8

HANDLING - INSTALLATION

ASSEMBLY
GENERAL INSTRUCTIONS

To a great extent, the final aesthetic and functional results of a building project depend on the proper and careful placement of the cladding materials in addition to the special finishing parts (flashings).

Below are general instructions which must be followed during ECOPANEL assembly.

To begin with, the application study should take into consideration all features and specifications of the materials to be placed, as well as their additional details.

Before installation, check the building's frame, particularly the ECOPANEL support rails.

It is very important that the cladding materials are properly applied, that the purlins and sleepers longitudinal members are well levelled, with slopes within the limits of the equivalent European specifications and rules.

For panel cutting, which is necessary to be done at the construction area, use an electric circular revolving saw or reciprocating saw (jigsaw). Never use drills or manual hacksaws (FIGURE 11).
When cutting is completed carefully clean and remove metal scrap and shavings.

The team working on the building's roof should take into consideration all safety measures as stated by the equivalent Greek and European Standards.

It is very important that shoes with soft and non-slippery soles are worn.

The importance of the bimetal electrolysis phenomenon is often underestimated. It is caused by the direct contact of incompatible materials with the simultaneous presence of humidity. Bimetal electrolysis can bring about the quick oxidisation of one of the materials in contact.

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To deal with this problem, place a thin PVC membrane between the materials.

After each working day, it is important to thoroughly clean the surface and covering materials.

Remove all unneeded materials, such as screws, washers and other metal parts that may cause corrosion, oxidisation, stains etc.

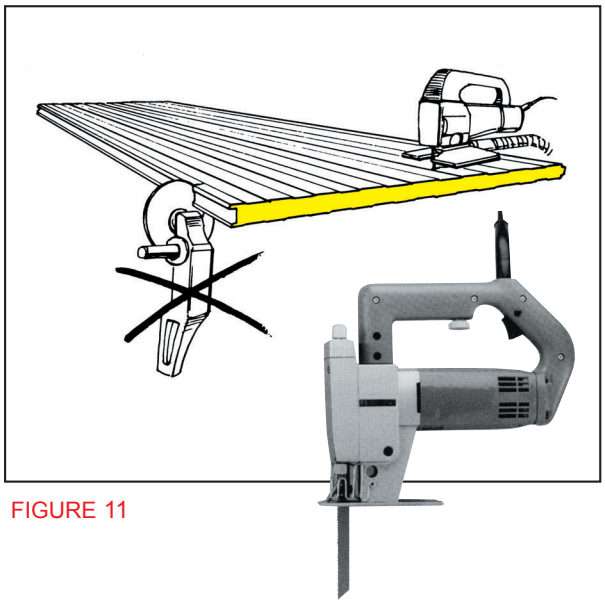


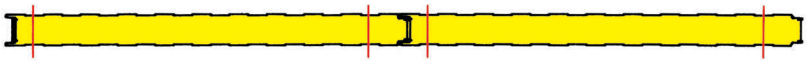
FIGURE 11

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 12b).

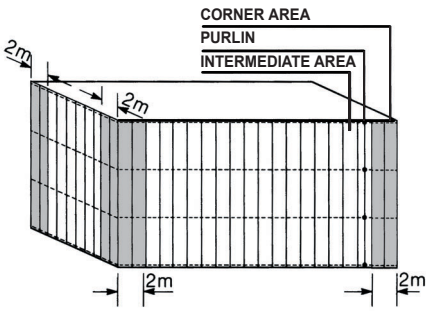
CALCULATED NUMBER OF FASTENING FOR ECOPANEL WL - ECOPANEL WLC

INTERMEDIATE AREA

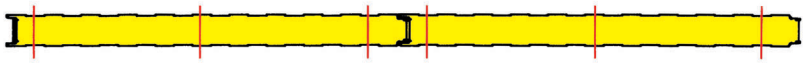


ECOPANEL WL: 2 self-drilling screws per purlin from both sides of joint

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



CORNER AREA

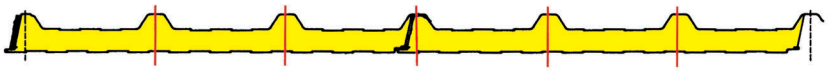


ECOPANEL WL: 3 self-drilling screws per purlin

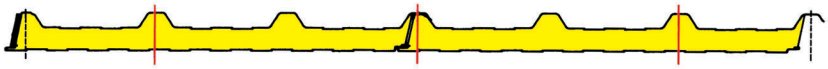
ECOPANEL WLC: 2 self-drilling screws per purlin in the join of male – female in a distance of 35mm the one below the other.

