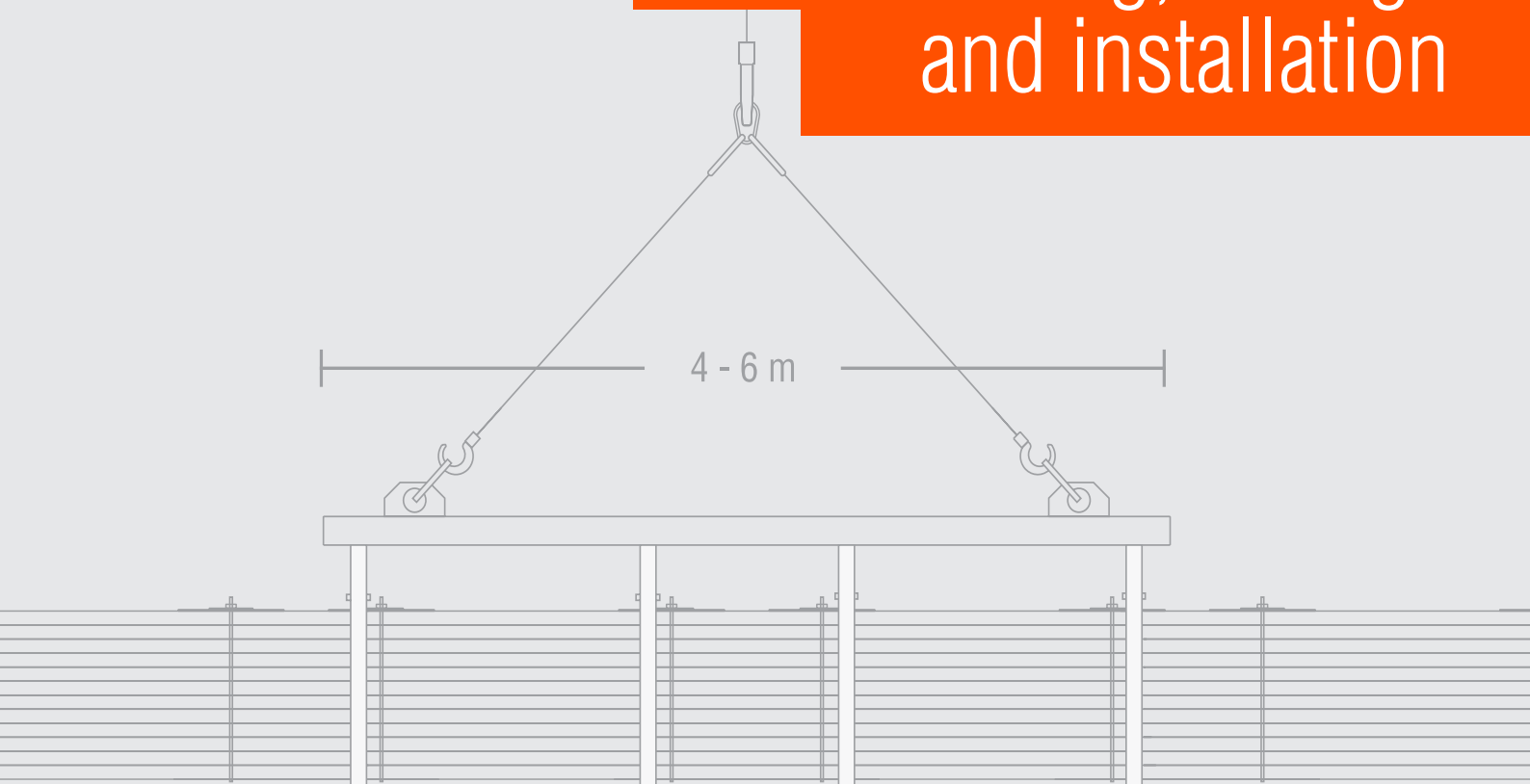




Instruction for sandwich panel loading, unloading, storage and installation



Instruction for sandwich panel loading, unloading, storage and installation

1- Preparation for Installation

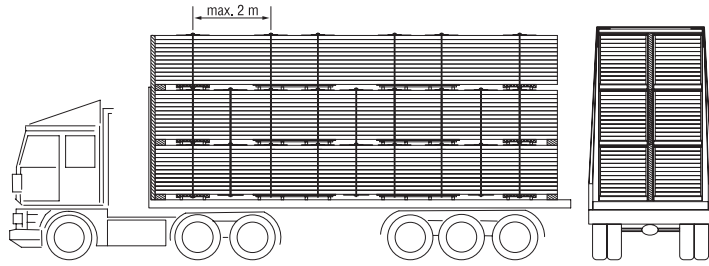
Before you order the panel's size and quantity; The installation area should be checked, the vehicle entrance and the crane layout plan should be made, the crane should be selected suitable for the height of the panel and panel packages and the weight of the panel and the height of the building, and the construction on which the panel will be mounted should be checked in accordance with the technical rules.

Care should be taken to ensure that the purlins are straight in length (lateral deflection) and that there are elevation differences between the purlins and the purlin and rain gutters are in the same plane and that the construction on the facade is horizontally on the rope and square and vertically in the plumb-bob and in the balance. Otherwise, there will be connection fit problem at the joints of the panel.

Please check on-site measurements before you give your orders.

Please check that the quality of the product you ordered is compatible with the packing list. Please check the products (size/piece) you receive with the packing list. Please check the solidity of the panels in the container or vehicle before unloading. The claims will be evaluated only if they are detected in the container/vehicle before unloading. The claims will be evaluated only if they are detected in the same container/vehicle they are loaded in Panelsan / Polatli. Panelsan is not responsible for the physically harmed panels, if they are transferred to an other container/vehicle or unloaded or installed.

2- Loading



The roof/facade and entire sandwich panel package length to be shipped should not exceed the length of the container/vehicle to be loaded. According to the demand; panels, which are longer than the length of the container/vehicle used for delivery, are not covered under warranty.

The vehicle that will make the shipment must definitely be suitable for side loading. All side supports of the selected vehicle must be detachable. Please make sure with your sales representative that the correct type of vehicle is sent to the factory.

