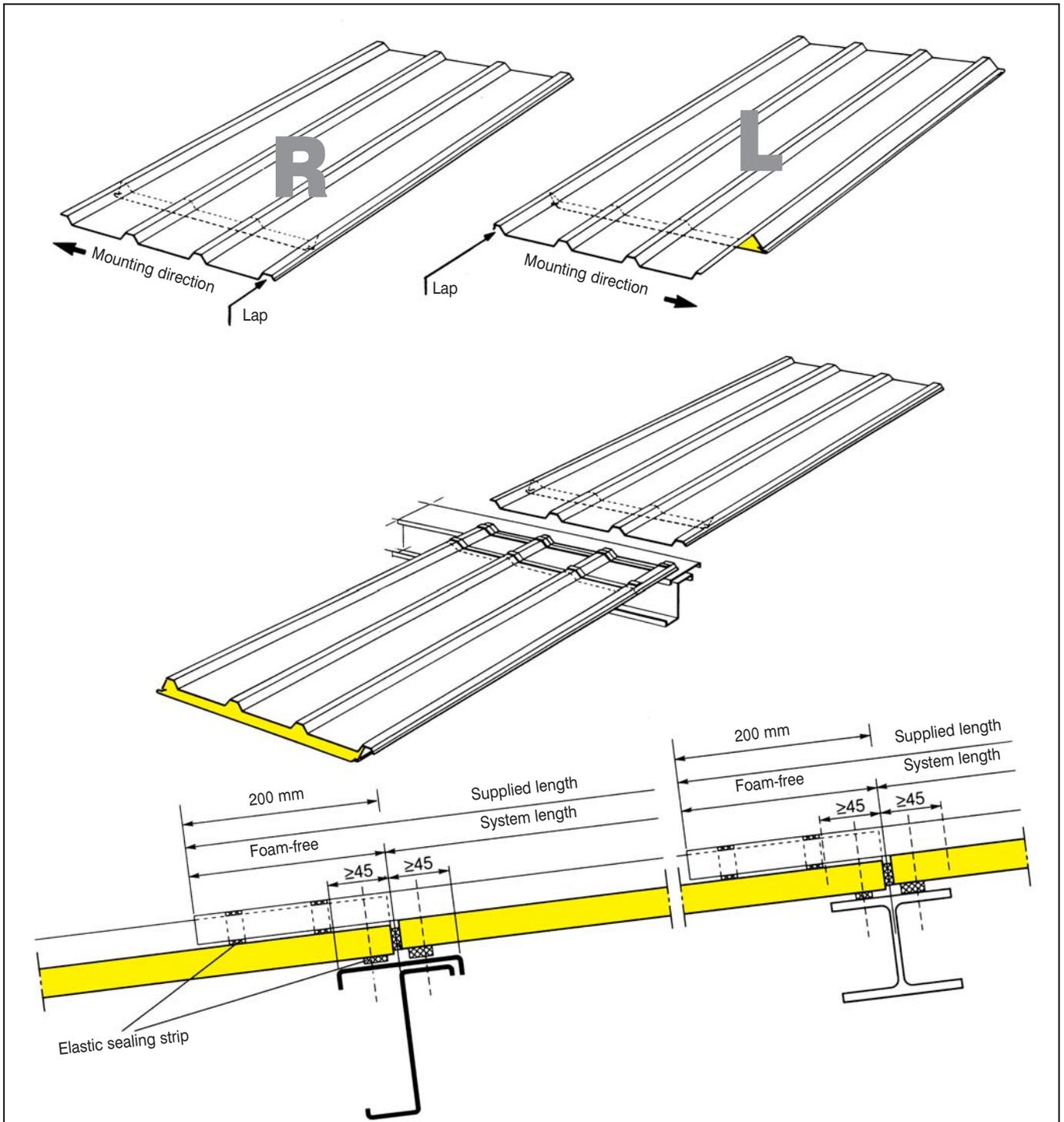


FIGURE 23

The **ECOPANEL WL-WLC** can be assembled on side rail sides made from steel, wood and reinforced concrete with built in metallic profile. The minimum widths of the support purlins are for the intermediate ones ≥ 60 mm while for the end ones ≥ 40 mm (**FIGURE 18 a, b, c, d**). The assembly of the side panels can be vertical and horizontal (**FIGURE 21**).

For the maximum allowed spans consult the load tables in the corresponding unit. At the bottom place of **ECOPANEL WL-WLC** during the vertical assembly there should be a space of about 5 mm (**FIGURE 19 A, B**). In the horizontal assembly the panels should be placed with direction from the bottom and upwards, so that their joints will not suffer of water insertion (**FIGURE 21**).

