

WOODN AETERNUS



DISCLAIMER - GENERAL NOTES

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MATERIAL'S FEATURES

Mechanical properties

Elasticity (bending)	UNI EN ISO 178	@23 °C @65 °C
Yield strenght (flexural)	UNI EN ISO 178	@23 °C @65 °C
Water absorbption and humidity	ASTM D1037	absorption 0,07%
Dynamic- Mechanical analysis of transition temperature	ASTM D4065/95	78.8 °C
Linear thermal expansion coefficient (from -10 °C to 70 °C)	TMA ASTM E 831/2006	longitudinal $46,9 \times 10^{-6} \text{ m}/(\text{m}^{\circ}\text{C})$ trasversal $48 \times 10^{-6} \text{ m}/(\text{m}^{\circ}\text{C})$
Tensile strenght and tensile strenght after accelerated weathering (exposure to xenon lights)	ASTM D638-10 (tensile test) ASTM G155-050	difference after 2 months of exposure ~5,21% difference after 3 months of exposure ~6,9% (meet the requirements to comply with Miami Dade and Florida Building Code 2014)

Reaction to fire

Flammability	UL94 AS 3959-2009	V-0 Class BAL-29
Flame spread index Smoke developed index	ASTM E84	Class A
Ignition temperature	ASTM D1929	476 °C
Average critical radiant flux of floor	AS ISO 9239 ASTM E648	$\geq 11 \text{ kW}/\text{m}^2$ $> 1,03 \text{ W}/\text{cm}^2$ (class I as per NFPA 101)
Ignitability, flame propagation, heat release and smoke release	AS/NZS 1530.3:1999	Ignitability (0-20) = 8 Spread of Flame (0-10) = 0 Heat Evolved (0-10) = 0 Smoke Developed (0-10) = 7

Chemical and biological features

Evaluation of the action of microorganisms (scale from 0 to 5)	EN ISO 846:97	Test result: 1
Heavy metal content (Pb, Ge, Cr, Hg)	GB18584-2001 GB18580-2001	< 0,5 ppm
Formaldehyde emission	EN 717-2:1994	0,1 mg HCHO/(m ² h)

Surface characteristics (only for Aeternus)

Surface resistance to slippage while wearing footwear (brushed finish)	DIN 51130 (06/2004)	R12
Surface resistance to slippage while wearing barefoot (brushed finish)	DIN 51097 (1992)	A+B+C
Flooring slip resistance (Pendulum test)	AS 4663-2013	Dry: 98 Wet: 70



The product contribute to meeting LEED credits.


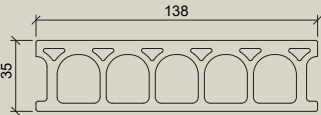

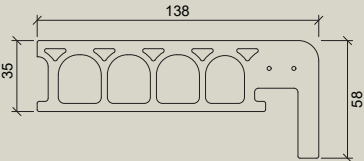

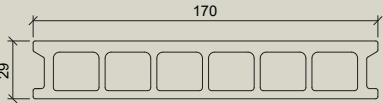

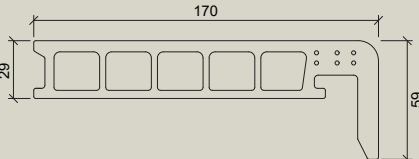
MRc 4
Recycled content

MRc 6
Rapidly renewable materials

The values shown are indicative and not binding. Test reports available upon request.
The natural aging of the material and temperature variations may cause deviations from the values indicated above.
The product is protected by a warranty in line with legal requirements: for more information see the SPECS on www.woodn.com

PROFILE'S SECTION



DT13835		
DT13858		
DT17029		
DT17059		

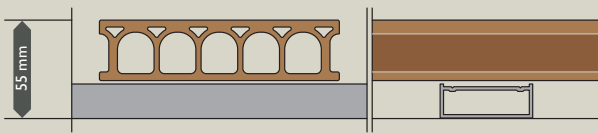
The external dimensions listed are nominal values. The weights of the planks indicated in the tables are indicative and not binding. Refer to Woodn Technical Department or on website www.woodn.com for cad blocks and manufacturing/cutting tolerances.

Planks dimension and logistic

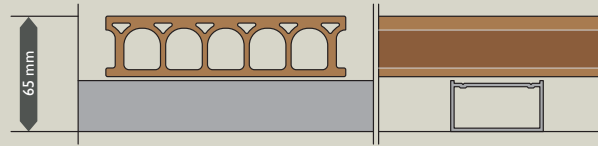
	DT13835	DT13858	DT17029	DT17059
Dimensions of the plank	138 x 35 x 2000 mm	138 x 58 x 2000 mm	170 x 29 x 2000 mm	170 x 59 x 2000 mm
Incidence	7,14 m/sqm	-	5,81 m/sqm	-
Weight of a plank	~ 4.30 kg	~ 6.05 kg	~ 4.47 kg	~ 5.91 kg

System height DT13835

LAYING ON ALUMINUM JOISTS 55 x 20 mm (W x H)

