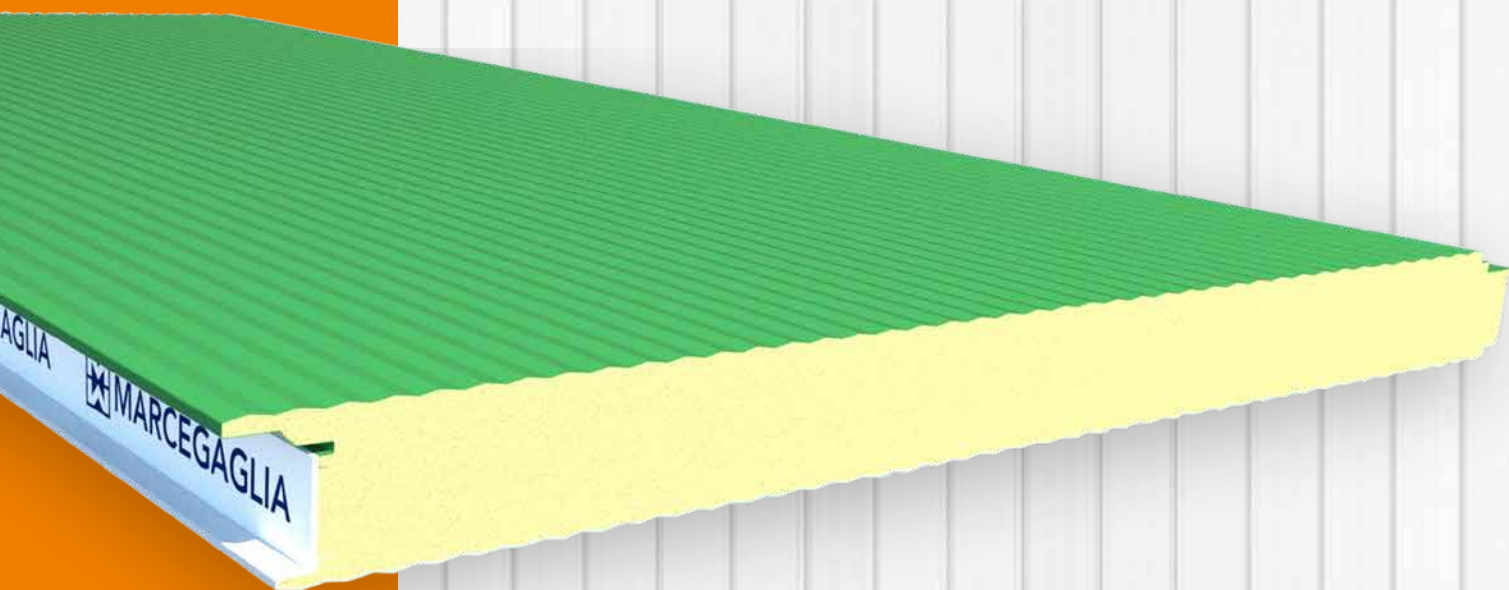




Technical manual

MB HIDDEN FIX





INFORMATIVE NOTE

The technical documentation and suggestions contained in this manual are the best understanding of the company regarding the properties and uses of the products and are intended to support the work of installers and technicians operating in the metal construction sector by providing useful information and suggestions concerning use.

However, given the many possibilities of use and the possibility of interference from external elements, the company assumes no responsibility for possible results. It is the responsibility of the user to ascertain the suitability of the product for the intended use, assuming responsibility for any consequential damage.

The user is also required to know the procedures necessary for the installation of the products, including the preparation of the **safety plans** and the updated requirements of all current regulations, in order to avoid dangerous situations.

The values indicated in **the capacity charts** are the result of practical tests carried out in our laboratories and certification bodies; however, the verification of the same, depending on the application, is the responsibility of the design engineer.

For any further information or clarification, please contact the Marcegaglia Buildtech technical office at the addresses listed on the back.

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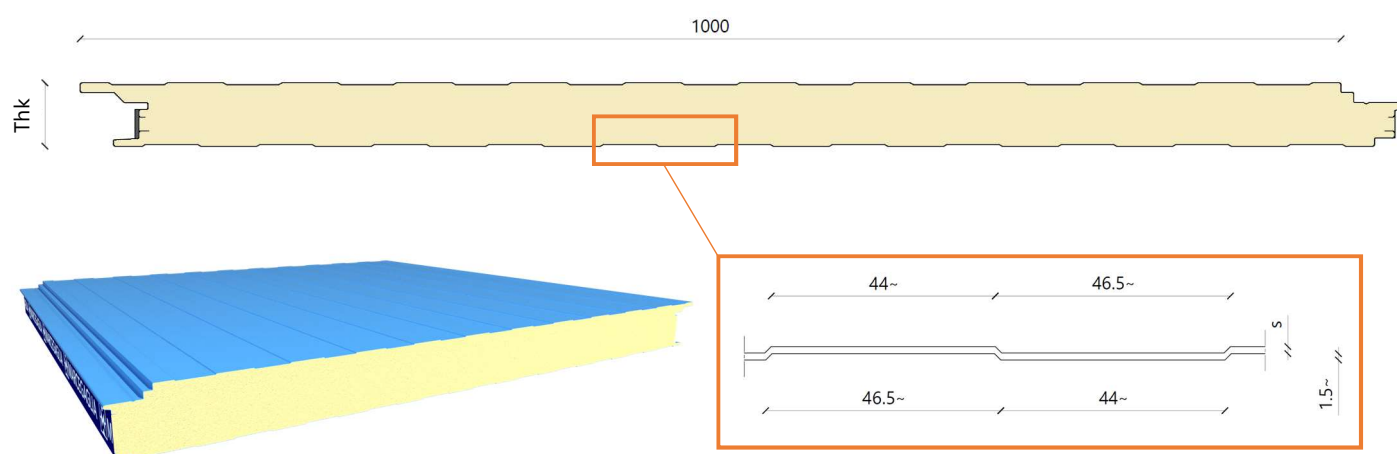
The dissemination and copying of this document are prohibited - art. 1175 and 2015 of the Italian Civil code.
Any violations will lead to a criminal prosecution as per art. 646 of the Italian Penal code.

MB HIDDEN FIX

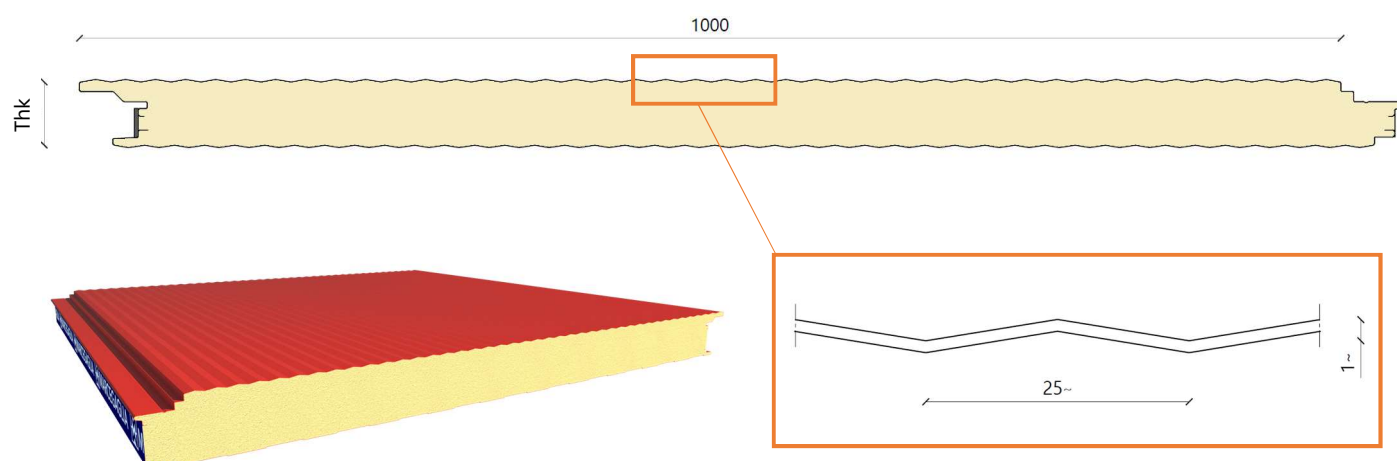
Sandwich panels with polyurethane insulation and concealed fixing joint, used for the construction of walls of high aesthetic value intended for indoor and outdoor environments.