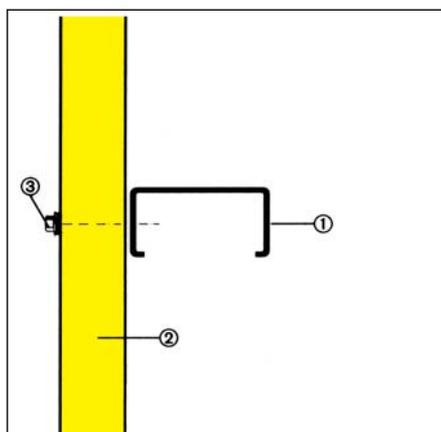


FIGURE 18a
1 "C" Purlin
2 ECOPANEL WL
3 Self-drilling screw

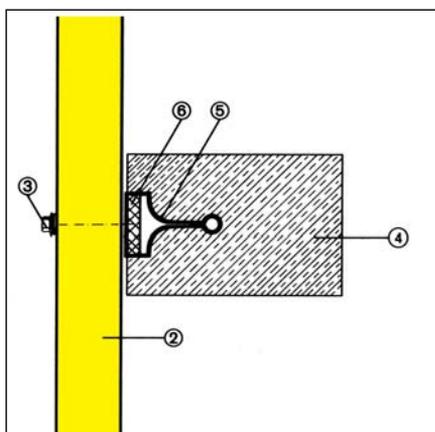


FIGURE 18b
2 ECOPANEL WL
3 Self-drilling screw
4 Concrete purlin
5 Built in metallic profile

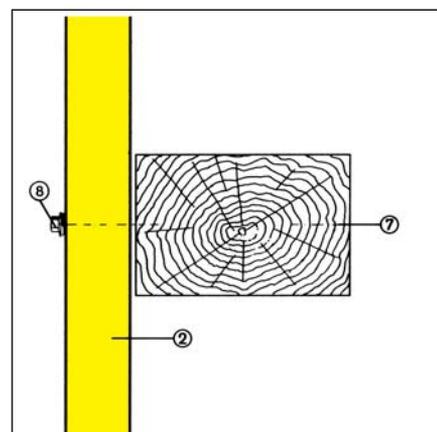


FIGURE 18c
2 ECOPANEL WL
7 Wooden purlin
8 Self-tapping screw

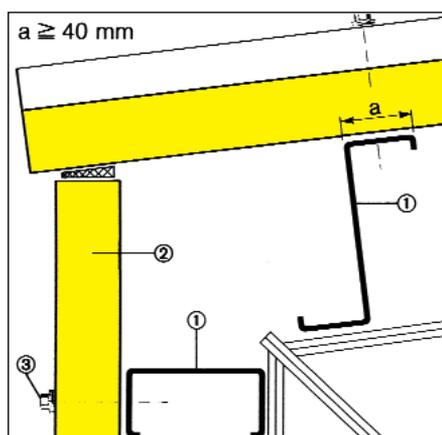


FIGURE 18d
1 "C" - "Z" Purlin
2 ECOPANEL WL
3 Self-drilling screw

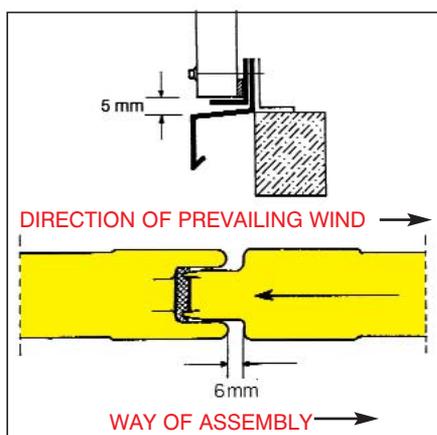


FIGURE 19a

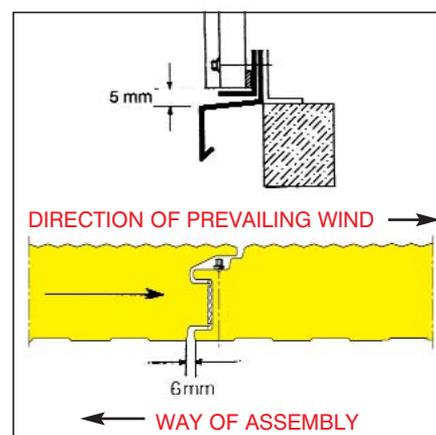


FIGURE 19b



After we assemble and support the first panel, we put the next in the female cavity of the first and press it so that it will implement correctly, leaving a space of about 6-8 mm.

The direction of assembling **ECOPANEL WL** should be the same with the direction of the prevailing wind in the area, so that their joints are not exposed.