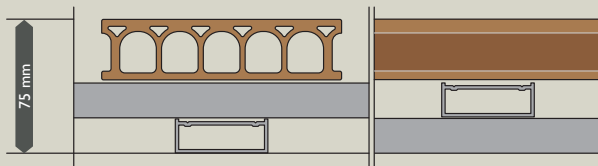


LAYING ON ALUMINUM JOISTS 55 x 30 mm (W x H)

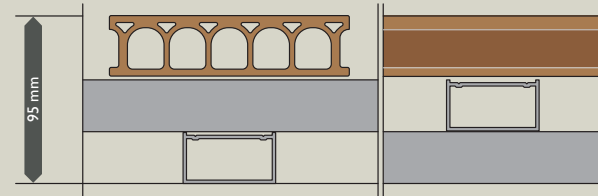


PLANK
ALUMINUM JOIST

LAYING ON ALUMINUM JOISTS AND CROSSPIECES 55 x 20 mm (W x H)
WITH SUPERIMPOSED FRAME



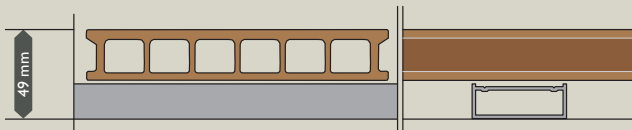
LAYING ON ALUMINUM JOISTS AND CROSSPIECES 55 x 30 mm (W x H)
WITH SUPERIMPOSED FRAME



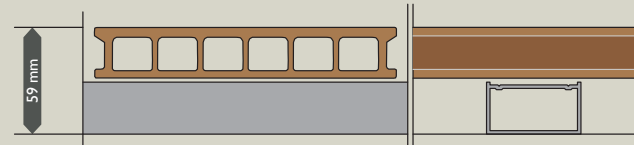
PLANK
ALUMINUM JOISTS
ALUMINUM CROSSPIECE

System height DT17029

LAYING ON ALUMINUM JOISTS 55 x 20 mm (W x H)

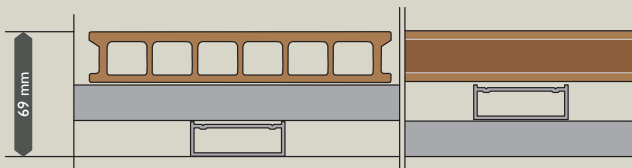


LAYING ON ALUMINUM JOISTS 55 x 30 mm (W x H)

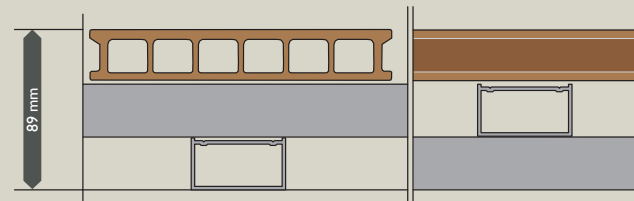


PLANK
ALUMINUM JOIST

LAYING ON ALUMINUM JOISTS AND CROSSPIECES 55 x 20 mm (W x H)
WITH SUPERIMPOSED FRAME



LAYING ON ALUMINUM JOISTS AND CROSSPIECES 55 x 30 mm (W x H)
WITH SUPERIMPOSED FRAME



PLANK
ALUMINUM JOISTS
ALUMINUM CROSSPIECE

Size of the joints

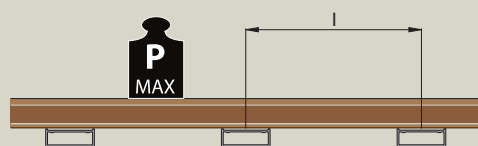
The size of the joints depends on the type of clip used, as follows:

Clip model	Joint size [mm]
Stainless steel clip (code KKDT13835_4024_4.2)	Approximately 4.5 *
Plastic clip (code WADT13835_ST)	Approximately 4.5 *

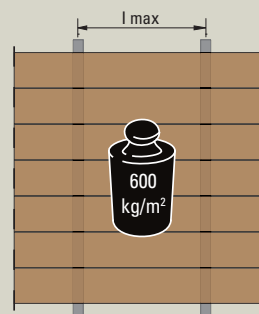
*IMPORTANT: The dimensions shown are approximate and may vary depending on the accuracy, tolerance and method of installation.

Laying instructions

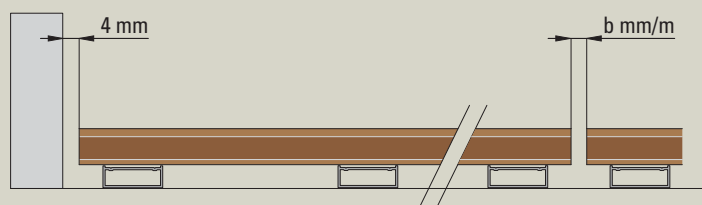
	Maximum centre-to-centre joists distance [mm]	Maximum load on a single plank [kg]
	l_{max}	P_{max}
Woodn™ Aeternus DT13835	500	120
Woodn™ Aeternus DT17029	350	180



The aeternus floor is suitable for foot traffic, but not vehicle traffic.

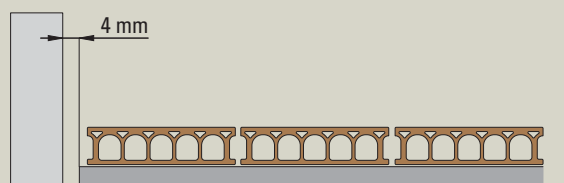


Load distributed over 1 m²



The minimum distance between the ends of the plank and the wall must be at least 4 mm.

