
Check the package:

Check the Package: Upon arrival check immediately your package for damages. And ALWAYS check the models, quality, color and quantity before starting to install/mount Green Plank composite products. Any claims of visible defects made after the assembly or modification are not acceptable. Green Plank® composite products should always be mounted by competent professionals. Green Plank® composites decking should not be used for columns, beams, joists, support posts or other load bearing segments. To maintain warranty right, please always follow these installation instructions - and always use Original Green Plank® Decking accessories (clips, screws, caps, etc.).

Safety:

When dealing with any type of construction project, it is necessary to wear appropriate protective clothing to avoid any risk of injuries. Cutting, grinding or sanding should be done outdoors or in a well-ventilated area.

Product information:

Each Green Plank® mix color composite plank has a unique natural appearance. Because of the seemingly wooden structure several differences in color can appear. Since every tree is unique in its growth characteristics, wood as a natural product does not have an even structure. In order to give our terrace profiles their own distinctive appeal we intentionally highlighted those special properties of natural wood.

Depending on the preferred evenness in the terrace appearance, we recommend arranging, laying out and checking the profiles for color and structure in advance during daylight. In addition, similar to parquet flooring, we recommend simultaneously laying profiles from different piles to guarantee an even distribution on the laid surface.

Storage:

Store Green Plank® composite products under cover to maintain a clean surface. If stored outdoors, they must be covered with an opaque material. All products should be stored flat and on a dry surface. Stack units with banding and bottom supports aligned.

Acclimation:

Every material expands and contracts with temperature changes, and composite decking is no exception. Avoid potential problems by allowing time for proper acclimation of Green Plank to local temperatures. Expansion and contraction is not a product defect and not covered under the Green Plank warranty.

When installing and cutting, it is important that all boards must be kept as cool as possible by keeping them out of direct sunlight. Boards that have spent several hours in the sun will have expanded more than those kept in the shade, and consequently will contract more when they cool down resulting in uneven or bigger gaps. It is best to mark, cut, and install boards when they are all at roughly the same temperature.

Green Plank® Trims and Moulding products expand and contract with changes in temperature.

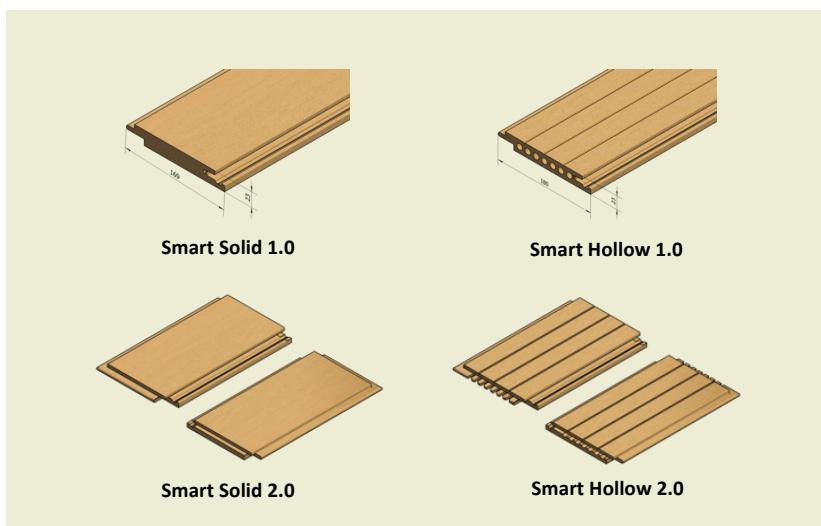
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Green Plank Smart System The System