FIGURE 12a

CALCULATED NUMBER OF FASTENING FOR ECOPANEL RL

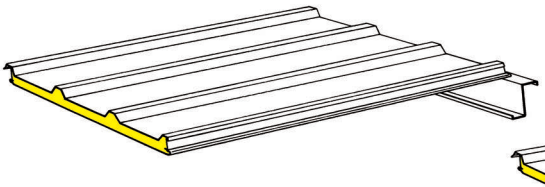


END PANEL: 3 self-drilling screws per purlin
MIDDLE PANEL: 2 self-drilling screws per purlin

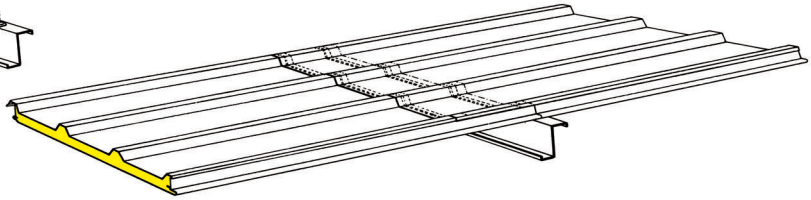


MIDDLE PANEL: 2 self-drilling screws per purlin.

MINIMUM ALLOWED ROOF INCLINATION FOR ECOPANEL RL



For roofs without join per length ≥ 5° (8,8%)



For roofs with join per length ≥7° (12,3%)

FIGURE 12b

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 to12 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 join per length 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).

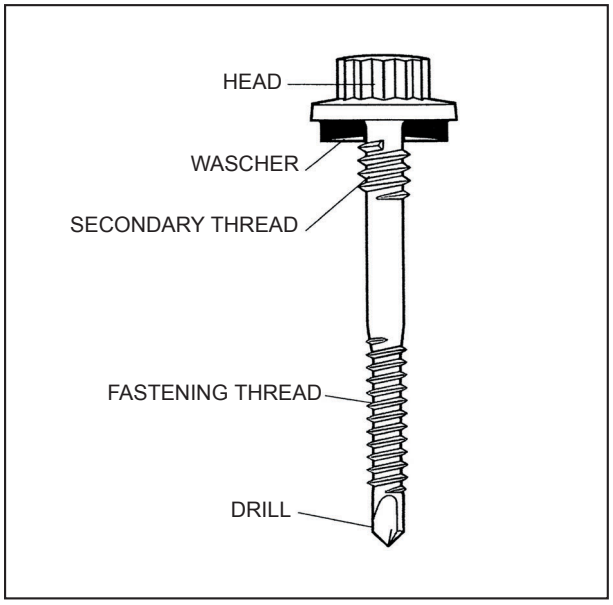


FIGURE 13

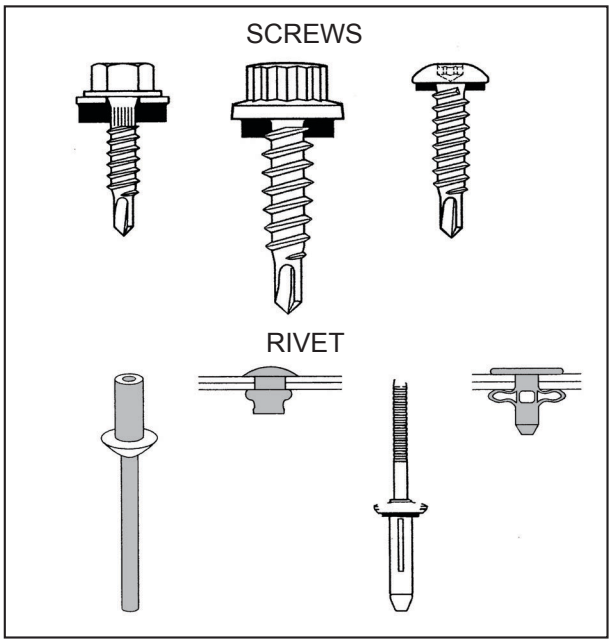


FIGURE 14

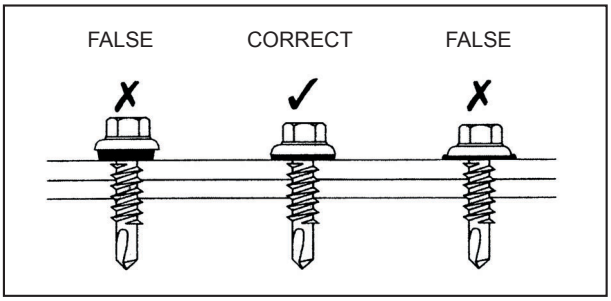


FIGURE 15

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 α, 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 join per length is ≥ 5° (8,8%) while with join per length is ≥ 7° (12,3%). (FIGURE 12b). 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