The minimum distance between the ends of two consecutive planks must be equal to "b" mm per meter of plank length, as indicated in the table.



The distance between the joist and the wall must be at least 4 mm regardless of the width of the surface.



Position the joist no more than 30 mm from the end of the plank.

GENERAL INSTALLATION INSTRUCTIONS

Key points to be followed before and during the installation process:

- Woodn recommends to use max 6' long boards.
- Store the boxes on a flat surface providing for a stable support on the whole surface, in a dry, clean area, protected from frost and direct sun light.
- Before starting the installation, carefully check the material and notify immediately of any manufacturing issues. Complaints will not be accepted after installation.
- Before starting the installation, check project's drawings (or shop drawings if provided) and the correspondence of the received material against the packing list.
- Acclimate the material in stock to the temperature of the jobsite for at least 48 hours prior to installation.
- The installation temperature must be higher than 0 °C.
- Open the boxes and immediately remove the polyethylene packaging from the profiles.
- Do not cover the product with sheets made with non-breathable material (nylon, polyethylene and similar materials). For this purpose it is advisable to use felt sheets as a painter.
- The accumulation of electrostatic charges is a natural phenomenon commonly found in plastic materials, and under exceptional environmental conditions this may also occur in Woodn™'s products.
- Profiles shall be handled with care in order to prevent damages. It is recommended to lift the profiles on the whole length during displacement and not make them slide on top of each other. Always use clean fabric gloves when handling profiles.
- Prevent the formation of dirt on and between profiles; in particular, make sure that mechanical processes carried out on other materials, near Woodn products, do not determine the accumulation of chips or dust of any kinds. During the installation/assembly phase do not apply any label or sticker; if already applied, please remove immediately after installation. Immediately remove major stains such as paint, concrete or tar residues.
- For cleaning and maintenance instructions refer to page 117 . The WoodN warranty will be rendered null and void in the event of incorrect or improper handling, cleaning and maintenance.

EXPANSION GAP BETWEEN ADJACENT PROFILES

WoodN, due to material's composition's features and extrusion technology, undergoes after the first exposure an initial dimensional shrinkage less than 1% of the profile length (max value established according to EN 479: 1995) and presents a linear contraction / dilatation due to temperature variations.

Therefore, during laying, WoodN recommends an adequate gap between the board's ends, as shown in the table below:

If it is not possible to follow distances "a" and "b" due to the design of the installation areas, adequately reduce the length of the planks.

Laying temperature	Distance b	Distance b for planks 2000 mm long
< 20 °C	2 mm/m	4 mm
> 20 °C	1 mm/m	2 mm

WARNING: it has to be noted that the failure to comply strictly with the criteria for the application of fixed points and floating points, causes the deformation of the materials and the misalignment of all the expansion joints.

LAYING METHOD 1 - SINGLE FRAME

LAYING ON STABLE GROUND

Installation on aluminum joists involves mechanical fixing them to the ground and is suitable for installation on stable and drillable floors such as: concrete sub-bases, existing stone floors and industrial decking.

In the presence of concrete screeds laid to protect waterproofing membrane, check the actual available thickness to choose the size of the plug to fix the joists, so as not to damage the underlying membrane.

For installation in circumstances and on grounds that differ from the above, contact the Woodn Industries' technical department at the following e-mail address: ufficiotecnico@woodn.com

TOOLS REQUIRED FOR INSTALLATION:

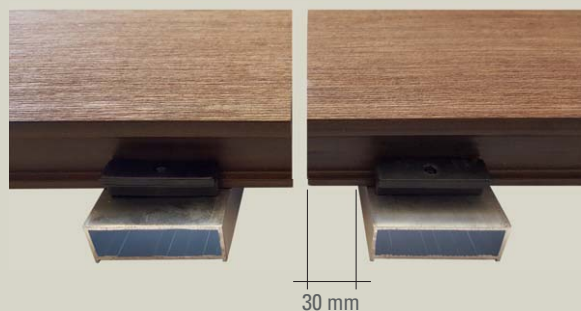
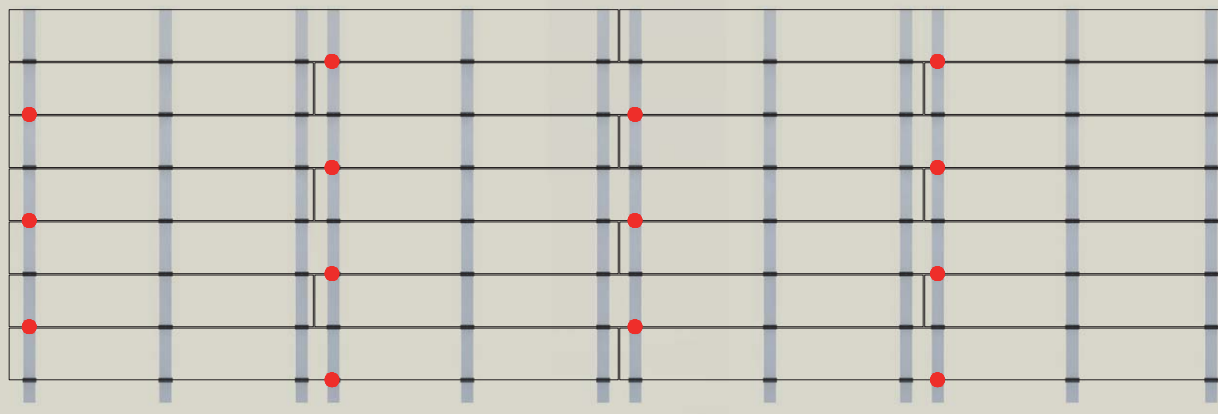
- Impact drill
- Electric screwdriver
- Electric saw
- Rubber mallet
- Various materials for tracing purpose