Side and rear covers must be closed after loading. Particular attention should be paid to the smoothness and cleanliness of the floor of the vehicle body and the body length of the vehicle should be chosen in accordance with the panel length, and the panels should not overflow from the vehicle body. Each vehicle must have at least 10 safety ropes. Angle iron (plastic, wood, etc.) with 20 - 30 cm in the width should be placed with a maximum of 2 meters intervals, so that the safety ropes do not damage the panel edges and joints. For packages with a panel length of 10 m or more, at least 2 safety ropes(1 meter after the beginning and end) must be thrown in the second row.

A anti-shock and anti-friction protective material (EPS wedge, wooden wedge, etc.) should be placed between the panel packages stacked side by side and on the panel package foreheads. The tension of the safety ropes should be checked after the first 30 km when the vehicle sets out. Then, the safety ropes should be checked once in every 100 km and the package slip check should be done. The vehicle width should not be less than 2400 mm and the vehicle speed should be 70 km/h while driving the vehicle. No additional loads should be loaded on the vehicle to be loaded, except for the knowledge of authorized Panelsan personnel.No any other load is allowed on the panels. Otherwise, our products will be considered out of warranty as they may be damaged

For container loadings, a hole is drilled on the lower skid. During loading, 1 holes is towards the door. During the unloading process, the tip of the apparatus is attached to the holes, the rope is connected to the tip of the apparatus, and the unloading process is carried out safely with the pulling operation by taking support from the lower skid.

The lower skid, tow bar and rope equipment to be used in the unloading operations are provided by Panelsan to the customers with the products. Container type loaded in general conditions: 40 HC

Please remember the claims will be evaluated only if the panels are not transferred or unloaded. The claims will be evaluated in the containers loaded in Panelsan / Polatli.

The products are not suitable for transshipment and hard handling.