Product typology

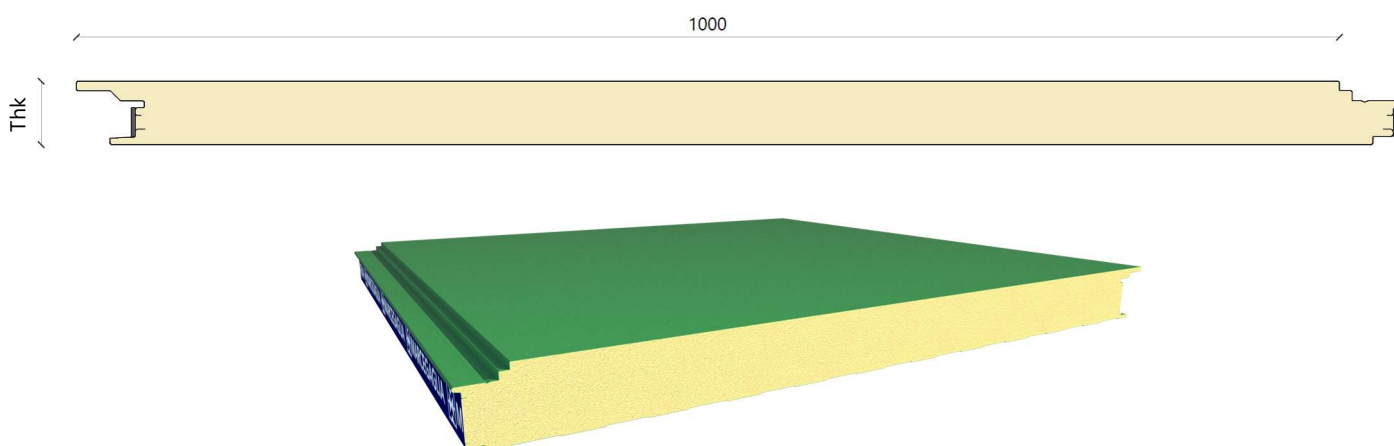
Ribbed wall panels with concealed fixing - PDF



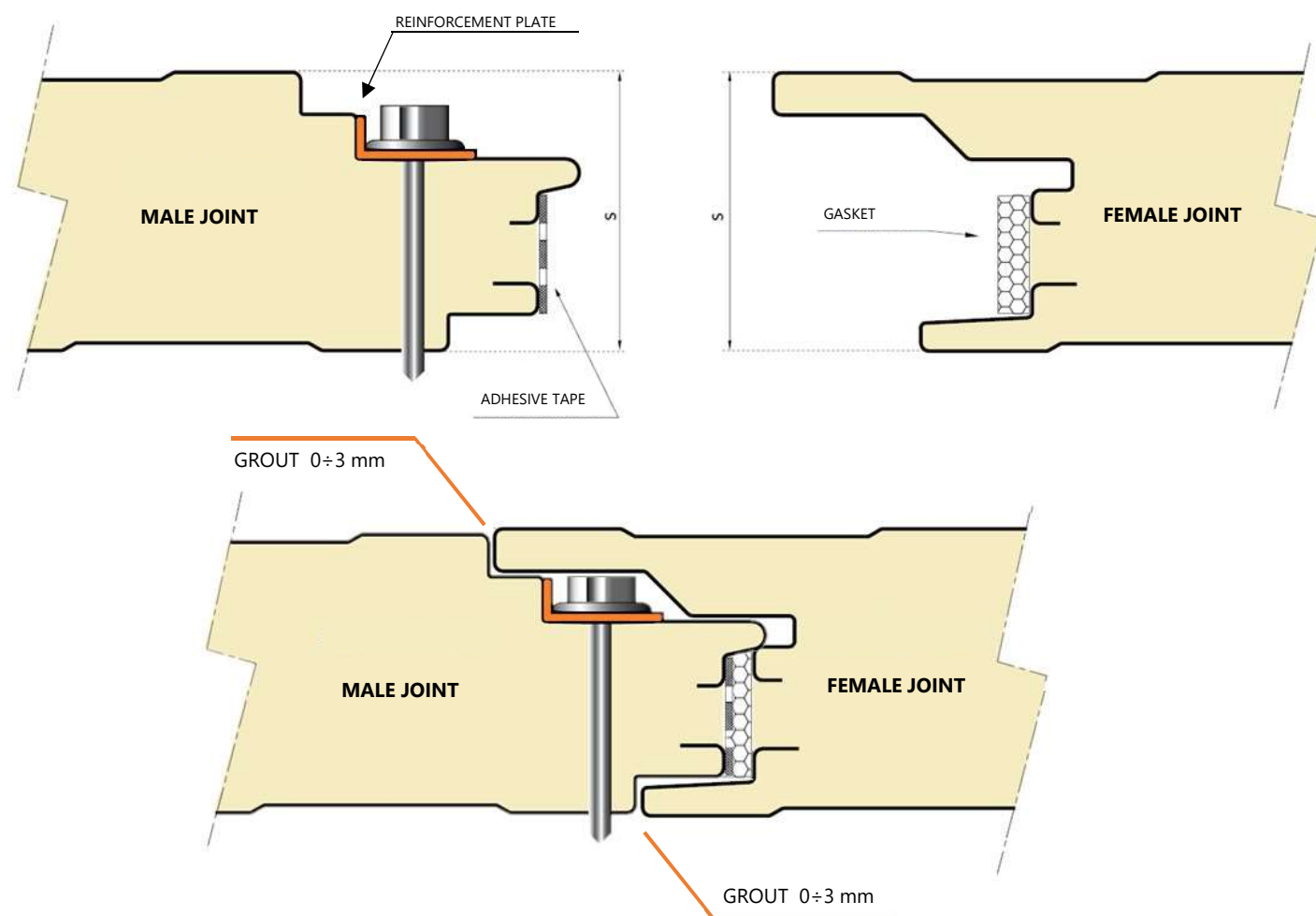
Micro-ribbed wall panels with concealed fixing - PSF



Flat wall panels with concealed fixing - PLF



Joint typology



Thanks to its shape, the concealed fixing joint designed by Marcegaglia Buildtech allows the creation of walls that permit concealed fixing systems while still guaranteeing the functionality of the product.

The gasket inserted during production helps improve the hermeticity of the joint.

An empty space is formed on the external side of the panel in correspondence of the joint which is necessary for the housing of the selected fastening system, and therefore it is not due to imperfections of the panel, but it is linked to its functional design.

Technical specifications

	MB HIDDEN FIX
Useful width	1000 mm
Length	Variable according to the construction needs related to the dimensions of the roofs to be made. Maximum productive length 15 m. Standard transport limits 13.5 m.
	50 / 60 / 80 / 100 / 120
Panel thickness	CFC and HCFC-free polyurethane formulations are used which produce anisotropic and anti-mould insulating foams with high content of closed cells (>95%) . Particularly high-performance fire reaction foams can be used for fire performance requirements.
Insulation	38 kg/m ³ ± 3
Total average density	$\lambda = 0,021 \text{ W/mK}$
Tolerances	<p>Panel thickness: ± 2 mm if ≤ 100 mm; ± 2 % if > 100 mm</p> <p>Panel length: ± 5 mm if L ≤ 3 m, ± 10 mm if L > 3 m</p> <p>Panel width (pitch): ± 2mm</p> <p>Longitudinal deflection: ≤ 0,5% of the length</p> <p>Transversal deflection: ± 10 mm per meter</p> <p>Deviation from straightness: ≤ 1 mm per meter</p> <p>Deviation from flatness: ≤ 1.5 mm for L > 700 mm</p> <p>Deviation from squareness: ± 3mm</p> <p>Misalignment of the supports: ≤ 3 mm</p>
	Slight spills of foam from the joints and any minor faults or irregularities in the position of the gaskets are considered normal.