FIXED POINT

To make sure that the expansion gap will remain over time, in outdoor applications a FIXED POINT should be made on each plank. We also recommend strictly adhering to the positioning pattern of the fixed point.

LAYING PATTERN - RUNNING BOND

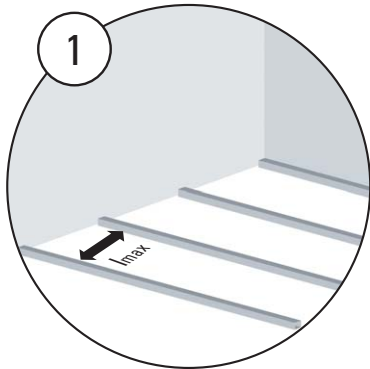
● = fixed point for expansion



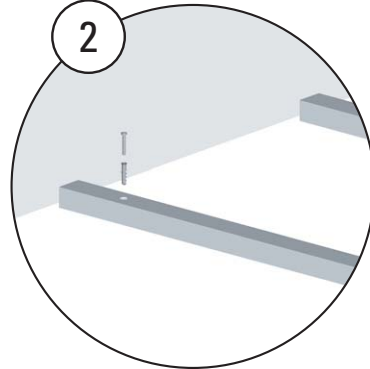
In correspondence of the heads of two consecutive planks, the aluminum joists must be doubled as shown in the photo.

LAYING AND FIXING OF ALUMINUM JOISTS (standard 55 x 20 mm)

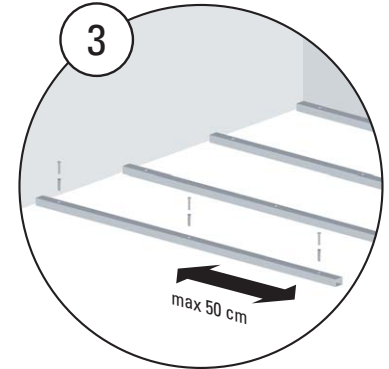
Arrange the joists on the ground in a position perpendicular to the plank laying direction, with a maximum centre-to-centre distance equal to I_{max} (page 56) from each other. The positioning of the joists is closely connected to the laying surface of the planks. We recommend laying out the planks on the ground to locate the exact positions of the joists, their centre-to-centre distance may vary depending on the laying surface and the cut of the floor planks.



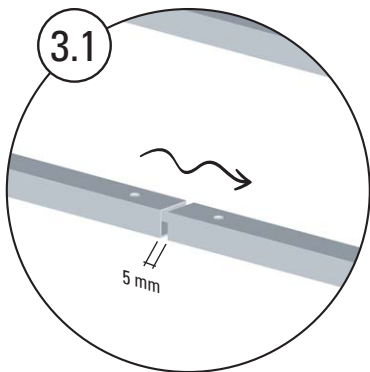
1 Arrange the joists on the ground with a maximum centre-to-centre distance of I_{max} (page 56), and take into account the floor laying pattern.



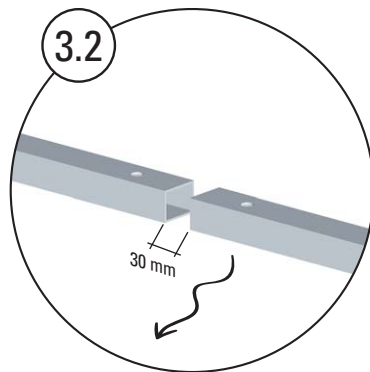
2 Drill a through hole with a diameter 1-2 mm greater than the diameter of the screw shank and another of a diameter greater than the diameter of the screw head on with the upper surface of the joist.



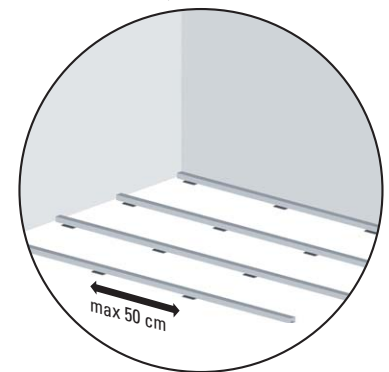
3 Attach the joists to the ground using suitable screw plugs; the centre-to-centre distance of the fixing points must not exceed 50 cm.



3.1 The distance between the ends of adjacent joists must be at least 5 mm in the case of installation of the joists along the sloping side of the floor (fig. 3.1) and 30 mm in case of installation perpendicular to the slope to allow for the outflow of rainwater (fig. 3.2).