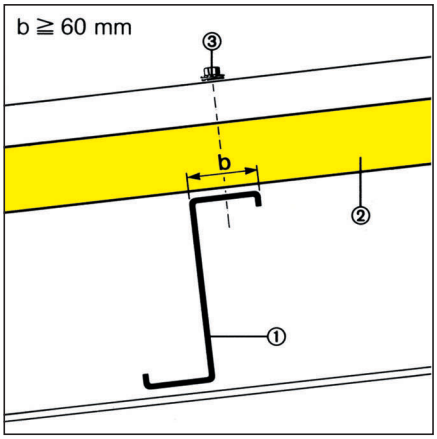


FIGURE 16a

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

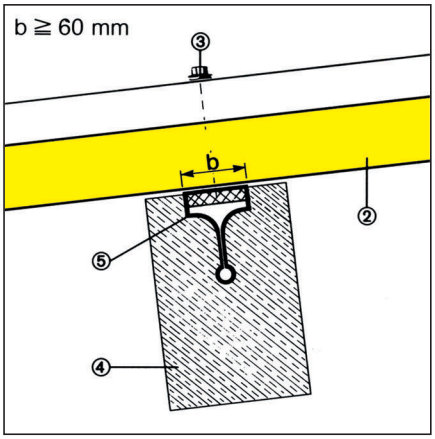


FIGURE 16b

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

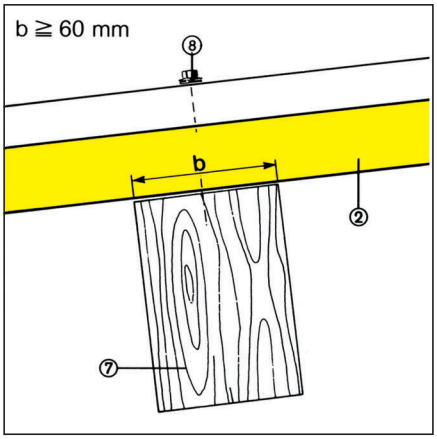


FIGURE 16c

2 ECOPANEL RL
7 Wooden purlin
8 Self-tapping screw

END SUPPORT

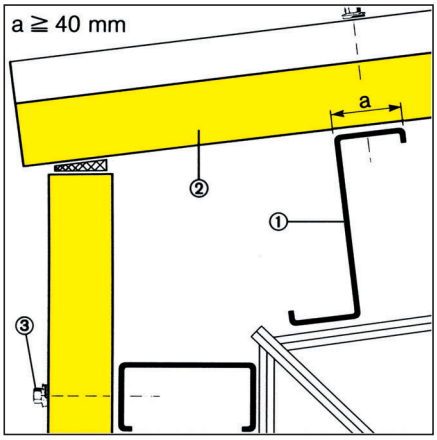


FIGURE 16d

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

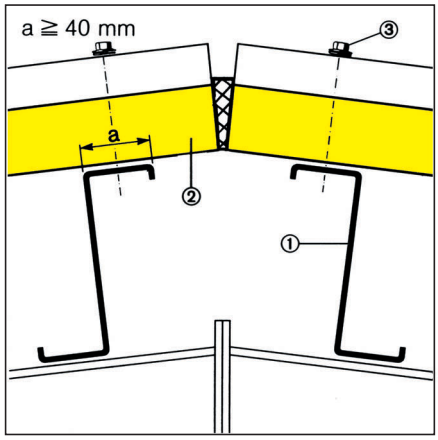


FIGURE 16e

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

ECOPANEL RL JOINT

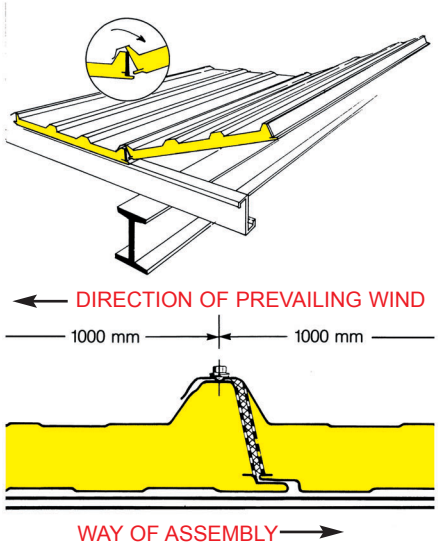


FIGURE 17

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 lengthof the overlapping varies between 150 mm to 280 mm according to the inclination of the roof.
The typical is 200 mm.