Metal supports

Marcegaglia Buildtech provides for the configuration of the panels with the following metal support variants:

Pre-painted steel, in accordance with EN 10169 (coil coating) based on EURONORMS:

- for normal production:
 - with MP3 polyester coating
- for special production:
 - with modified MP5 polyester coating
 - with MP10 polyvinylidene coating
 - with MP20 polyurethane / polyamide coating.

Plasticized galvanized steel EN 10346

Natural aluminium, pre-painted EN 485-2, EN 573-3, EN 11396.

Stainless Steel, in accordance with requirements EN 1172, EN 1173, EN 1412.

Protection of the supports

To prevent the pre-painted metal supports from being damaged during production and subsequent movement of the panels, a polyethylene adhesive film is used which must be removed during the installation phase or in any case not later than 60 days from the production of the panels.

Please note that it is highly recommended not to store the panels in a place with prolonged sun exposure.

Marcegaglia Buildtech strongly advises against the request for material without a polyethylene adhesive film and assumes no responsibility for any damage in the event that such a request is submitted.

Panels weight

STEEL

Supports thk. [mm]		Panel thickness				
		50	60	80	100	120
0,5 / 0,5	Kg / m ²	10,25	10,60	11,40	12,15	12,90
0,6 / 0,6	Kg / m ²	12,00	12,40	13,15	13,90	14,70

ALUMINIUM

Supports thk. [mm]		Panel thickness				
		50	60	80	100	120
0,6 / 0,6	Kg / m ²	5,40	5,70	6,50	7,30	8,00

Static characteristics

The capacity values in the tables below refer to panels subject to a distributed load that verifies the resistance to wind action (width of the supports for the calculation, 100 mm), **but they do not take into account the thermal effects that must be considered by the designer**. The data in question are therefore indicative and **cannot replace the design calculations** drawn-up by an expert and qualified technician who must verify and validate these indications taking into account the regulations in force at the place of installation. The number and layout of the fastening systems must be defined by the designer.

For further details and information, please contact the Marcegaglia Buildtech Technical Office.

MB HIDDEN FIX PANEL STEEL														
Panel thickness	U	Supports thickness	Uniformly distributed load in kN/m ² [1/200 span]											
			SINGLE SPAN [m]					MULTIPLE SPAN [m]						
mm	W/m ² K	mm	2	2,5	3	3,5	4	2	2,5	3	3,5	4	4,5	5
50	0,46	0,5/0,5	2,25	1,75	1,30	0,88	0,65	3,85	2,55	1,79	1,34	0,95	0,65	0,50
		0,6/0,6	2,40	1,87	1,39	0,94	0,70	4,00	2,80	1,92	1,44	1,02	0,70	0,54
60	0,38	0,5/0,5	2,70	2,20	1,70	1,20	0,90	4,60	3,20	2,30	1,80	1,30	0,80	0,60
		0,6/0,6	2,90	2,40	1,82	1,28	0,96	4,80	3,38	2,48	1,93	1,39	0,86	0,64
80	0,27	0,5/0,5	3,50	2,50	1,90	1,50	1,20	5,65	4,35	3,25	2,42	1,85	1,40	1,15
		0,6/0,6	3,70	2,70	2,10	1,61	1,28	5,80	4,50	3,45	2,60	1,98	1,50	1,23
100	0,21	0,5/0,5	3,78	2,78	2,18	1,78	1,48	6,13	4,83	3,73	2,90	2,33	1,88	1,63
		0,6/0,6	3,98	2,98	2,38	1,89	1,56	6,28	4,98	3,93	3,08	2,46	1,98	1,71
120	0,18	0,5/0,5	4,16	3,06	2,40	1,96	1,63	6,74	5,31	4,10	3,19	2,56	2,07	1,79
		0,6/0,6	4,38	3,28	2,62	2,08	1,72	6,91	5,48	4,32	3,39	2,71	2,18	1,88

MB HIDDEN FIX PANEL ALUMINIUM														
Panel thickness	U	Supports thickness	Uniformly distributed load in kN/m ² [1/200 span]											
			SINGLE SPAN [m]					MULTIPLE SPAN [m]						
mm	W/m ² K	mm	2	2,5	3	3,5	4	2	2,5	3	3,5	4	4,5	5
50	0,46	0,6/0,6	1,65	1,00	0,60			2,05	1,50	1,00	0,62			
60	0,38	0,6/0,6	1,80	1,25	0,80	0,40		2,23	1,80	1,30	0,90	0,60		
80	0,27	0,6/0,6	2,15	1,66	1,20	0,80	0,58	2,46	2,00	1,60	1,20	0,90	0,63	0,40
100	0,21	0,6/0,6	2,48	1,98	1,53	1,13	0,91	2,79	2,33	1,92	1,53	1,23	0,98	0,80
120	0,18	0,6/0,7	2,73	2,20	1,68	1,24	1,00	3,07	2,56	2,10	1,68	1,35	1,10	0,90

Fire behaviour

Reaction to fire

Indicates the degree of participation of a material in the fire to which it is subjected.

The European standard **UNI EN 13501-1** of 2009 regulates the reaction to fire classification of construction products and elements by defining:

- 7 **Euroclasses** that indicate the contribution to fire of products in an increasing manner, from class A1 for non-combustible products, to class F for products that are not tested or classified.
- 3 classes for **smoke** emission:
 - **s1** smoke absent
 - **s2** low emission of smoke
 - **s3** high emission of smoke
- 3 classes for **dripping**:
 - **d0** absence of flaming particles
 - **d1** low presence of flaming particles
 - **d2** high presence of flaming particles (drips)

MB HIDDEN FIX panels can reach the Bs2d0 fire performance level under certain configuration conditions agreed upon with the technical and commercial office. The declaration concerning the performance degree will only be issued under these conditions.

Please note that the mechanical, reaction and resistance performance to fire and behaviour to fire on roofs must be requested and agreed upon in advance when purchasing the material.

Unless specifically requested, the product supplied will have no fire behaviour performance.

Advice and instructions for use

Thermal expansion

Sandwich panels, given the nature of the materials they are made of, are subject to the natural phenomenon of thermal expansion in the presence of a thermal excursion acting on the metal supports.

This phenomenon acts on the straightness of the panel causing bends and deformations that can affect the functionality and the aesthetic appearance in the event that proper precautions are not taken.

The following conditions may affect the deformation of the panels:

- Significant lengths (e.g. 5 m)
- High solar radiation
- Supports colour
- Supports material
- Support thickness

The following charts illustrate the linear thermal expansion coefficients of the different metals used for the supports.

material	Linear thermal expansion coefficient [°C ⁻¹]
Steel	12,0 x 10 ⁻⁶
Stainless steel AISI 304	17,0 x 10 ⁻⁶
Aluminium	23,6 x 10 ⁻⁶

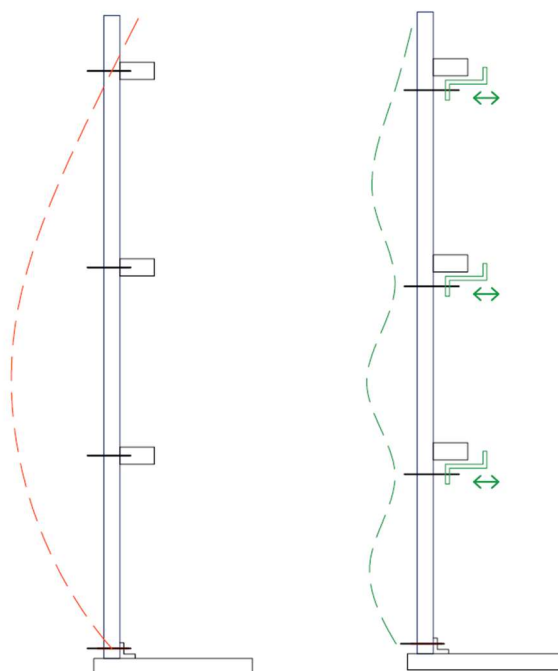
Colour	Surface temperature [°C]	
	Minimum	Maximum
Very light	-20	+55
Light	-20	+65
Dark	-20	+80

The system must absorb the linear elongations of the support due to high surface temperatures.

In the event of thermal fluctuations that are repeated in short periods such as day-night or freeze-thaw fluctuations, tensions are generated on the supports that can cause undulations, imperfections and in some cases even wrinkling phenomena.