Products are not suitable for long-term storage.

The Hole For The Apparatus To Pull The Packages



Tow Bar and Rope Images



40HC Container



Container Loading Image 1



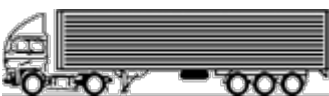
Container Loading Image 2



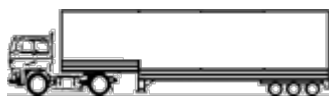
Container Loading Image 3



Type of Vehicle	LENGTH OF VEHICLE	WIDTH OF VEHICLE	HEIGHT OF VEHICLE	VOLUME OF VEHICLE
Tilt Truck	13,6	2,45	2,65	88
	13,6	2,48	2,7	92
Tilt Mega Truck	13,6	2,5	3	100
Normal Open Truck	Up to 18	2,45	-	-



Tilt Truck



Tilt Mega Truck



Normal Open Truck

Vehicle Loading Chart

Panel Type	Insulation Type	Insulation Thickness	Due to Lengths Unit/Package			
		Insulation Thickness (mm)	Domestic Transportation (6 Package/Vehicle)		Container (4 Pack./Container)	Closed Vehicle (6 Pack./Vehicle)
			2,80 - 9,00 m	9,00 - 13,60 m	2,80 - 11,9 m	2,50 - 13,60 m
3 and 5 Ribs Roof Panel	Polyurethane (PUR) Polyisocyanurate (PIR) Expandable Polystyrene (EPS)	30	18	18	22	16
		40	14	14	18	12
		50	12	12	16	10
		60	10	10	14	8
		70	8	8	12	8
		75	8	8	12	6
		80	8	8	10	6
		100	6	6	8	6
		120	6	6	8	4
		150	5	5	6	4
5 Ribs Roof Panel	Rockwool / Glasswool	50	12	12	(Max 14)	10
		60	10	10	(Max 14)	8
		80	8	8	(Max 10)	6
		100	6	6	(Max 8)	4
		120	4	4	(Max 6)	4
		125	4	4	(Max 6)	4
		150	5	5	6	4
Wall Panels	Polyurethane (PUR) Polyisocyanurate (PIR) Expandable Polystyrene (EPS)	40	20	20	27	16
		50	16	16	22	14
		60	13	13	18	12
		70	11	11	15	10
		75	10	10	14	10
		80	10	10	13	9
		100	8	8	11	7
		120	7	7	9	6
		150	6	6	7	4
	Rockwool / Glasswool	50	12	12	(Max 20)	10
		60	12	12	(Max 18)	10
		80	9	9	(Max 13)	9
		100	8	7	(Max 10)	7
		120	6	5	(Max 8)	6
		125	4	4	(Max 7)	4
		150	6	6	7	4
		150	6	6	7	4
Sinüs Wall Panels	Polyurethane/ Polyisocyanurate	50	12(max)	12 (max)	(Max 16)	10
		60	10	10	(Max 14)	8
Cold Room Panels	Polyurethane (PUR) Polyisocyanurate (PIR)	60	13	13	18	12
		80	10	10	13	8
		100	8	8	11	7
		120	7	7	9	6
		150	6	6	7	4
		180	5	5	6	4
		200	4	4	5	3
POLYISO(KRAFT)	POLYISO PIR/PUR	30	27	27	28	30
	POLYISO PIR/PUR	40	20	20	28	23

3- Unloading

The panels on the vehicle should be unloaded in the packages to the roof or the construction site via a crane or forklift with specific apparatus. Specific crane should be selected as there will be differences in package sizes and weights. Packages with a panel length of 1 to 8 meters should be unloaded with a 4-blade forklift apparatus, and panel packages of 8 meters and above should be unloaded with a 6-blade forklift apparatus. Stacking for packages on the roof should not be placed in a single span and should not be on top of each other be on top of each other, packages should be placed on the roof at appropriate intervals.