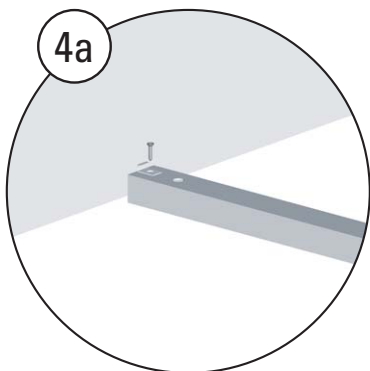


SHIMMING, IF REQUIRED

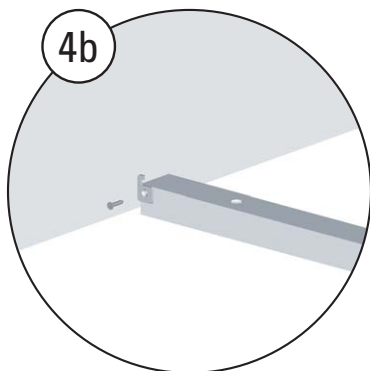


If the ground is uneven-, and shimming is therefore required, ensure support to the aluminium joists at least every 50 cm with Woodn™ Ormans strips or other durable materials.

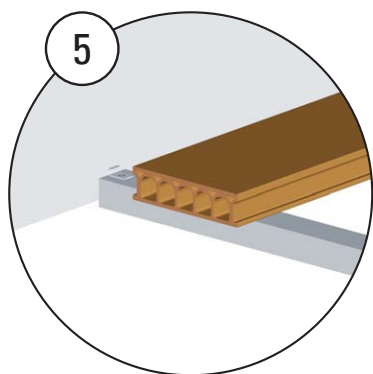
INSTALLATION OF THE PLANKS



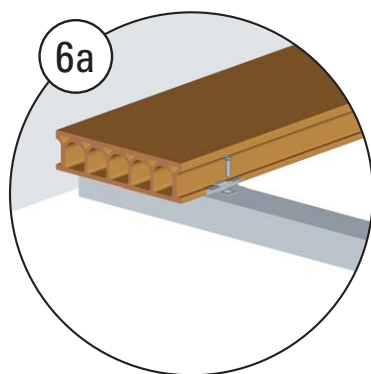
4a For installation with clip KKDT13835_4024_4.2, apply starting clip KKDT13835_2314, by screwing it to the joist and make sure the clips are all aligned.



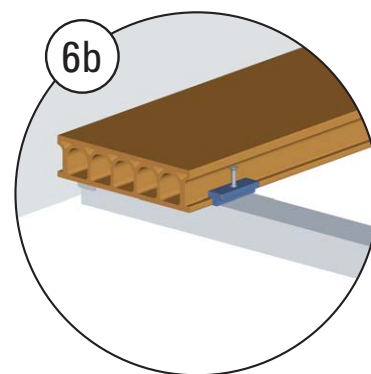
4b For installation with clip WADT13835_ST, apply starting clip KKDT13835_1826 or WADT13835_ST, by screwing it to the joist and make sure the clips are all aligned.



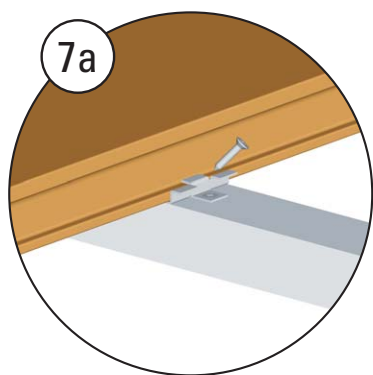
Install the first plank by inserting the lower flap into the cavity of the clip.



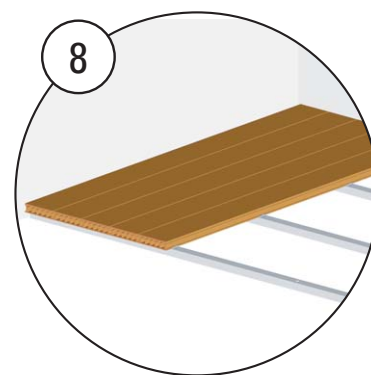
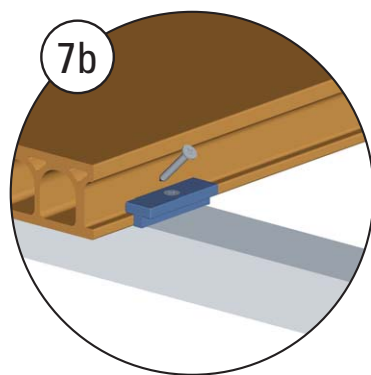
Insert clip KKDT13835_4024_4.2 and fasten the screws for the fastening to the joist.