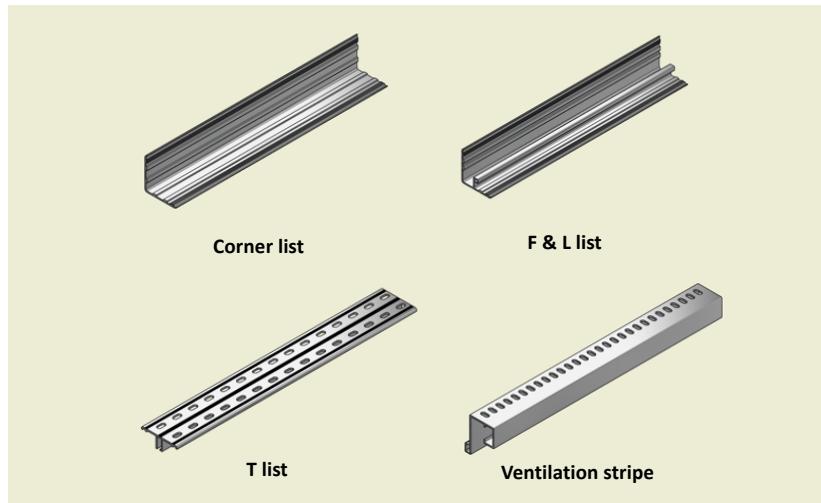
Green Plank Smart System



Green Plank Sub-framework bar



Green Plank Edge coverings



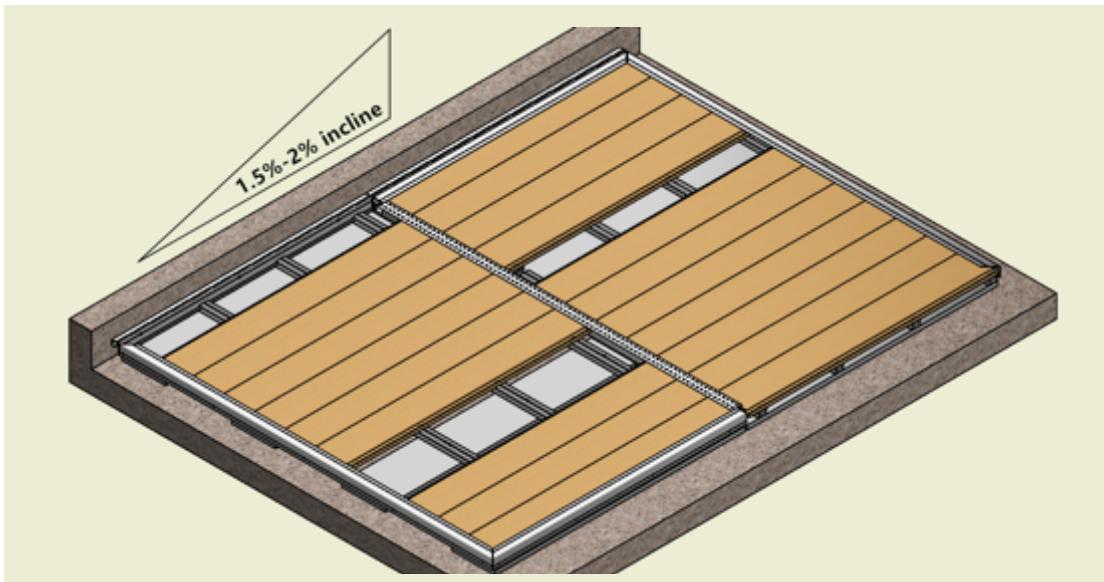
Green Plank Accessories



Green Plank Smart System General Information

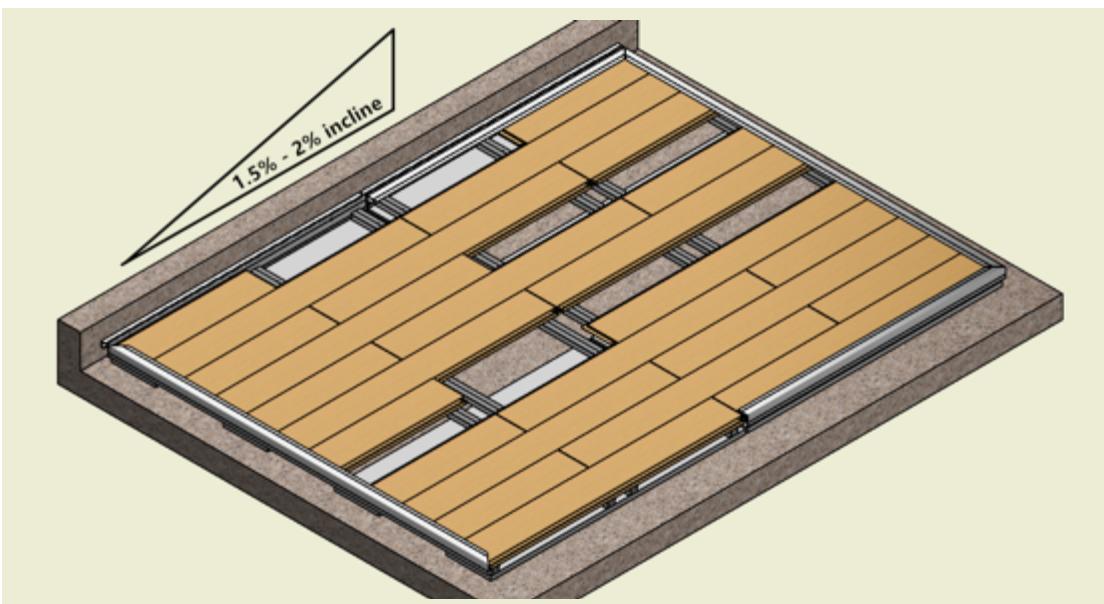
System Design 1.0

The screws and anchors for fastening the sub-framework bars and edge covering profiles are not included in the Green Plank product selection.



System Design 2.0

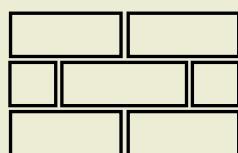
The screws and anchors for fastening the sub-framework bars and edge covering profiles are not included in the Green Plank product selection.



Installation Types



Smart System 1.0
With visually closed
longitudinal joints



Smart System 2.0
With visually closed longitu
-denal and transverse joints

Green Plank Smart System General Information

1. General information

1.1 Scope of the installation instructions – what you should know

Please note that the information in these installation instructions is based on standard installation situations. Due to the endless diversity of conceivable floor layouts and terrace sizes, not every individual possibility can be considered in these installation instructions.

For this reason, we ask that you contact our Building Service department directly at info@GreenPlank.eu in the following cases:

- Special layouts, e.g. with rounded corners
- Deviating design structures and foundations
- Cases that are not dealt with here
- Other special questions concerning installation and working with the flooring material that are not answered in these instructions

We would be happy to answer your questions and develop detailed installation recommendations for you.

1.2 Areas of application

Green Plank Smart System 1.0/2.0 terrace profiles are ideal as a floor covering for terraces and garden paths, concrete balcony floors, flat roofs and the like. For applications that require approval by building authorities, a load-bearing, closed substructure with sufficiently calculated dimensions is required as a base for the **Smart System 1.0/2.0 profiles** and associated sub-framework bars. For load-bearing applications, we recommend our **Smart System Solid** terrace profile with national technical approval.

1.3 Working with the material - as easy as wood

The **Green Plank Smart System 1.0/2.0** profile, sub-framework bar, etc. can be sawed, milled or drilled with all typical woodworking tools.

Important: Must pre-drill the material before inserting any screws to preventing cracking. (Twist frill is included in the accessories kit)

1.4 Disposal – what to do with waste

Waste pieces (cutting waste) can be disposed of as household or commercial waste; larger quantities should be disposed of as bulky refuse or at a recycling depot.

1.5 Color behavior - the natural influence of wood

Green Plank Smart System profiles is pigment penetrated and lighten naturally over the course of time without losing the basic character of their color. They consist of the natural-fibers-polymer composite (NFC) developed by Green Plank. Properties due to the wood content

- Color deviations resulting from UV radiation and moisture are expected and natural.
- In particular, a natural lightening occurs in the initial weeks and months, depending on weathering influences. This lightening does not represent a defect.
- Color fluctuations within a profile or a batch are natural and highlight the natural character of wood.

► Water spots in the transition area of weathered and partially sheltered terrace surfaces

Water spots occur due to lignin, a natural constituent of wood that can be washed out under exposure to rain. They can generally be removed with large amounts of clean water and typical household cleaning tools. This effect is minor on surfaces exposed to heavy sunlight or completely rinsed off by rainwater. These water spots do not impair the quality of the terrace profile and do not represent a defect.