Marcegaglia Buildtech recommends:

- Taking into account the deformations due to the thermal expansion of the materials during the design and selection of the panels.
- Avoiding dark colours, especially with significant lengths.
- Choosing the thickness of the metal faces in a manner appropriate to the use and calculated deformations.
- Determining adequate fastening systems to compensate for expansions.



If the panel were fastened at the ends only, a curvature due to thermal expansions, such as the one shown in red in the figure, would occur. Normally, the fastening systems provided for the panels lead to a curvature similar to that shown in green.

Therefore it is advisable to assess whether it is necessary to use "mobile" fixing systems that can compensate for tensions due to expansion.

Transport, storage and handling

Transport and standard composition of the packages

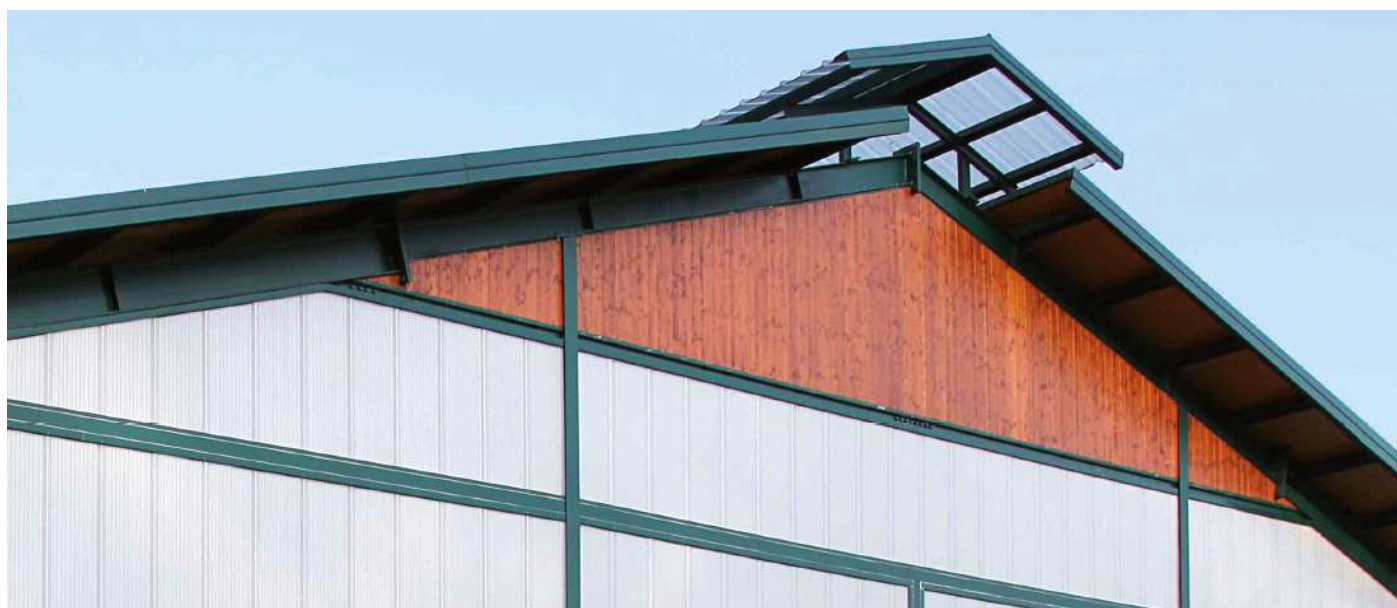
The panels are supplied in a horizontal position, in storage packages that allow handling both by lifting straps and by fork lift trucks.

The standard number of panels contained within the single package varies according to the size and thickness of the panel (see chart).

Before proceeding with unloading and handling operations, it is advisable to check the weight of each package (variable according to the lengths of the panels) and choose a lifting means of adequate lifting capacity.

The handling of loads and materials on site must always take place in compliance with the requirements of the safety regulations in force with the use of the appropriate personal protective equipment provided by the said regulations.

Thickness	Panels / package	Package height (including blocks)
mm		mm
50	15	819
60	13	850
80	10	871
100	8	872
120	6	790



Handling, storage and installation of panels

In order to guarantee integrity, the packs of panels must be unloaded from the transport means using a suitable sling bar and certified nylon straps.

The distance between lifting points must be equal to or greater than half the length of the package. To avoid damage, the nylon straps must be kept detached from the sides of the pack by using suitable wooden planks placed both above and below the package itself. No more than three packages may be stacked one on top of the other.

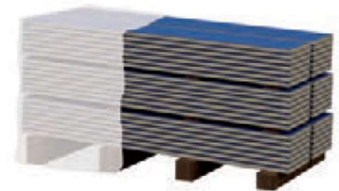


In the absence of a sling bar, in some cases unloading can also be done by using suitable forklift trucks. To avoid damaging the panel or even breaking the package, in these cases the distance between the forks and the width of the lifting equipment must take into account the length of the pack, its weight, as well as the panel thickness.

If it is expected that the panels will be stored for a prolonged period of time, this must take place in a covered and ventilated environment and for a maximum period of six months. In these cases, it is a good rule to open the packs, and also to separate the panels with special spacers to ensure ventilation between one panel and another.

If this is not possible, for short storage periods (maximum 30 days) adequate covered place must be made and the panels must be protected with opaque waterproof sheets, taking care however to maintain adequate ventilation, to avoid damaging stagnant condensation between panels.

In any case, suitable supports must be provided to keep the packages raised from the ground. As light slope (5% minimum) must be provided to allow the outflow of any condensation or rain.



If these rules are not observed, there is the danger that the stagnant humidity will attack the coating, causing it to separate from the galvanized support, forming a phenomenon called "blistering". It is recommended to install the panels within one month of delivery to the building site.



If transported by container, the products must be removed from the same within 15 days from shipment in order to avoid deterioration of the pre-painted metal supports caused by the high concentration of moisture that can accumulate in the container when closed for a long time.

Due to the possible presence of small cutting burrs or metallic filings, the individual panels must be removed from the package taking care not to damage the panel underneath.

Manual transport must be carried out, keeping the panel in the rib and by at least two people.



The protective film must be removed during the installation of the panels and in any case not over 60 calendar days from the date of production of the panels.

If the panels were ordered, produced and delivered without protective film on the painted support, it is necessary to pay careful attention not to cause damage during handling and assembly.



The panels must be set up by qualified personnel who are familiar with the rules of good technique.

Personnel equipment, in particular all PPE, must be provided for worker safety and to prevent damage to the panels during handling and installation.



WARRANTY: Failure to comply with these minimum requirements exempts Marcegaglia Buildtech from any responsibility for damage to the products and forfeiture of the warranty provided for by the terms of sale.

Installation instructions

Fixing system

The most appropriate fixing system for the project must be established according to the type of installation, considering the support structures (metal structural work) in order to guarantee safety, stability and leak-tightness.

The fixing elements must be able to withstand the dynamic forces of the stresses to which the insulated panels are subjected (sudden changes in temperature, wind load, trampling, etc.) guaranteeing the mechanical sealing, load capacity and insulation .

The number and positioning of the fixings varies according to the design and according to several variables, including the local wind conditions, the distance between the purlins and the framework elements, and the height of the building.

There are two types of fixing:

- **Main structural anchors**

These fix the wall panel to the supporting structure and guarantee the anchoring, the mechanical resistance and the load capacity applied

- **Stitching**

Non-structural, they are functional for fixing the sheet metal, the metal finishing elements and the sheets of the panel to each other.

The fixing equipment is divided into:

- **Self-tapping screws (A)**

These are applied after having prepared the hole on the panel.