When lifting with a crane; steel cables or chain ropes should not be used. Flat ropes should be used and they should be nylon, silk or hemp. Their width should be at least 20 cm. Wooden wedges or a material that will protect the edges of the panel must be placed where the ropes touching the panels. Wedges should be 3.5 cm in the length from both sides of the width of the pack. In the same way, wedges with same size as the lower wedge should be placed at the points where the rope touches the top of the package.

The ropes must have the required lengths. Otherwise, the panel over laps will be damaged. (Figure 1) Packages longer than 6 meters should be lifted with specific apparatus. (Fig. 2). The length of the apparatus to be used should be at least half of the minimum panel length. One pack at a time should be lifted in the upright/upward way.

Fractures that are claimed to be on the surface of the panel will be evaluated if they are detected and documented before they are unloaded from the transport container/vehicle. PANELSAN is not responsible if the cracks on the panel surface are detected after they are unloaded from the transport container/vehicle. Loading must be done in such a way that it does not exceed the container/vehicle capacity. Responsibility for loadings exceeding the vehicle capacity belongs to the customer.

Figure 1

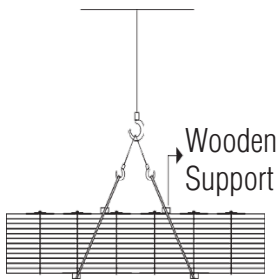
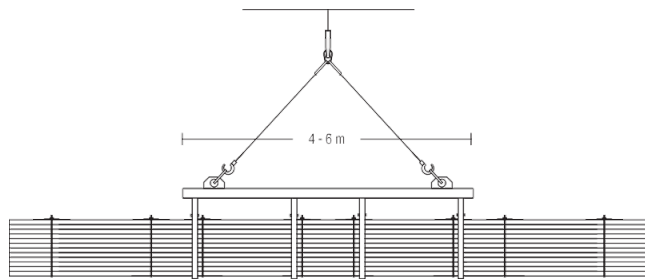


Figure 2



4- Storage

If the panel packages are to be stored unopened, they should be stored in a closed environment protected from water. Panel packages should be stored on a low slope (2-3%) surface to protect them from water vapor. Before and during installation, it should be prevented that the panels come into contact with substances that may cause corrosion such as soil, lime, mortar, fertilizer, acid, salt and alkali. Operations that will create scratches on the material should be avoided.

If it is to be stored in an open environment, in order to protect it from water and the effects of the sun, their upper part should be covered with a UV resistant nylon tarpaulin in a way that will not cut off the air flow and will not form a steam-pool.

It should be lifted at least 20 cm above from the ground (Figure 3-4). Care should be taken not to stay in the open environment for more than 1 week and humidity control should be done at the beginning of every day despite the precautions taken for each stocked package.

To avoid crushing the panels, panel packs should not be stacked on top of each other and in a way that there will be a weight on them (Figure 5).

The protective films used on the outer surfaces of the panels are a precaution against scratches that may occur during the transportation and installation of the panels. This film should be removed from each panel immediately after its installation. Because, the film will stick to the painted surface with the effect of heat and sun, it will be difficult to remove it and it will damage the paint (Figure 6). The protective films of Panelsan sandwich panels must be removed within 1 month from the production date. Otherwise, complaints about the film will not be taken into account, and the panel will not be covered by the warranty. The opened panel package should be stored at the end of the working day, by renewing its package and taking the necessary occupational safety measures and taking precautions so that it is not affected by external weather conditions.