(FIGURE 19, 20)

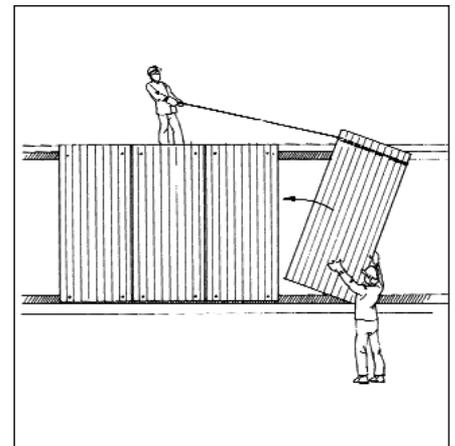


FIGURE 20

For the details of panel assembly and of the assembly of flashings consult the chapter which refers to the constructive details.

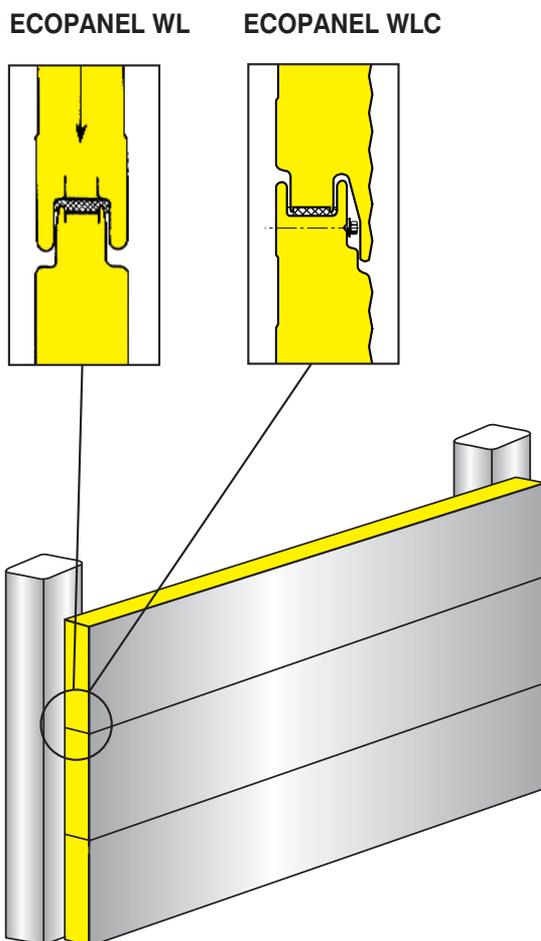


FIGURE 21

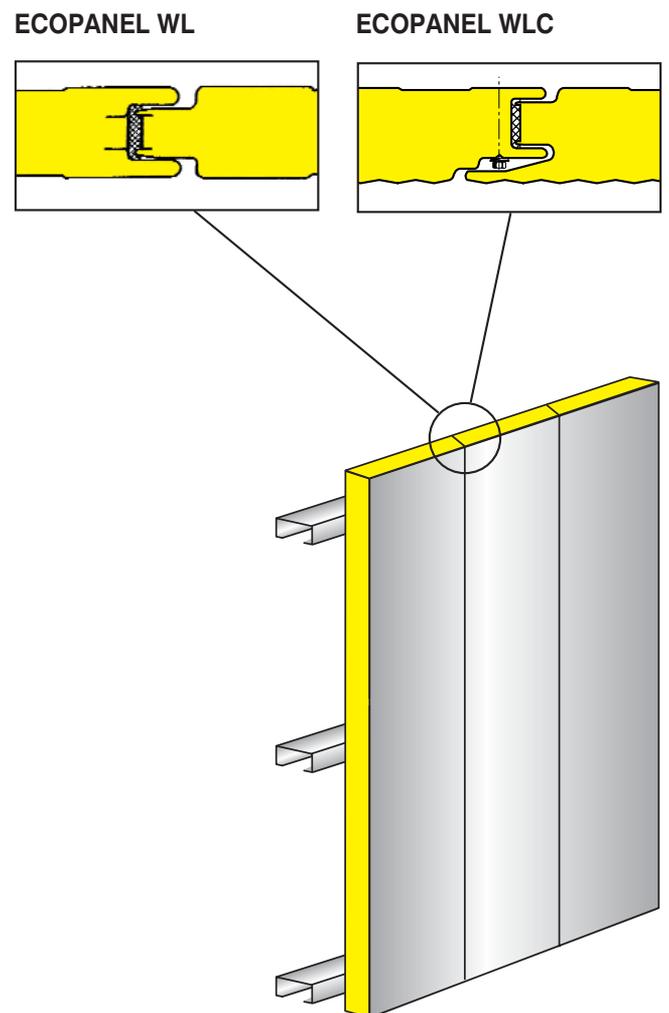


FIGURE 22