- **Self-drilling screws (B)**

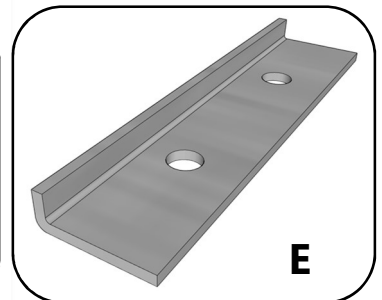
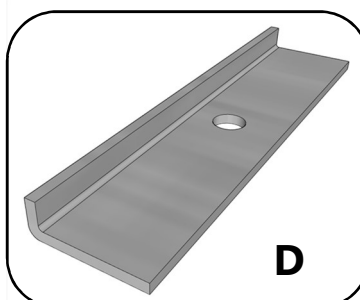
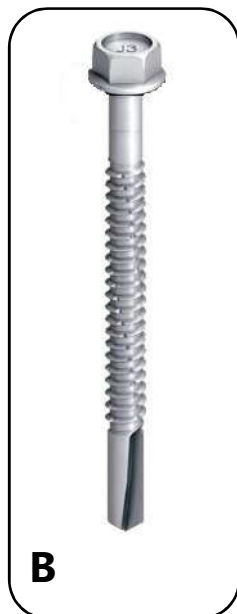
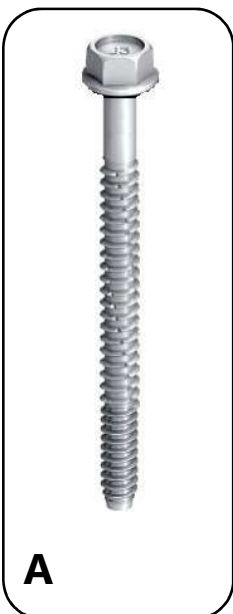
These are applied directly without the preparation of the holes using a screwdriver only.

- **Stitching screws (C)**

Smaller in size, they are used for the fastening of sheet metal elements and for stitching the overlap.

- **Reinforcing plates (D, E)**

Available in versions with one or two holes, allowing reinforcement and optimization of the fixing system.



Installation and equipment

Preliminary operations:

- View the project documents and follow the relevant instructions.
- Check that the support structure is positioned correctly, does not present deformations or misalignments and is completely secured to the rest of the structure.
- Make sure that there is no interference with overhead power lines in the handling area of the materials.
- Prepare the appropriate accident prevention facilities according to the regulations in force for work at height.
- Check that all workers operating at height are equipped with the appropriate personal accident prevention devices according to the regulations in force.
- Prepare all the power supply lines for the equipment used according to current regulations.
- Remove the protective film applied to the pre-painted sheets over the entire length of the panel.

Installation equipment

The use of suitable tools and equipment in an suitable state of maintenance are required for the installation of the insulated panels.

The following list shows, in a non-exhaustive manner, the equipment which is recommended for use and those the use of which must be strictly avoided.



PORTABLE DRILL
twist bit
max 8 mm Ø



SCREWDRIVER
with reverse function



JIGSAW



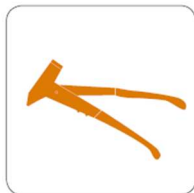
**VACUUM
CLEANER**



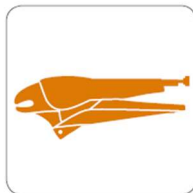
SHEARS
(right and left)



**ANGLE
GRINDER**



RIVETER
2,5-5 mm



MOLE GRIPS



PLUM LINE



**LASER
MEASURER**



SCRAPER



SPIRIT LEVEL



UNIVERSAL PLIERS



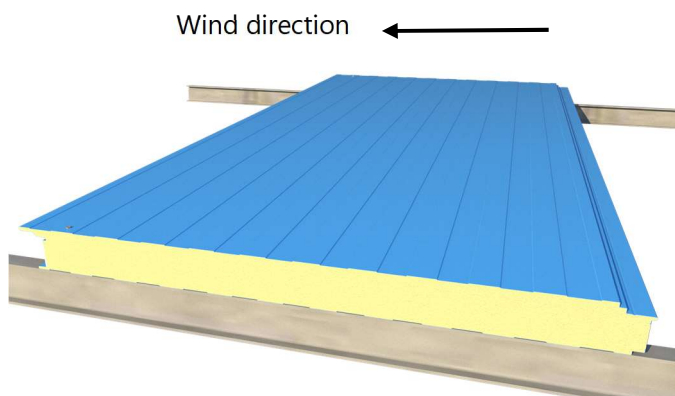
MALLET

Vertical installation

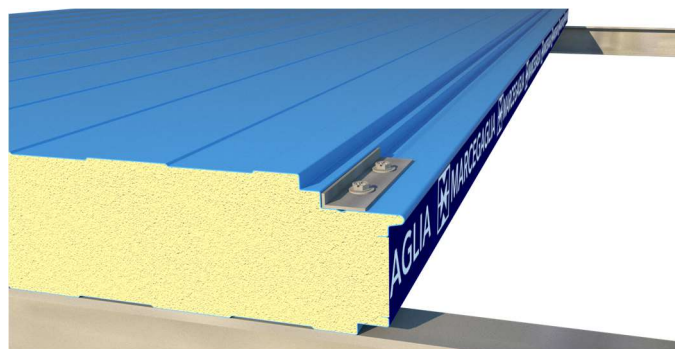
After horizontal installation of the base flashing on the structure, identify the starting point for the installation of the first panel on the working drawings.

It is good practice to install the panels following the direction of the prevailing winds, with the male facing the wind.

Proceed with the installation checking to ensure that the panel is perfectly vertical.



While placing a steel reinforcement plate between the screws and the panel, secure the female part of the first panel to the underlying structure using the fitting screws; then install the male part.

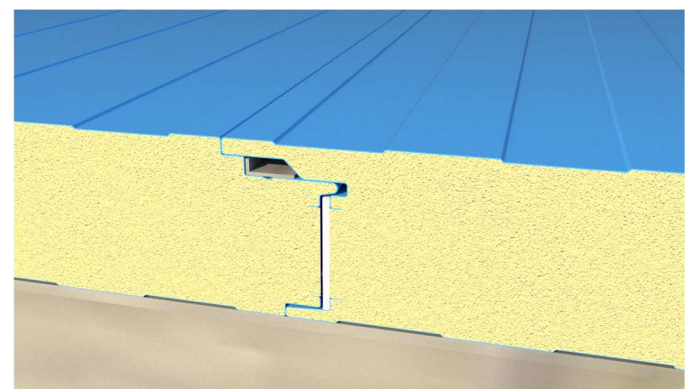
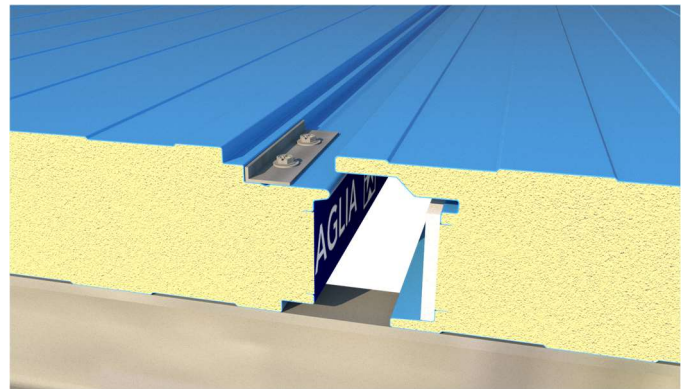


The chart shows the recommended useful lengths for the screws in accordance with the thickness in mm of the wall panel to be fitted.

Panel thickness	Minimum length of the screws
50	56 mm
60	66 mm
80	86 mm
100	106 mm
120	126 mm

Before installing the next panel, check that the contact areas are clean and free of residues or any smudges of polyurethane foam.

Then install the second panel by mating its female part with the male part of the first panel.



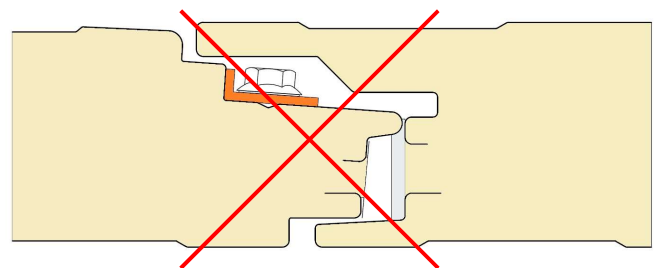
Check that the panels are fully aligned after they are coupled.

Secure the male part of the second panel using the fitting screws.

Proceed in similar fashion with the installation of the subsequent panels to the end of the wall.

On completion of any cutting, drilling and fixing operation, make sure that **any metal scraps are thoroughly removed** to ensure the surfaces remain clean.