Figure 3

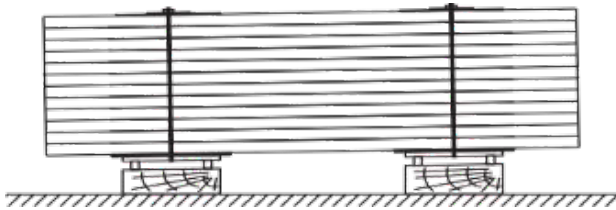


Figure 4

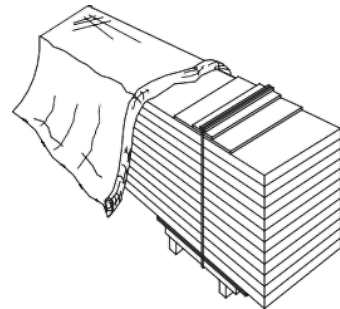
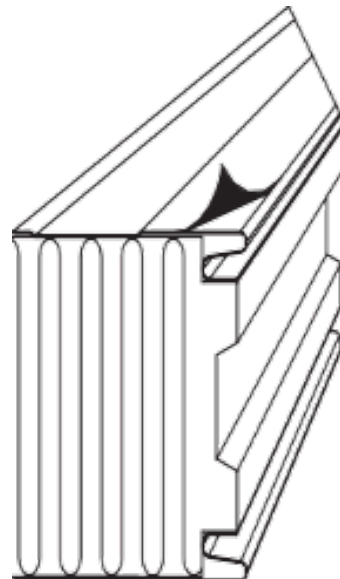


Figure 5



Figure 6



5- Lifting

After the panel packages are opened, do not pull the panel. Please lift it. Lift all panels one by one not to scratch the lower panel. Perform the lifting operation with vertical lifts (vacuum-dovetail, special apparatus) or with sufficient manpower (Figure 7-8-9). Never lift the panels by holding at the connection ends or at the overlaps. Otherwise the sheets will be separated from the core which is not under warranty.