1.6 Cleaning and care - fast and easy

The **Green Plank Smart System profiles** requires no special care. However, larger instances of soiling should be cleaned off shortly after they occur. To do this, brush off the **Green Plank Smart System profiles** lengthwise with water and typical household detergents using a normal household cleaning tool. For stubborn dirt, a high-pressure cleaner may be used (max. 80 bar, at least 20 cm distance from profile surface, no rotary nozzle).

Spots from oil, grease, mustard, etc. can be removed effectively with products such as the following:

- Stain removal spray
- Power grease remover
- Multi-purpose cleaner

Using a brush can also be very helpful. Afterward, rinse off the profiles well with a large quantity of water.

Algae and moss: Algae and moss as well as mould and fungi can grow on any outdoor surface, including this product. Regular cleaning of the terrace (even when it appears clean) prevents the development of conditions conducive to mould growth. We recommend our terrace cleaner for thorough cleaning.

Ice and snow: De-icing salt can be used on **Green Plank Smart System profiles** without concern. To avoid undesirable salt lines, we recommend washing off the terrace surface thoroughly after thawing.

2. Planning principles / installation information

2.1 Providing expansion joints

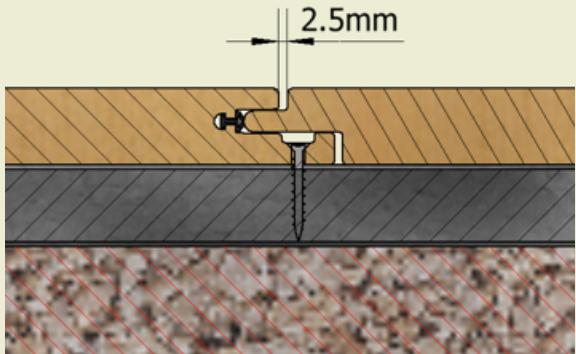
Fluctuations in temperature and moisture levels cause the **Green Plank Smart System** profiles to expand and contract in their length, width and thickness dimensions.

The profiles expand by up to 3 mm/linear meter of profile length or profile width. This must be taken into account during laying by leaving corresponding expansion joints of 2.5 mm/linear meter on all sides (even for separations between sub-areas see section 7.2). Failure to leave expansion joints can result in stresses that could lead to warping or buckling of the flooring.

The width expansion of the profile is absorbed or compensated for by the rubber buffer stripe.

See Figure 1

Figure 1



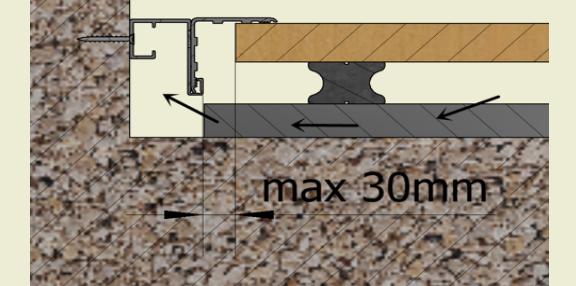
2.2 Planning and accounting for ventilation

The entire terrace structure must have good ventilation. In order to ensure unhindered air circulation, the open space between and beneath the sub-framework elements may not be filled.

- For terrace surfaces situated at ground level, a border of paving blocks or the like should be provided as separation from the turf or soil.
- A direct connection between the terrace surfaces and turf, soil or walls should absolutely be avoided.

See Figure 2

Figure 2

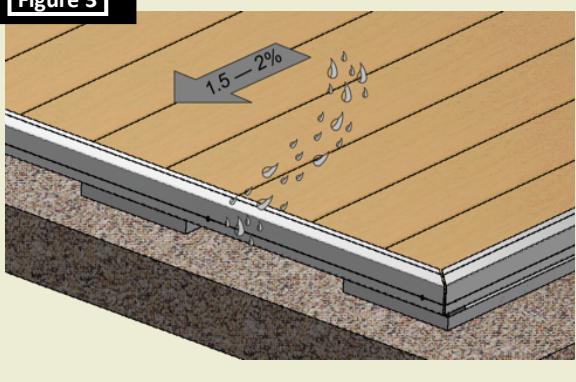


2.3 Surface drainage

We generally recommend installing **Green Plank Smart System** profiles with an incline. Both hollow and solid profiles must be laid with a sufficient incline of 1.5 – 2 %.

See Figure 3

Figure 3



3. The optimal foundation

Correct foundation preparation is essential for a perfect installation of **Green Plank Smart System profiles**. Serious problems can be avoided at this stage that would only become apparent when the installation is finished and would be difficult or impossible to correct.

3.1 Inspecting the foundation

Inspect the condition of the foundation. Ensure a sufficiently load-bearing, consolidated foundation of ballast, chippings or the equivalent that is deep enough to prevent frost exposure. Avoid pooling of water underneath the flooring - if necessary, a drain should be installed.

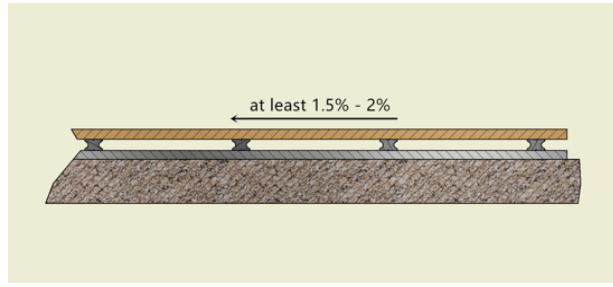
3.2 Preparing the foundation

Natural ground (soil)

- In case of insufficiently consolidated ground, dig out the soil to a sufficient depth (40 – 80 cm)
- Fill the hole with crushed stone and compact the stone by vibration
- Then place an approx. 5 cm thick layer of gravel on top and rake level
- Ensure an incline of at least 1.5 – 2.0 %

See Figure 4 (page 8)

Important: Lay down concrete edging slabs as a base for sub framework bars.