To create wall corner fittings, for door and window cuts and other construction details, see the *Examples of solutions for the installation of concealed fastening wall panels* in this technical manual.



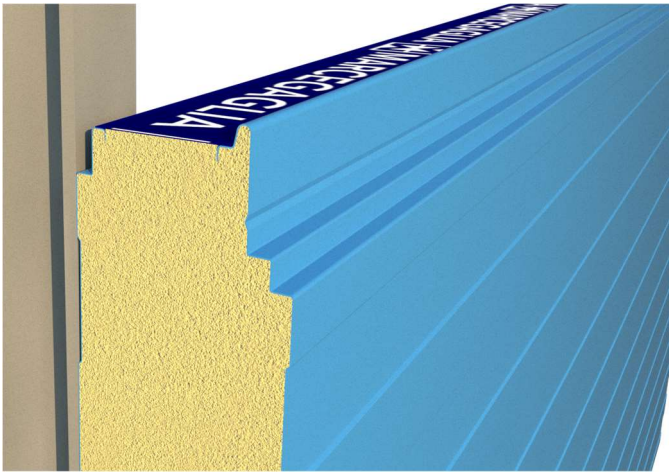
Be very careful to tighten screws correctly, as excessive tightening carries the risk of deforming the joint and causing imperfections.

Horizontal installation

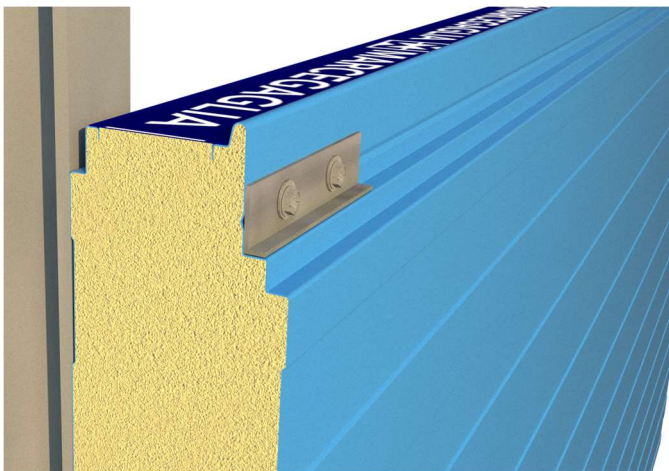
For the horizontal installation of the wall panels, it must be taken into account that the male-female joint was designed to guarantee the thermal insulation and watertightness properties along all the junction lines between the panels, whether in the case of outdoor applications (rainwater and humidity) or indoors (condensation, water vapour).

To guarantee these properties, take the utmost care during installation, always checking to ensure perfect horizontal positioning of the panels. Furthermore, when they are overlapped they must be immediately tightened and fixed using the screws at the points predetermined by the construction system.

Position the first panel with the male side facing upwards; this prevents rainwater and humidity from entering the joint from outside.



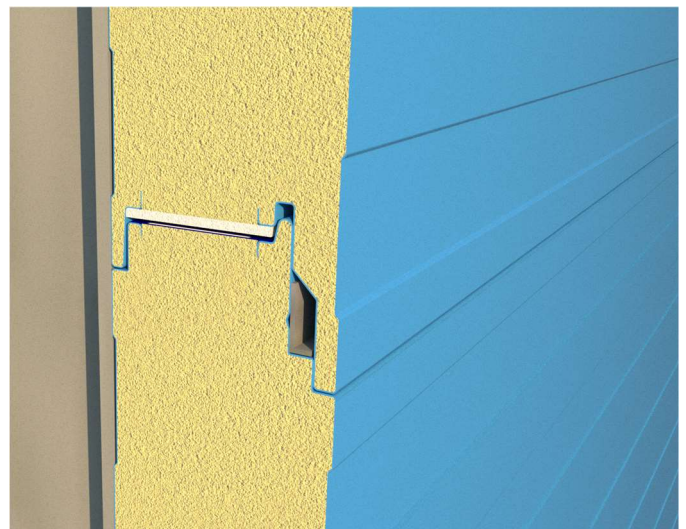
Check that the panel is perfectly horizontal and fasten it with the appropriate screws to the structural uprights while interposing a steel distribution plate between the screws and the panel. The screws must be of an appropriate length (see the vertical installation section).



The position of the fixings must always be such as to guarantee the resistance to stress, including the uplift forces.

Before installing the next panel, check that the contact areas are clean and free of residues of polyurethane foam.

Position the second panel inserting the female part on the underlying male of the first panel.

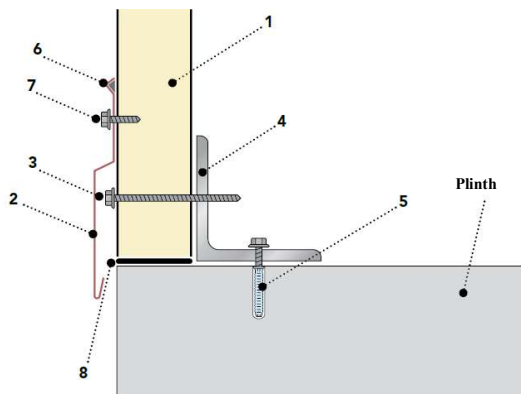


Fix the second panel to the structural uprights with the appropriate screws in one of the two ways shown in the images below.

Similarly, proceed with the installation of the subsequent panels to the top of the wall.

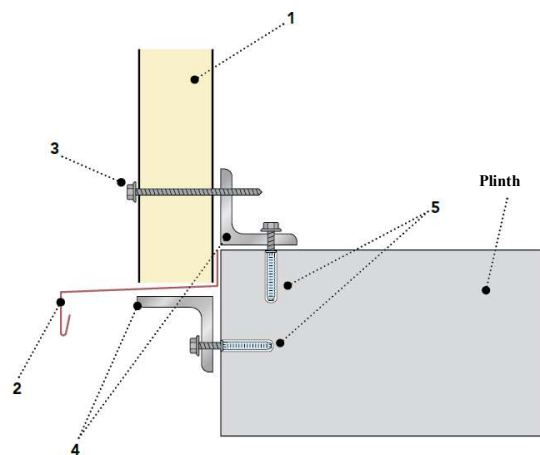
Examples of solutions for the installation of wall panels

1a - Installation of wall panels on the plinth in a vertical position



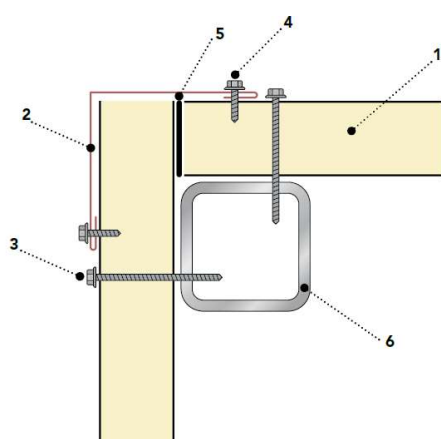
1	Wall panel
2	Flashing
3	Panel fixing screw
4	Steel angle according to the technical project
5	Anchor
6	Butyl seal mass
7	Sheet metalwork fixing screw
8	Basic gasket

1b - Installation of wall panels on the outside of the plinth in a vertical position