Internal bonding of the rigid polyurethaine foam and the steel sheet is prevented through the application of a special separating agent.
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)

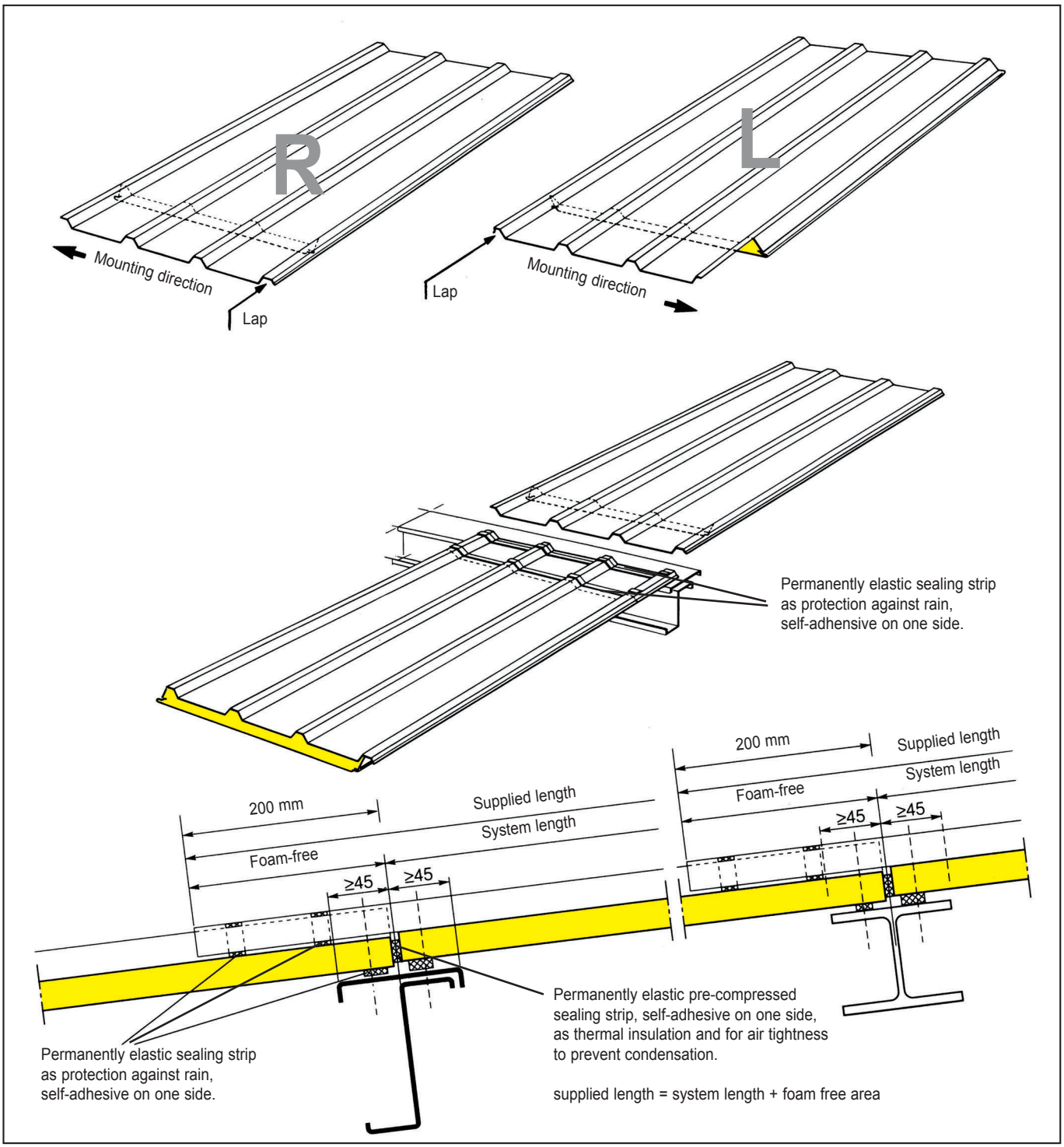


FIGURE 23

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 α, 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).