Concrete floors (solid concrete platform)

- Foundation: Load-bearing concrete floor with the required incline to prevent the pooling of water
- Lay the sub-framework bars on the bare concrete platform – the sub-framework bars must not stand in water

Important: Lay rubber pads 100 x 100 x 5 mm underneath

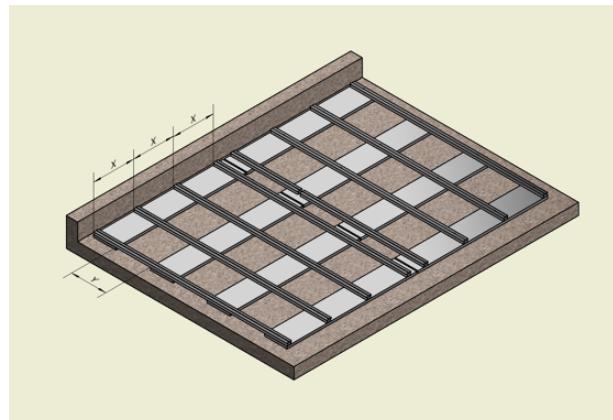
Roof terraces and concrete balconies with top-side sealing layer (bitumen sheeting, etc.)

- Lay rubber pads 100 x 100 x 5 mm or sections of protective matting or the like underneath the sub-framework bars to protect the sealing layer against mechanical damage.

4. The correct sub- framework with sub- framework bars

Green Plank Smart System profiles may only be laid on a sub-framework of **Green Plank sub-framework bar** or an aluminum sub-framework. The sub-framework must always have point-like support to prevent the pooling of water (e. g. on concrete slabs, rubber pads, etc.).

■ **Never lay the sub-framework bars in direct contact with soil, on the bed of gravel or on the concrete floor.**



4.1 Laying spacing of the sub-framework bars

Always lay the sub-framework bars flat!

- The laying spacing X of the sub-framework bars can only be **250mm** or **500 mm** (center-to-center distance).
- The support spacing Y for the sub-framework bars is max. **400 mm** (clear distance between concrete slabs or rubber pads).

For high loads, e. g. carport floors, the laying spacing X should be **250mm** and the support spacing Y for the sub-framework bars must be halved.

Spacing of at least 20 mm!

- Sub-framework connections to all fixed borders such as walls or the ground must also have expansion joints of at least 20 mm.

See Figures 4 and 5 (pages 8), **A**

- Sub-framework bar joints must have expansion joints of at least 20 mm and must be arranged with offset surfaces.

See Figures 4 and 5 (pages 8), **B**

■ **The outermost sub-framework bars laid on both face sides of the Green Plank Smart System profiles on each surface (including sub-areas) are called sub-framework edge bars.**

4.3 Laying and fastening the sub-framework bars

Green Plank Smart System profiles can alternatively be laid on sub-framework with Green Plank sub-framework bars. Surface expansion free of resistance is accomplished by the rubber buffer stripe.

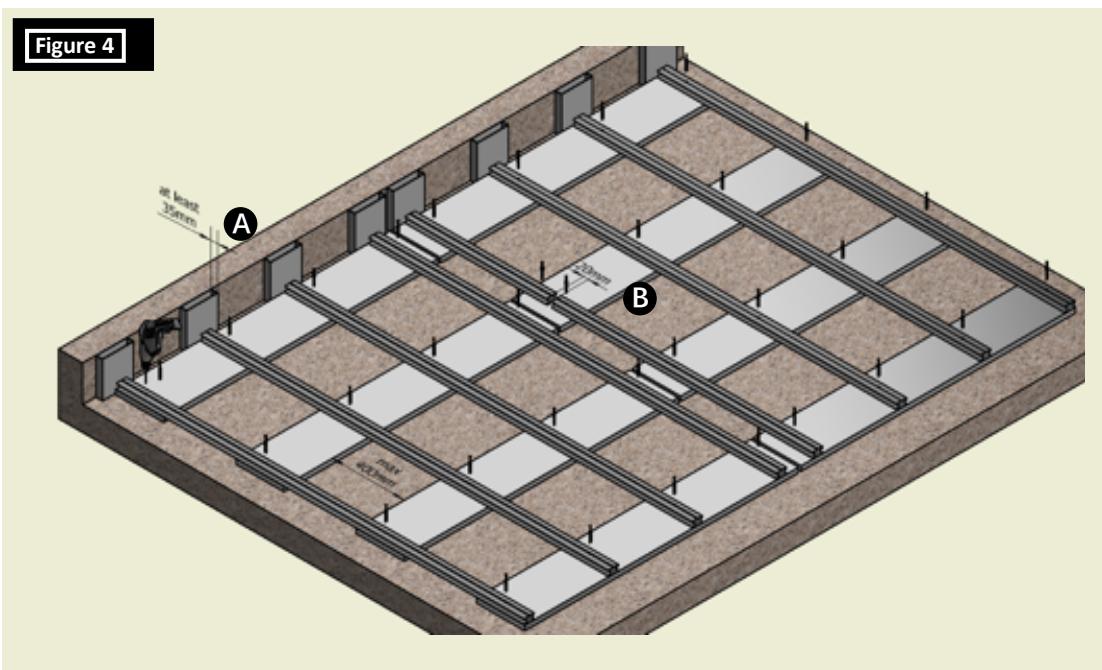
5. Quick and easy installation of sub-framework bars

5.1 Natural ground and roof terraces. Concrete edging slabs as supports

The sub-framework bars must be vertically fastened at every support point (concrete edging slabs of at least 1000 x 250 x 50 mm with a clear distance between supports of max. 400 mm) with brackets and concrete screws 6 x 40 mm (not contained in the kit). To compensate for unevenness, additional rubber pads can be placed beneath the sub-framework bars.