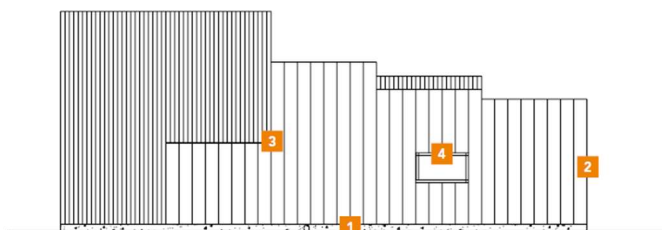


1	Wall panel
2	Flashing
3	Panel fixing screw
4	Steel angles according to the technical project
5	Anchors

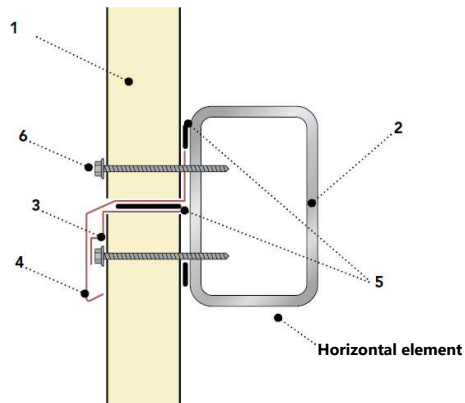
2 - Corner fittings



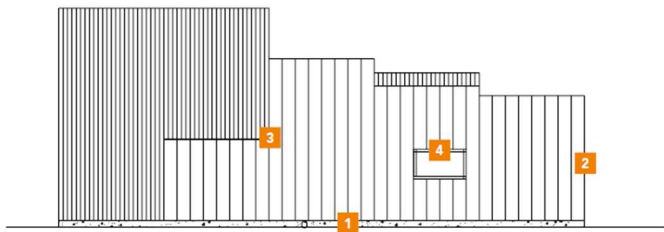
1	Wall panel
2	External corner flashing
3	Panel fixing screws
4	Sheet metalwork fixing screws
5	Flexible gasket (or polyurethane foam)
6	Structural steel tube according to the technical project



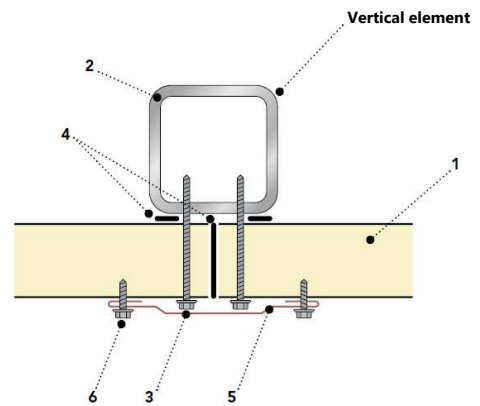
3a - Coupling between wall panels with vertical installation



1	Wall panel
2	Structural steel tube according to the technical project
3	Support flashing
4	Joining sheet metalwork
5	Flexible gaskets
6	Panel fixing screws

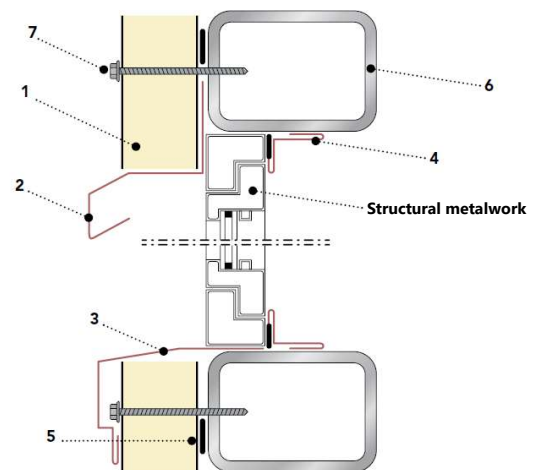


3b - Coupling between wall panels with horizontal installation



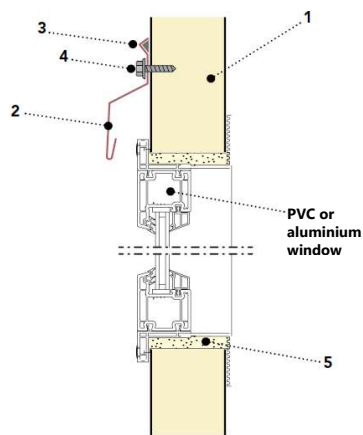
1	Wall panel
2	Structural steel tube according to the technical project
3	Panel fixing screws
4	Flexible gasket (or polyurethane foam)
5	Flashing
6	Sheet metalwork fixing screws

4a - Wall panel joining with window



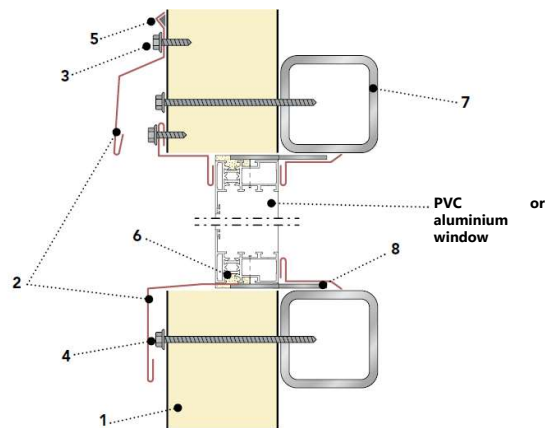
1	Wall panel
2	Protection sheet metalwork
3	Sill plate
4	Trimming
5	Flexible gasket
6	Structural steel tube according to the technical project
7	Panel fixing screws

4b - Wall panel joining with window



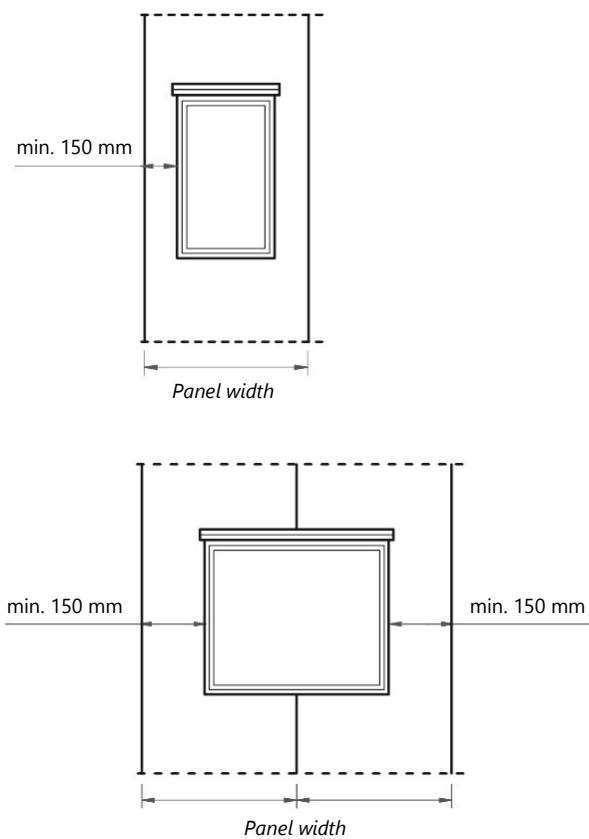
1	Wall panel
2	Flashing
3	Sealing compound e.g. butyl
4	Sheet metalwork fixing screw
5	Polyurethane foam

4c - Wall panel joining with window with internal frame

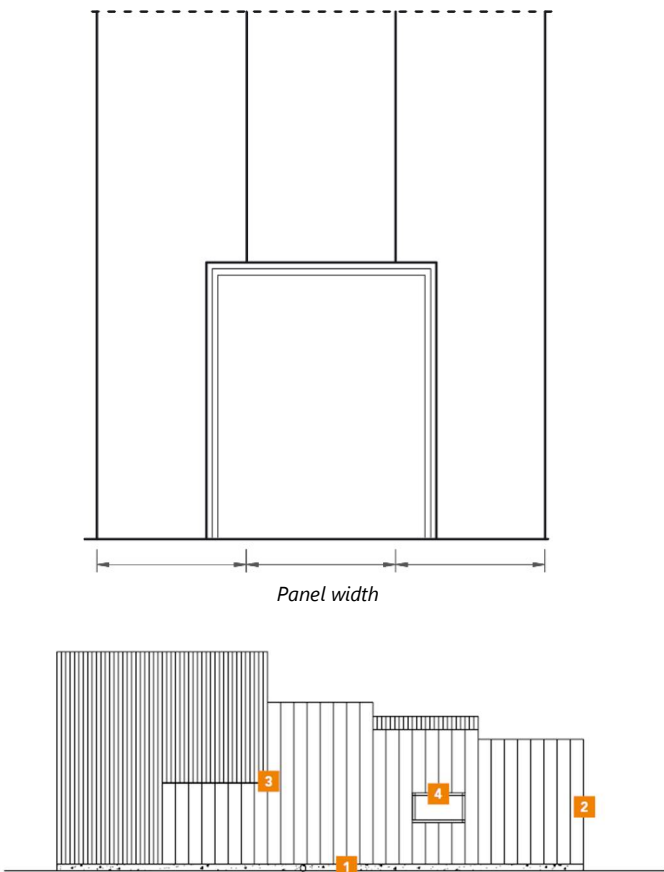


1	Wall panel
2	Flashing
3	Sheet metalwork fixing screws
4	Panel fixing screws
5	Sealing compound e.g. butyl
6	Polyurethane foam
7	Structural steel tubes according to the technical project
8	Steel bar welded to the bolt according to technical project

CUTTING EXAMPLE FOR WINDOW



CUTTING EXAMPLE FOR DOOR



Maintenance and disposal

Routine maintenance

Routine maintenance is the responsibility of the end user and has the function of maintaining the aesthetics and functionality of the panels unchanged over the years following its construction.