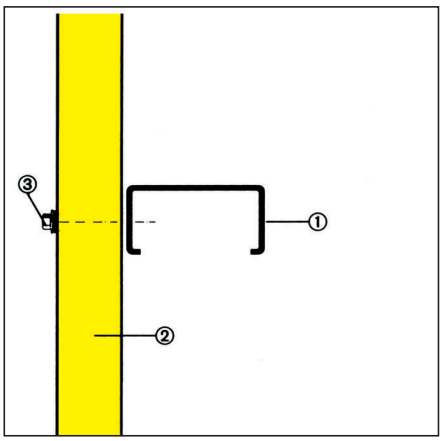


FIGURE 18a

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

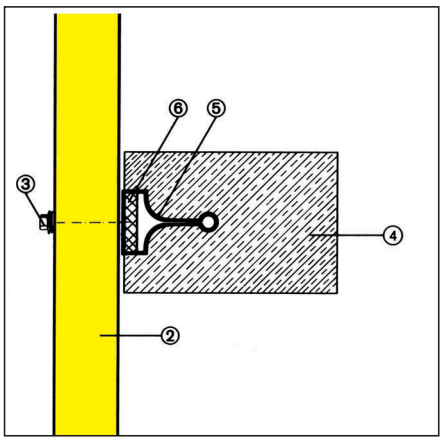


FIGURE 18b

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

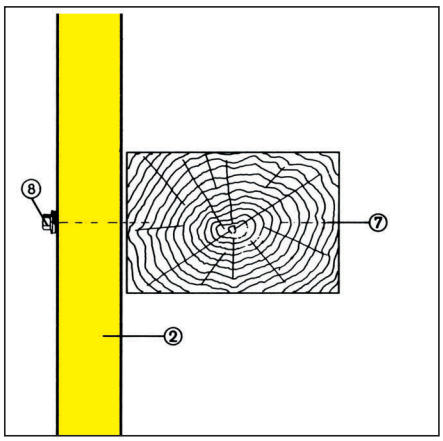


FIGURE 18c

2 ECOPANEL WL
7 Wooden purlin
8 Self-tapping screw

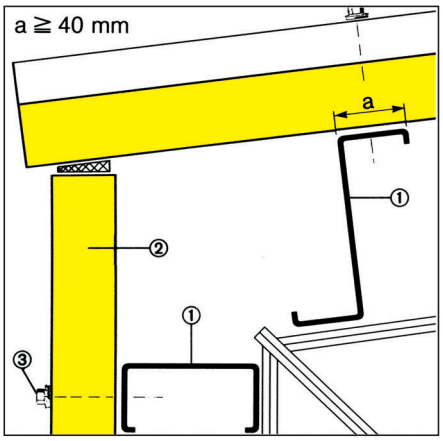


FIGURE 18d

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

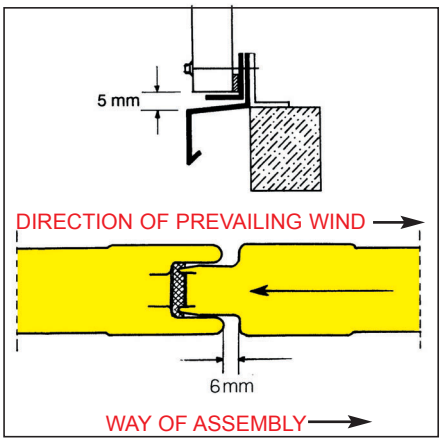


FIGURE 19a

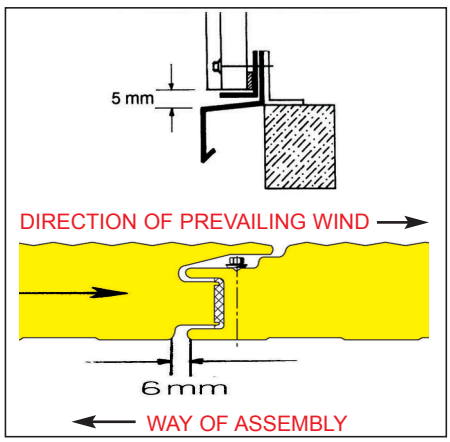


FIGURE 19b

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 joins are not exposed (FIGURE 19, 20).