Concrete edging slabs

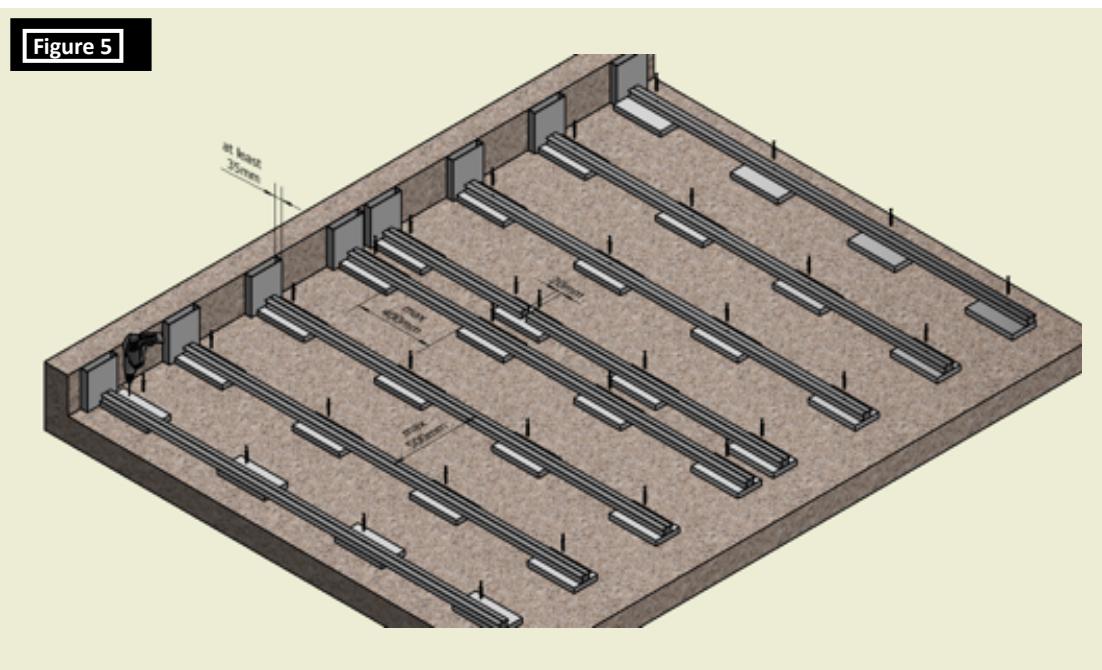
At least 1000 x 250 x 50 mm · Clear distance 400 mm · Edge distance at least 35 mm **A**



5.2 Concrete floors and roof terraces

The sub-framework bars can be directly screwed to a concrete surface with additional rubber to compensate for unevenness. Fastening material has to be provided by the customer, not included in the delivery.

Important: Lay rubber pads 100 x 100 x 5 mm underneath the sub-framework bars.

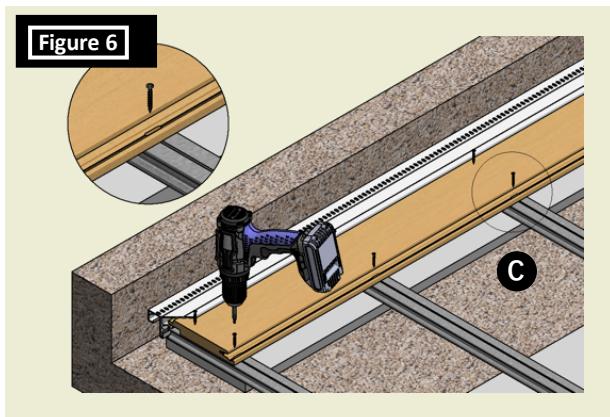


Green Plank Smart System Laying the Profiles

6. Laying the profiles

The fixing of the **Green Plank Smart System profiles** is carried out with only stainless steel countersunk screws 4.0 x 30 mm, and every sub-framework bar must be affixed in this way. **C** A minimum of 3 support points (on 3 sub-framework bars) is generally required for the **Green Plank Smart System profiles**.

☛ Overturning the screws reduces the fastening strength and can result in damage over time.



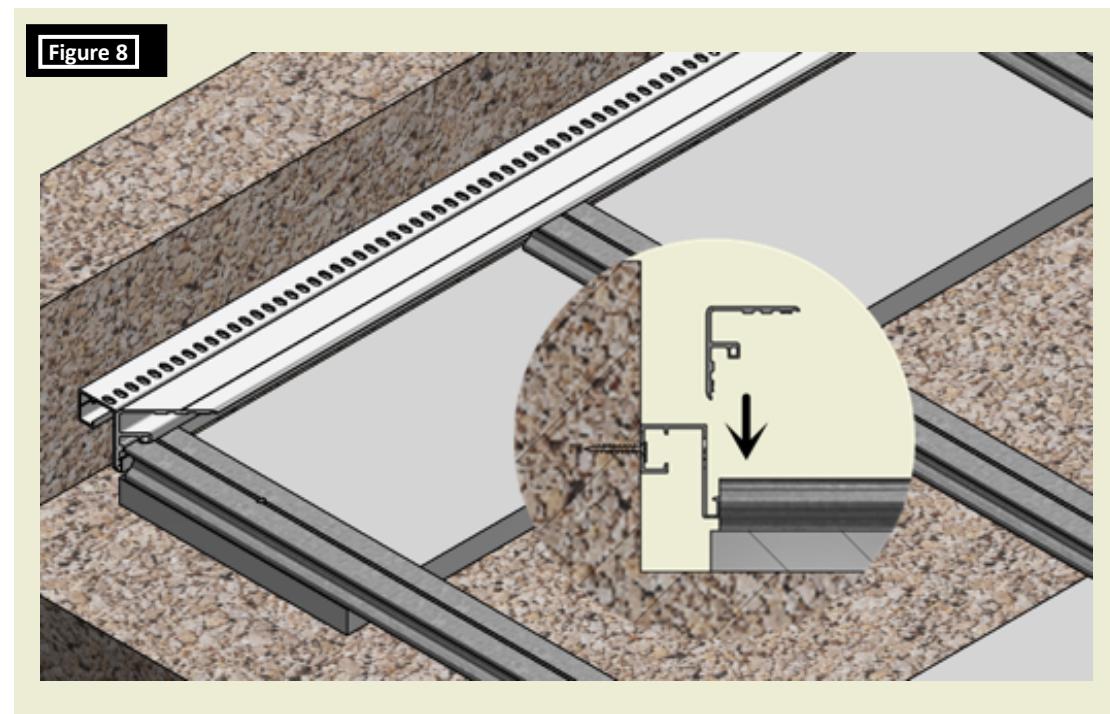
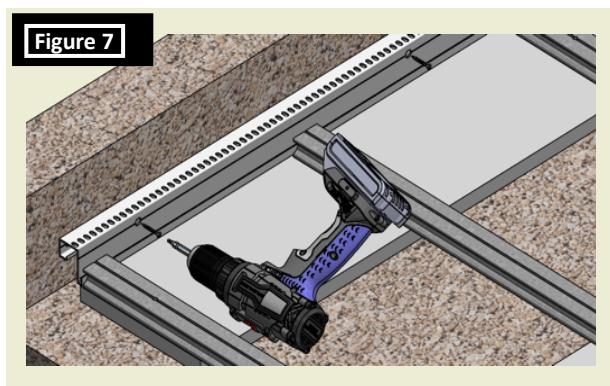
6.1 Laying the starting profile

For a proper wall connection, the aluminium Ventilation stripe profile can be used together with the aluminium F & L list.