A **periodic maintenance plan** is foreseen that must include the control:

- of **seals**, the deterioration and wear of which could cause a reduction in air and water tightness;
- of all the **fixings** to verify they are correctly tightened.

The following are the main causes of intervention and the measures to be taken:

- **Storage of aggressive products:** pay particular attention to the affected areas and perform a thorough cleaning.
- **Scratches or abrasions of the pre-painted parts** caused by the transit of operators or accidental causes: eliminate by touching up the paint.
- **Loss of the elastic or sealing properties of the seal** in the joints of the sheet metalwork: restore the seal, after cleaning the pre-existing one.
- **Settling of the structures and panels with loosening of the fixing screws:** check and carefully tighten the screws.
- **Dents caused by impacts:** in some cases it will be possible to intervene by restoring the surface; if this type of intervention is not feasible, the damaged panel must be replaced.
- **Formation of mould and algae**, possible in the case of environments with high humidity, in the shade or with stagnant water: moisten the area to be cleaned with cold water and then, using a non-abrasive brush, remove the deposits with a very diluted solution of water, bleach and a cup of liquid soap. Rinse with clean water.
- **Deposits of salt**, for example in marine environments: in the case of light superficial incrustations it is sufficient to use cold water through a garden hose at the standard pressure of the mains water supply.
For all other cases it is necessary to dampen the surface to be treated with cold water and then, using a non-abrasive brush, remove the deposits with a very diluted solution of water, bleach and a cup of liquid soap. Rinse with clean water.

Failure to comply with these warnings, as well as the use of boiling water or abrasive material (brushes with metal bristles, etc.) can cause permanent damage to the surface, compromising the lifespan of the product.
For further information consult the technical information "Maintenance and restoration of pre-painted parts".

Disposal

The disposal of insulated panels must only be entrusted to authorized companies and carried out in compliance with the laws in force.



Safety data

Please note that the product to which this document refers is classified in accordance with the regulation (EC) 1907/06-REACH as an article without intentional release of chemical substances and as such does not require the preparation of a safety data sheet.

However, Marcegaglia Buildtech wishes to identify the main dangers due to the use of the article in question.

1. Product identification

Insulated panel composed of two metal layers that contain a solid insulating layer of polyurethane foam.

Company / business identification

MARCEGAGLIA Buildtech S.r.l.

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e-mail: tamponamento@marcegaglia.com

2. Dangers identification

The product does not pose dangers to human health under normal conditions of use in accordance with REG EC 1272/08.

3. Composition / information on ingredients

The product is composed of two pre-painted steel sheets containing an insulating layer of polyurethane foam.

Component	% in weight
Metal supports	47-63
Gaskets	≈1
Insulating material	36-52

4. First aid measures

The handling of the product without the appropriate PPE can cause injuries to the skin and eyes due to the presence of the steel sheets; in the event of injuries contact a doctor immediately. In case of prolonged exposure to the dust, transport the affected person to a ventilated place.

5. Fire prevention measures

Polyurethane foam is not flammable, but as an organic material it is combustible. However, the protection of the metallic supports allows the risk of fire to be reduced to a low level.

The material used for packaging is combustible and if involved in a fire produces gases and fumes which could reduce visibility.

Extinguishing media

All extinguishing media are applicable. For large fires, use water, alcohol-resistant foams or universal foams according to the manufacturer's instructions. For fires of limited proportion, use carbon dioxide or chemical powder.

6. Measures in case of accidental release

The product is stable; no special measures are expected to be taken.

In the event of accidental release of polyurethane dusts (coming, for example, from cutting operations), remove the material preferably with suction systems, ventilate the room and keep away from sources of ignition. Perform these operations with a protective mask.

7. Handling and storage

Handle using the appropriate personal protective equipment. For more information about handling and the personal protective equipment to be used, see section 8. For correct handling and correct storage, refer to the "Regulations for handling and storage of materials" in the technical manual.

8. Personal protection

Respiratory protection

Normal use does not require any protection for the respiratory tract. If it is necessary for work activities to cut the panels and carry out any operation that could lead to the generation of dust, it is advisable to install an appropriate extraction and reduction system.

When this is not possible or the concentrations of dust in the working environment remain at high concentrations, the possibility of isolating the dust production area or providing the operators with devices for the protection of the respiratory tract is evaluated.

Hands protection

The presence of steel sheets can cause cuts or injuries to the skin tissue, and in this regard during normal operations involving the handling of the panels, leather or hide gloves resistant to abrasion, cutting, tearing and perforation must be worn in conformity with the UNI EN 388 standard.

Eyes protection

Normal use does not require any protection for the eyes. If it is necessary for work activities to cut the panels and carry out any operation that could lead to the production of shards or projectile particles, it is advisable to wear polycarbonate glasses to protect against the projection of

particles at high speed / low impact energy; compliant with standard EN 166.

Skin protection

Normal use does not require any specific protection other than work clothes.

Control of the environmental exposure

Normal use does not require any specific measure to reduce environmental exposure as the product is to be considered non-toxic. Should it be necessary to cut the panels and carry out any operation that could lead to the generation of dust, install an extraction system with an appropriate abatement system in order to limit environmental pollution.

9. Physical and chemical properties

Appearance: the product comes in the form of a panel clad in metal and a core of straw-coloured expanded polyurethane foam.

Odour: Odourless

Boiling point: not applicable

Melting point: the sheet melts based on the metal, the polyurethane does not melt or drip.

Flash point: polyurethane between 300 and 400°C.

Calorific value: 6500-7500 kcal / kg

Auto-ignition: not applicable

Explosive properties: not applicable

Oxidizing properties: not applicable

Vapour pressure: not applicable

Water solubility: not applicable

Fat solubility: not applicable

Partition coefficient: not applicable

10. Stability and reactivity

Pre-painted steel and polyurethane are stable under normal weather conditions.

Conditions to avoid:

Avoid using naked flames near polyurethane dust.

11. Toxicological information

With the present state of knowledge, the material is to be considered non-toxic.

12. Ecological information

There are no known harmful effects on the environment.

Should it be necessary to cut the panels and carry out any operation that could lead to the generation of dust, install an extraction system with an appropriate abatement system in order to limit environmental pollution.

13. Disposal considerations

The disposal of polyurethane insulated panels must only be entrusted to authorized companies and carried out in compliance with the laws in force.

14. Transport information

No special measures must be taken during transport.

15. Regulatory information

No restrictions pursuant to Annex XVII of the REACH Regulation. No ingredient is included in the REACH Candidate List (> 0.1 % m/m). Regulation (EC) No. 1907/2006 of the European Parliament and of the Council, of December 18, 2006, concerning the registration, evaluation, authorization and restriction of chemical substances (REACH).

Regulation (EC) No. 1272/2008 of the European Parliament and of the Council of December 16, 2008 concerning the classification, labelling and packaging of substances and mixtures which amends and repeals Directives 67/548/EEC and 1999/45/EC and amends regulation (EC) No. 1907/2006.

Regulation 830/2015 Annex II of REACH.

Legislative decree 81/2008 Consolidated Law on Occupational Health and Safety.

16. Other information

The information contained in this sheet are based on our knowledge and experience at the date of the latest version. The user must verify the suitability and completeness of the information in relation to the specific use of the product.

This document must not be interpreted as a guarantee of any specific property of the product. Since the use of the product does not fall under our direct control, it is the user's obligation under its responsibility to observe the laws and regulations in force concerning hygiene and safety.

No liability is assumed for improper use. Provide adequate training for the personnel involved in the use of chemical products.



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