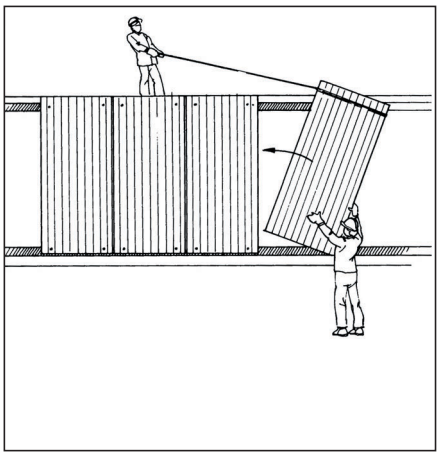


FIGURE 20

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

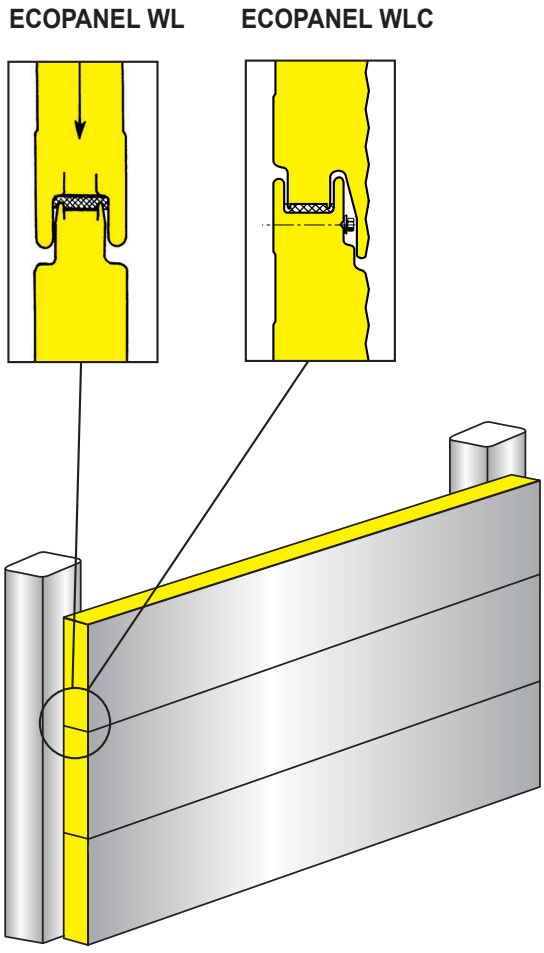


FIGURE 21

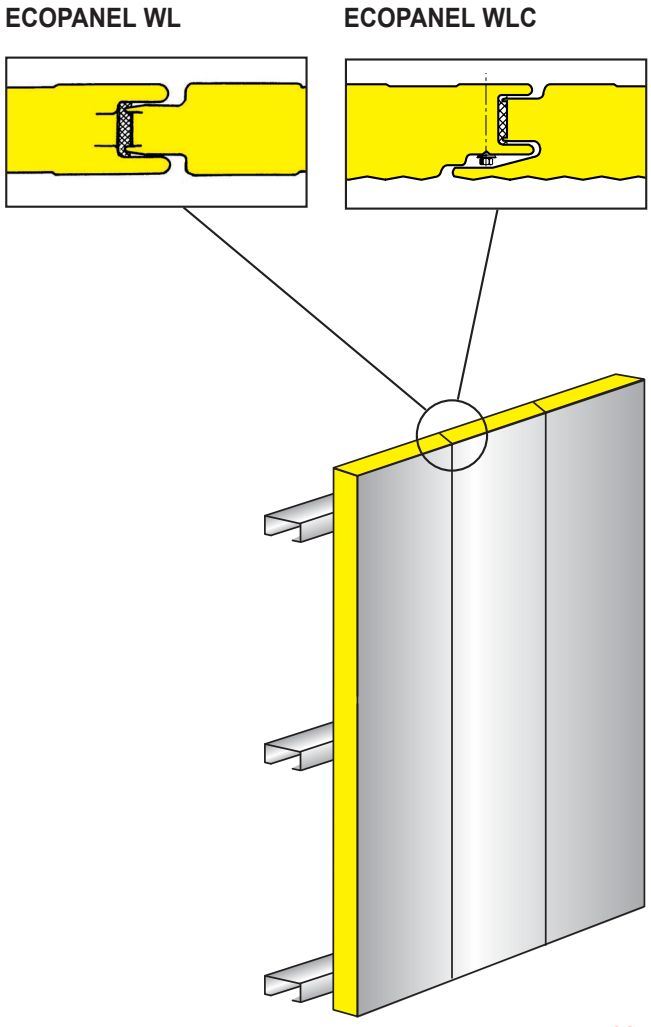


FIGURE 22