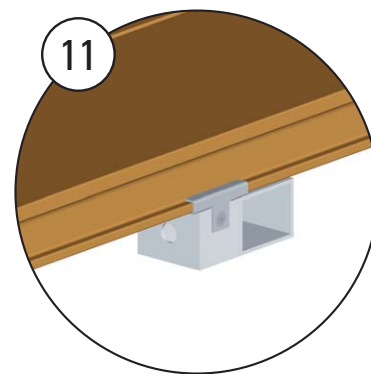
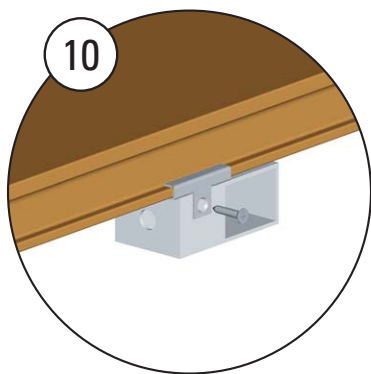
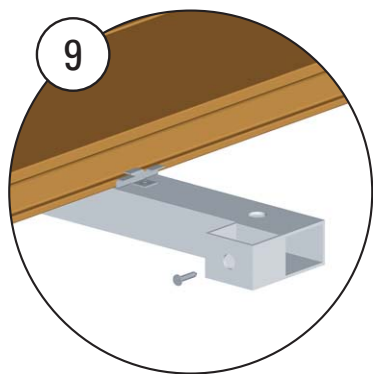
Insert the WADT13835_ST and fasten the screws for attachment to the slat.



Install ONE screw in each plank as shown in the figure, so as to avoid the sliding of the plank in the direction of its length. Drill a through hole of the plank. To identify this FIXED POINT, see the instructions in the diagrams of the laying patterns.



Repeat the above steps until completion of the cladding, in the installation order indicated in the following paragraph.



In the case of clip KKDT13835_4024_4.2, complete installation using locking clip KKDT13835_4013, while in the case of clip WADT13835_ST complete installation using clip KKDT13835_1826.

LAYING METHOD 2 - DOUBLE FRAME

LAYING ON UNSTABLE OR ELEVATED GROUND

The laying system involves the creation of a frame consisting of aluminum joists and crosspieces and does not require fixing to the ground; it is suitable for laying on unstable or not drillable grounds such as: soil with vegetation, stabilized gravel, sand, waterproofed floors with a sheath or in general for raised floors.

For installation in circumstances and on grounds that differ from the above, contact the Woodn Industries' technical department at the following e-mail address: ufficiotecnico@woodn.com

TOOLS REQUIRED FOR INSTALLATION:

- Impact drill
- Electric screwdriver
- Electric saw
- Rubber mallet
- Various materials for tracing purpose
- Straightedge, bubble or laser level

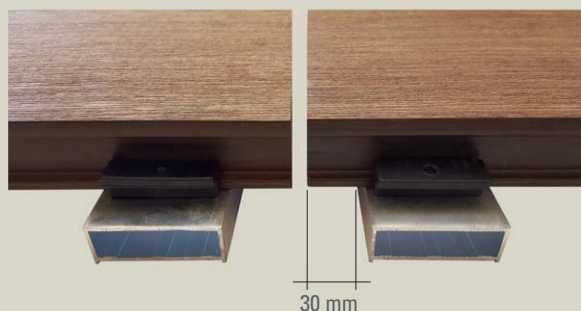
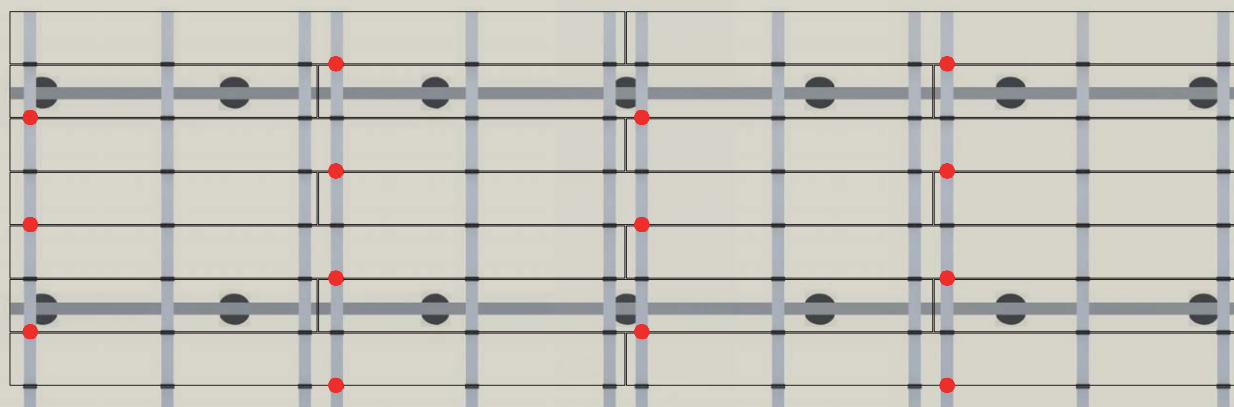
FIXED POINT

To make sure that the expansion gap will remain over time, in outdoor applications a FIXED POINT should be made on each plank. We also recommend strictly adhering to the positioning pattern of the fixed point.