Figure 7

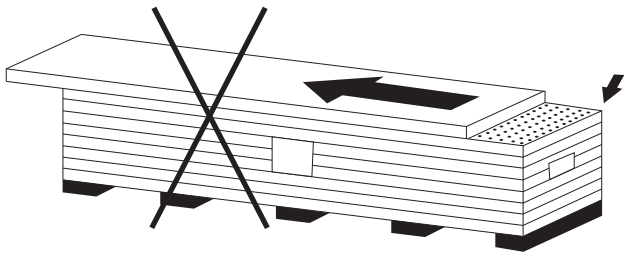


Figure 8

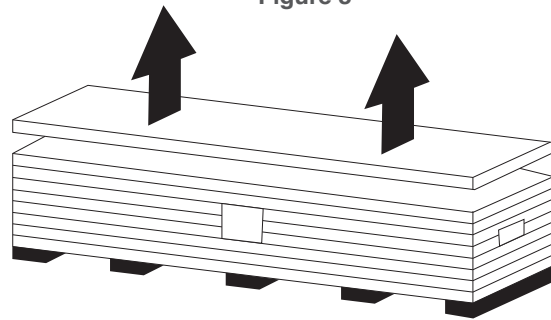


Figure 9

Figure 9 A - Vertical Lift

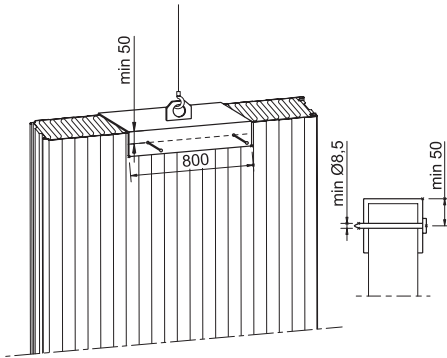


Figure 9 B - Manuel Transfer

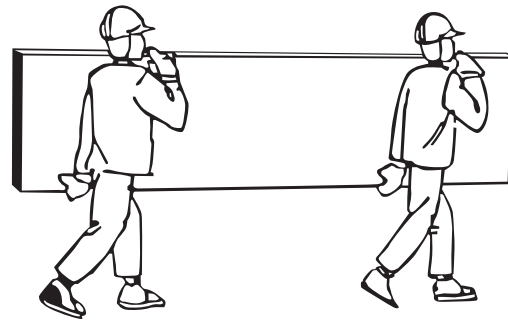


Figure 9 C - Lift

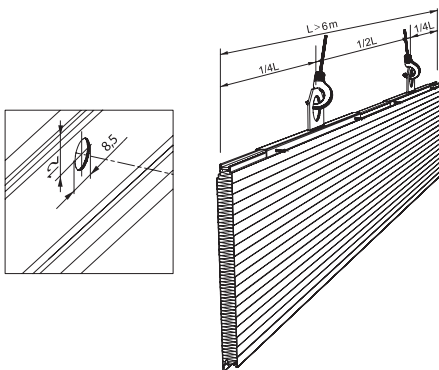
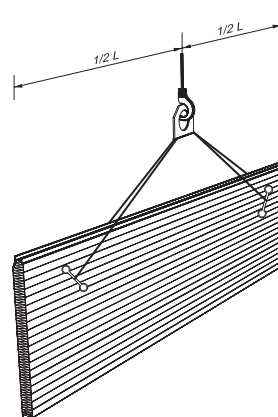


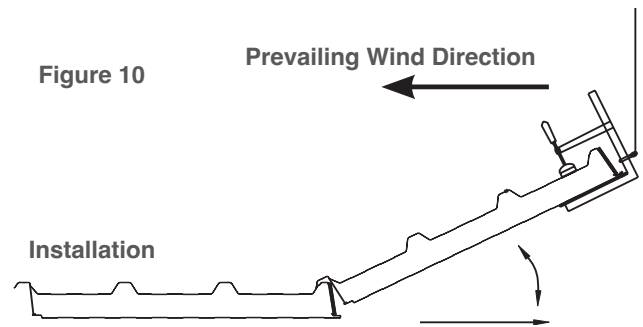
Figure 9 D - Vacuum Lift



6- General Installation Rules

After the control of the carrier to which the panel will be attached and the unloading of the material, the prevailing wind direction in the field is determined.

According to the connection detail of the roof panel and the vertical or diagonal facade panel, laying starts against the prevailing wind direction (Figure 10).



Adhesive sponge (min. 2 / 10mm) should be applied to the surfaces where the carrier system and the sandwich panel come into contact with each other and to the surfaces where the sandwich panel and accessory materials come into contact with each other. This application will prevent thermal bridges and corrosion caused by metal-to-metal contact.

If possible, the accessories of the assembled panels should be closed immediately. If there is no such opportunity; precautions should take against humidity, and the open parts of the panel should be covered with nylons. In order to avoid problems caused by the high water absorption capacity of the rockwool panel, the panels should be protected against moisture as long as the installation continues.

While mounting the accessories, mastic should be applied 2 cm from the inside of the accessories (transverse and longitudinal) to prevent air and water intrusion. In cold room panels, there is 2 mm mastic gap at the panel joints. It should not be forgotten that these areas should be insulated with mastic from the inside and outside. While selecting the screws to be used as fasteners;

- Screws with high corrosion resistance, suitable for panel thickness and type, suitable for the thickness and type of the carrier to be connected, should be selected.

It should be checked whether the drilling capacity of the screw is appropriate not. In addition, the correct screw should be selected by calculating the load that the panel will give to the screw.

- While the panels are being assembled, the screws should not be driven in absolutely (except concrete screws), they should not be screwed in a tight or loose way more than adequate by using the appropriate torque setting, they should be screwed correctly (Figure 11 A). The metal coating of the panel facing inwards should be connected to the carrier column, but the outer metal screwed should be screwed without losing its form (crushing due to screwing) (Figure 11 B-C). Because mineral wool insulated panels are fibrous and flexible, screwing should be done with metal fastening plates (Figure 12). Plates suitable for the connection detail of the panel should be selected; screwing on roof panels should be done with a saddle profile with EPDM gasket and suitable for dent dimensions. (You can request saddle profiles suitable for your roof from your PANELSAN customer representative.)