This wall connection allows longitudinal expansion of the Green Plank Smart System profiles while also covering joints. Ventilation of the sub-framework is also ensured by the holes punched into the aluminium Ventilation stripe. A visible countersunk screw 4.0 x 30 mm connection in a countersunk hole of 4 mm diameter is required. Fasten the starting plank with screw if next to a wall.

Pay careful attention to the straight alignment of the starting profile.

See Figures 6, 7, 8



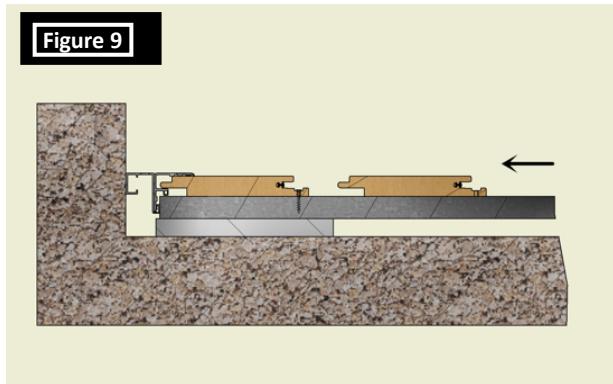
Green Plank Smart System Laying the Profiles

6.2 Continuation of laying

Every additional profile is inserted gently with the tongue side into the groove of the previous profile. Secure each plank with countersunk screw 4.0 x 30 mm. The rubber buffer stripe determines the joint width by means of the spacers.

The production-related tolerances in the profile coverage width must be taken into account!

See Figures 9

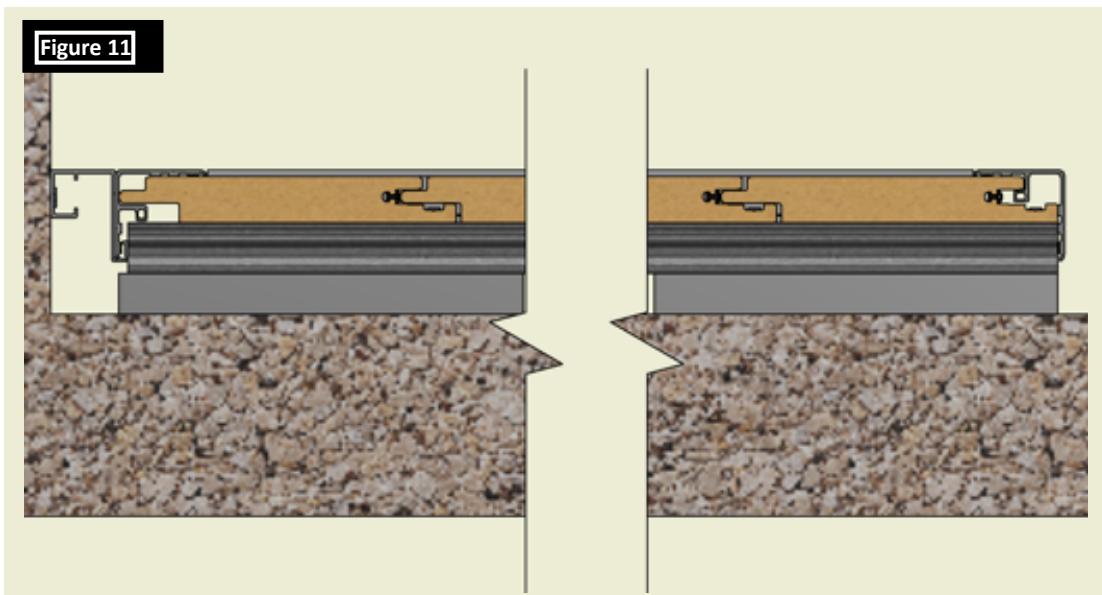


6.3 End of laying

Edge covering can be created using F & L list and regular corner list. In this case, it is essential to consider the required expansion of the terrace surface toward the edge.

The side edge can be covered by F & L list and the two ends of the plank can be covered by regular corner list.

See figure 10, 11, 12



Green Plank Smart System Laying the Profiles



6.4 Joint covering

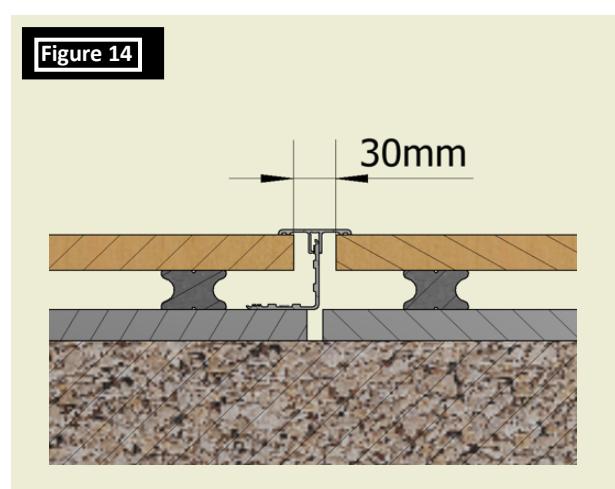
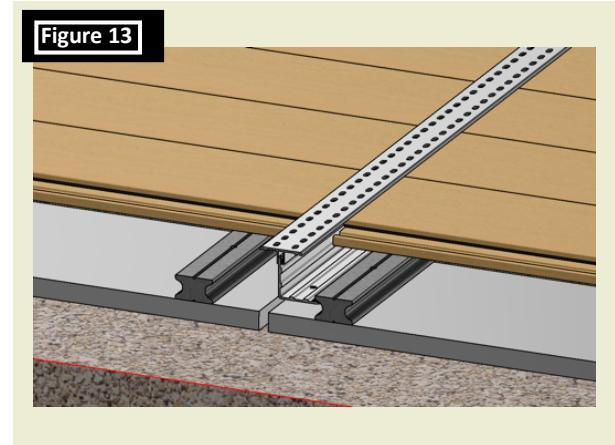
Separating and expansion joints for sub-areas up to max. 3.8 m profile length or max. 3.8 m area width as well as miter joints can be covered with the T list and corner list as base profile. This requires a joint size of at least 30 mm in accordance with the width of the base profile.