LAYING PATTERN - RUNNING BOND

● = fixed point for expansion

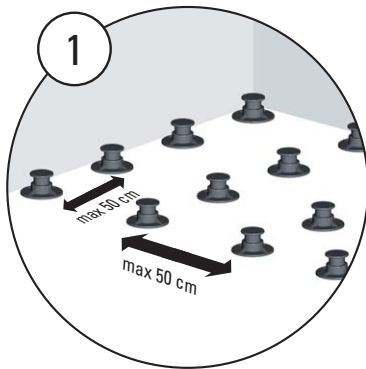
● = position of support in case of raised floor



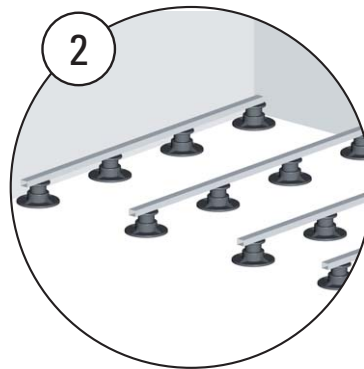
In correspondence of the heads of two consecutive planks, the aluminum joists must be doubled as shown in the photo.

LAYING OF RAISING SUPPORTS

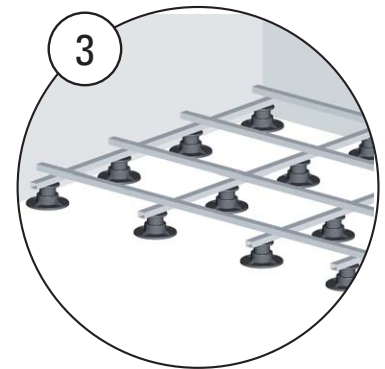
In the case of raised floors, place the supports in accordance with the laying pattern. In any case, the distance between the supports must be maximum 50 cm in the direction parallel to the length of the planks and 50 cm in the direction perpendicular to the length of the planks (with aluminium 55x20 mm).



Place crosspieces and joists as shown in the figure.

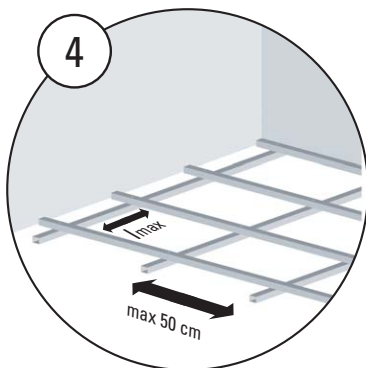


Then create the frame as indicated in the following paragraph. Mechanically fix crosspieces and joists to the supports.

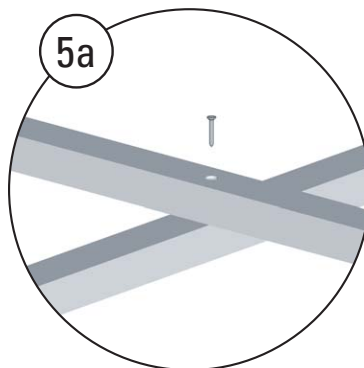


CREATING THE ALUMINIUM FRAME

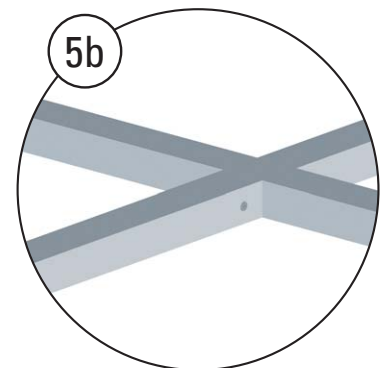
Place on crosspieces and joists in accordance with the chosen laying pattern, maintaining a maximum centre-to-centre distance of l_{max} (page 56) between the joists and 50 cm between the crosspieces (with aluminium 55x20 mm).



The joists must be firmly fixed to the crosspieces.



In the case of a superimposed frame, drill through holes with a 5 mm diameter on the joist and widen them to 12 mm on the upper surface. Then, fix it with the self-drilling screw.



In the case of a coplanar frame, for a proper system rigidity the stringers should be fitted whole, interrupting the spars instead at the intersections. Common L-brackets, which can be found in any hardware store, can be used for fixing.

ALUMINIUM CAPACITY (centre-to-centre distance crosspieces)

Joists	l_{max}
55 x 20 mm (W x H)	50 cm
55 x 30 mm (W x H)	65 cm
55 x 40 mm (W x H)	80 cm

INSTALLATION OF THE PLANKS

Proceed with the installation of the planks as described in paragraph "Laying method 2".

HEIGHT OF THE ELEVATED SYSTEM

The total height of the decking system is obtained by adding the overall size of the joist, crosspiece, plank and support. Here are the possible combinations:

Woodn™ Aeternus DT13835

Support code	Support height	Height of the finished surface*	Frame configuration
AC010#2235	22 - 35 mm	97 - 110 mm	Overlapped
AC010#3555	35 - 55 mm	110 - 130 mm	Overlapped
AC010#5595	55 - 95 mm	130 - 170 mm	Overlapped
AC010#95165	95 - 165 mm	170 - 240 mm	Overlapped
AC010#165235	165 - 235 mm	240 - 310 mm	Overlapped

The heights reported above are calculated considering aluminum joists and crosspieces 55 x 20 mm (W x H)

Woodn™ Aeternus DT17029

Support code	Support height	Height of the finished surface*	Frame configuration
AC010#2235	22 - 35 mm	91 - 104 mm	Overlapped
AC010#3555	35 - 55 mm	104 - 124 mm	Overlapped
AC010#5595	55 - 95 mm	124 - 164 mm	Overlapped
AC010#95165	95 - 165 mm	164 - 234 mm	Overlapped
AC010#165235	165 - 235 mm	234 - 304 mm	Overlapped

The heights reported above are calculated considering aluminum joists and crosspieces 55 x 20 mm (W x H)

To the **AC010#95165** and **AC010#165235** supports (and only to them) the extension code **AC010#PROL** can be applied, up to a maximum of 3 extensions. Each extension applied increases the height of the system by 100 mm.