TS EN 14509 standard is valid

Figure 11 A

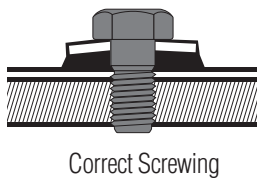


Figure 11 B

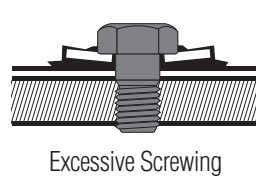


Figure 11 C

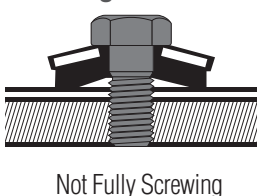
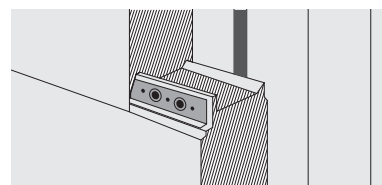


Figure 12



- After removing the protective films, care should be taken to ensure that the installed surface is on the same side.
- In the panels shipped on a lot basis, the same lot production should be installed on the same façade in order to avoid color tone difference – Necessary care should be taken for special warning labels during installation.
- During installation, attention should be paid to actions carried out in the field such as cutting, welding and similar processes that may cause burr formation and affect the surface of the panels.

During the installation of the Membrane Panel;

- Before starting the welding process, it should be ensured that the application surface is clean and dry.
- During installation, it is necessary to cover the screws used in such a way that they cannot be seen while welding.
- Membrane welding should be done with a specific welding machine and at a suitable temperature.
- Welded joints must be flat. Accumulation of water and similars should be prevented.
- When the membrane panel installation is finished, the surface should be cleaned. Scratches, punctures and similar material that may cause deformation should not remain on the surface.
- After the installation is completed, the surface should not be pressed to prevent deformation. If necessary, a walking path should be made. If a dark color is chosen on the outer surface of the panel, the following conditions must be followed in order to minimize the deformation;
- The construction where the panel will be installed must be flawless in both horizontal and vertical directions.
- The team that will do the panel installation must be experienced and act in accordance with the installation, lifting and unloading rules and conditions.
- Screws and equipment specific for the panel and construction should be selected and assembled with the appropriate torque.
- The project should be evaluated well and panel and metal thickness should be selected in accordance with static tables (load bearing tables).
- In the panels shipped on a lot basis, the same batch production should be installed on the same facade, to prevent tone difference on the same surface. – Necessary care should be taken for special warning labels during installation.
- On roof and facade panels, the “Panel Lengths by Color Groups” table should be taken as a basis for panel lengths.
- In order to minimize thermal stress, the air temperature on the day of installation should be minimum +10 °C and above.
- Facade panels should be installed with a single opening system.

Sandwich panels are long-lasting products. For this reason, even though it is completely flat when it leaves the factory, it can be exposed to different factors (load carrying, wind, pressure, indoor-outdoor temperature difference, etc.) over time. These factors can cause deformation on the flat surface and loss of surface smoothness. For this reason, even if all these conditions are fulfilled, Panelsan does not guarantee and does not take responsibility for homogeneous smoothness on outer surfaces in the dark color group.

7- Maintenance and Repair

In order to prolong the life of sandwich panels, the panels should be checked at least once a year in line with the questions below, and if necessary, assistance should be requested from Panelsan in return for a fee.

- Are there any loose, broken or displaced screws?
- Are there any tears or scratches on the panel surface?
- Is there an area that receives water?
- Do sealants need to be renewed?
- Are there any accessories that deteriorate with the effect of weather conditions?

Panel surfaces should be washed once a year with non-pressurized water, if there are stains, they should be cleaned with water-based liquid dishwashing detergent and a soft sponge without pressing. (Consult the company for non-removable stains. Never do any chemical treatment.)

If there are small scratches on the surface of the panel that do not go down to the metal, it should be repaired with an air-drying touch-up paint and a painter's brush, depending on the paint type, by getting information from the company. (You should know that there will be a tonal difference even if you have the same type and color of paint. For this reason, it is recommended to experiment in a small place.)

If there are scratches on the zinc (galvanized) layer on the panels, and if there are panels that have been crushed by an external force, they should be replaced with new ones immediately. If these rules are followed, the usage period of the panels will be extended.