The base profile must be centered to the joint such that uniform expansion of both sub-areas toward the joint is ensured.

The base profile must be screwed into the foundation (concrete paving slabs, concrete floor, etc.) at each support point with customer-provided anchors and stainless steel screws. The fastening screws should be set into the guide groove of the base profile, in alternation.

After installation of the terrace surfaces, the cover profile is inserted into the guide groove of the base profile.

See figure 13, 14



Green Plank Smart System Laying the Profiles

6.5 Profile longitudinal joint

The **Green Plank Smart System profiles** can be laid in a staggered arrangement. There must be one sub-framework bar underneath both conterminal Longitudinal profiles. Longitudinal profile joints must always be centered on an open butt joint. The size of the open butt joint is at least 5 mm.

See figure 15

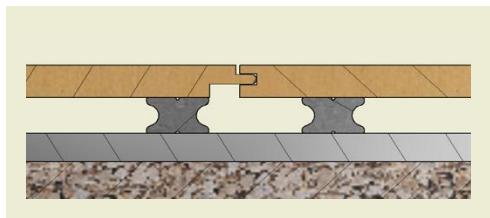
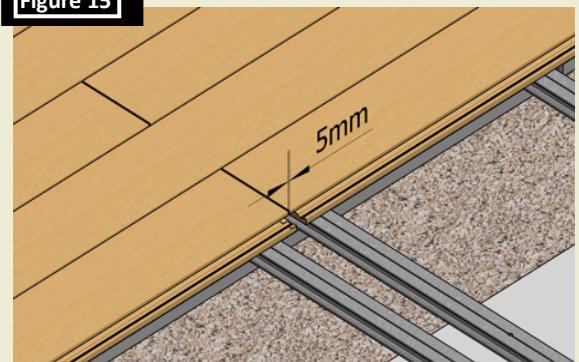


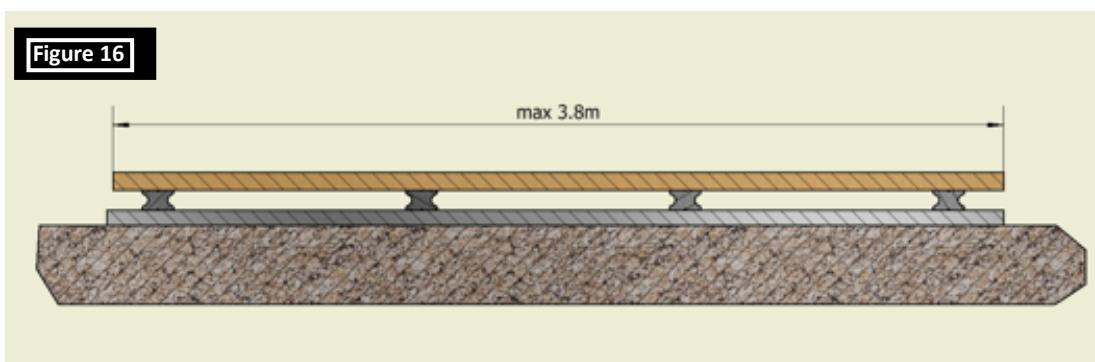
Figure 15



7. Expansion joints

7.1 Areas smaller than 3.8 m in length and width

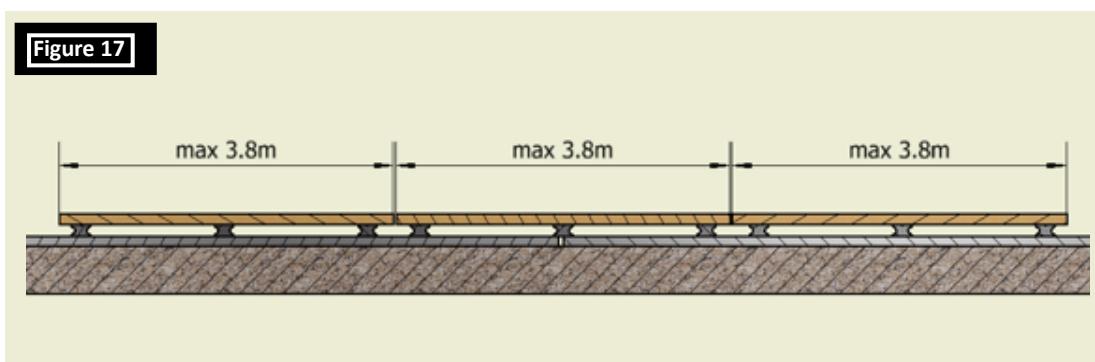
For areas smaller than 3.8 m in total length, the expansion or edge joints against all fixed borders (e. g. house walls, garden walls, shafts, paving block border, posts, railings, rain pipes, etc.) must be at least 20 mm. The edge joints can be covered with the Green Plank cover angle, if necessary.



7.2 Areas larger than 3.8 m in length

Expansion joints along the profile length for sub-areas

Terrace surfaces with a total length (in the profile length direction) greater than 3.8 m must be divided into sub-areas with continuous separating joints between them. The open butt joint is at least 5 mm.



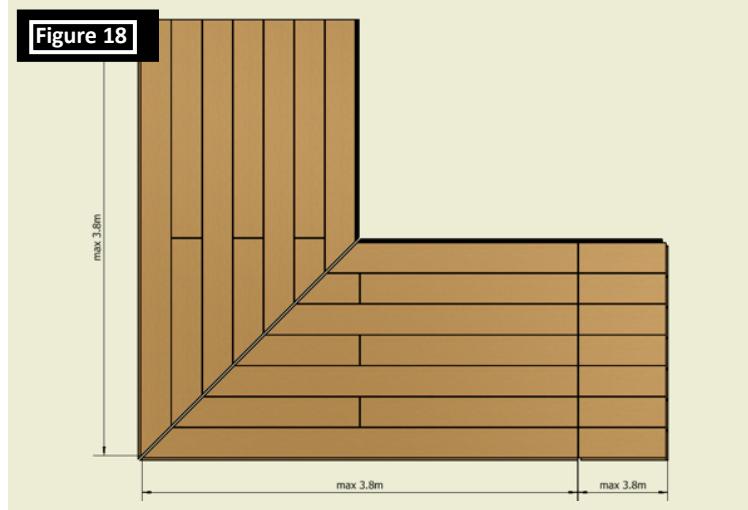
7.3 Expansion joints for miter laying

When laying with miter joints, an expansion joint must be ensured at the miter joint as well. Separating joints must also be created after no more than another 3.8 m of area length.

See Figure 17

Create the miter joint such that the profile ends of each sub-area rest against a separate sub-framework bar (running parallel to the miter joint). Fastening of the sub-framework bar in the area of the miter joint takes place at each end of the sub-framework bar.

See Figure 18



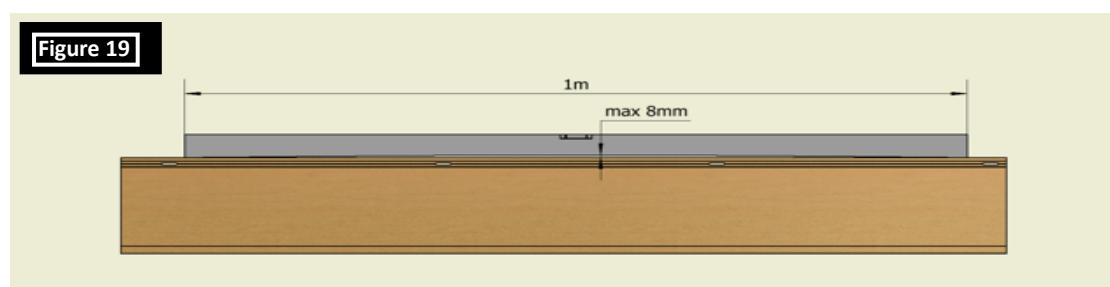
8. Changes due to climatic influence

Green Plank Smart System profiles consists of the high-quality natural-fibers-polymer composite (NFC). As with every wood product, this material also reacts to climatic influences in the form of temperature and moisture fluctuations. These affect the dimensions and shape of the product.

Changes to the shape primarily involve the properties of longitudinal elongation, lifting up of the profile ends and changing of the coverage width (and therefore reduction of the joint widths). Within the limits described here, changes to the specified properties are considered normal behavior of the natural-fibers-polymer composite (NFC) and do not represent defects.

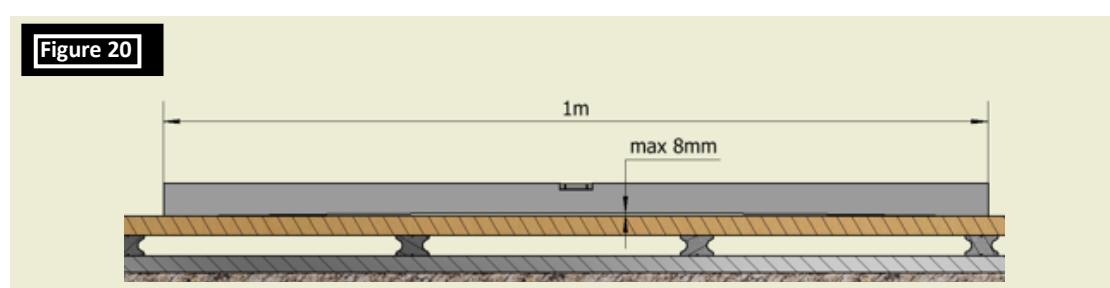
8.1 Longitudinal elongation

If a measuring stick with a length of 1 m is placed at the location with the longest elongation, the largest permissible gap between the profile and the measuring stick is 8 mm.



8.2 Lifting up of the profile ends

If a measuring stick with a length of 1 m is placed at the location with the most pronounced flaring, the largest permissible gap between the profile and the measuring stick is 8 mm.



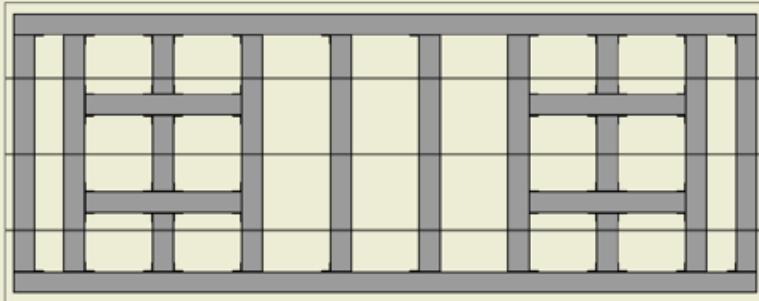
9. Installation alternatives

If it is not possible to attach the sub-framework to the ground, or in cases of low installation height, **Green Plank Smart System profiles** can also be laid on a frame structure (Figure 25) or a cross-batten framework (Figure 26).

Frame structure:

The frame structure can either be welded or riveted with angle brackets.

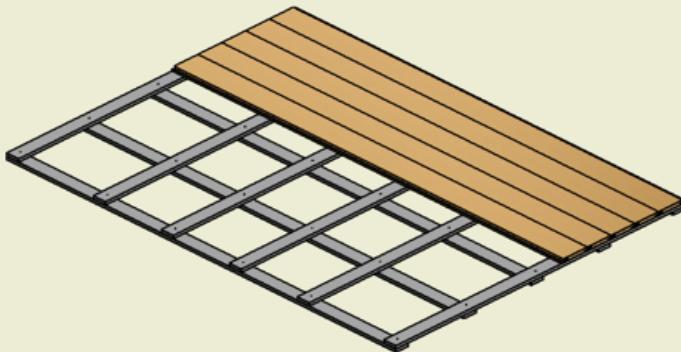
Figure 21



Cross-batten framework:

The intersections of the cross-batten framework are either screwed (self-drilling screws 3.9 x 32 mm) or riveted (rivets 5 x 30, provided by customer).

Figure 22



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