For example:

System composed of: AC010#95165 overlapped frame + 2 extensions finished floor height = (170 - 240) + (2 x 100) = 370 - 440 mm (370 mm minimum height, 440 mm maximum height).

THEORETICAL SUPPORT INCIDENCES FOR RAISED DECKING

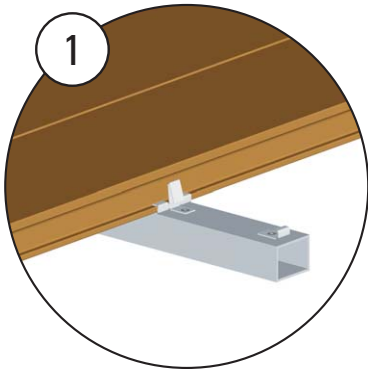
	stacked bond	running bond
Woodn™ Aeternus DT13835	5 pcs/sqm	5 pcs/sqm
Woodn™ Aeternus DT17029	5 pcs/sqm	5 pcs/sqm

The actual calculation of the number of supports needed must be defined based on the chosen laying surface.

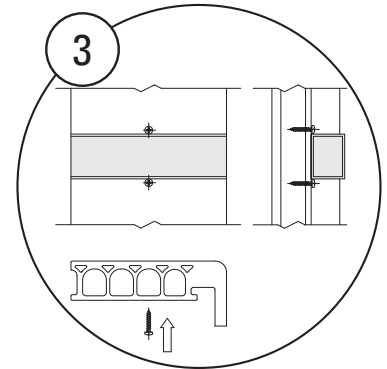
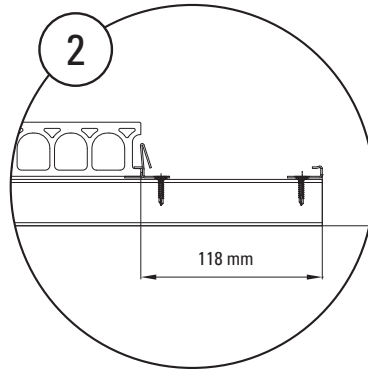
EDGE - INSTALLING THE FINISHING EDGE

Install corner profile DT13858 to close the decking on the sides.

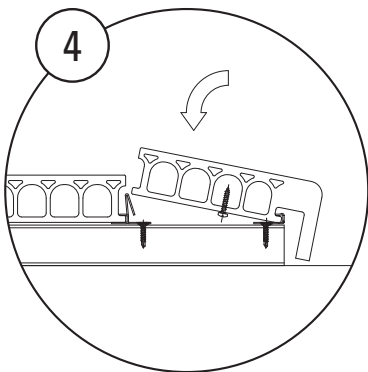
INSTALLATION WITH STAINLESS STEEL CLIP



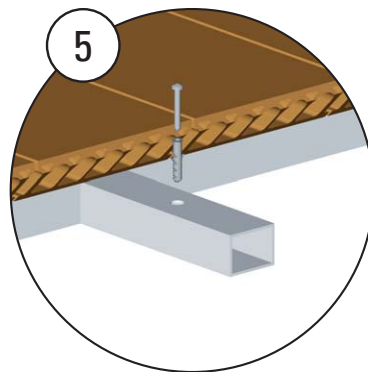
Install clip KKDT13835_4029 on the long end of the planks as shown in the figure.



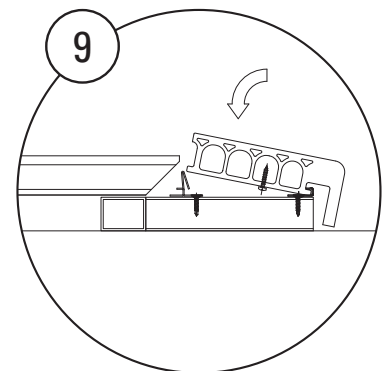
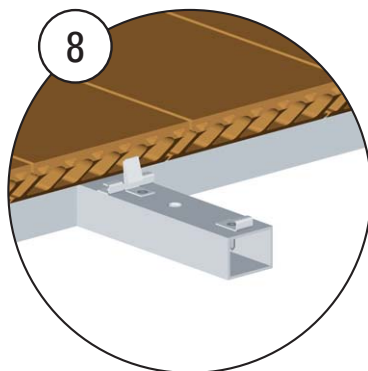
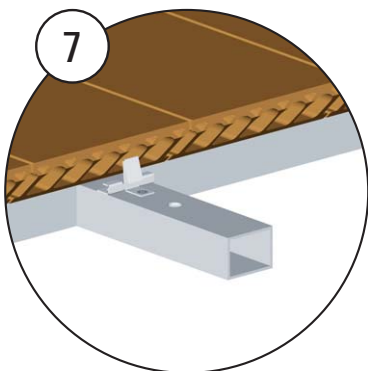
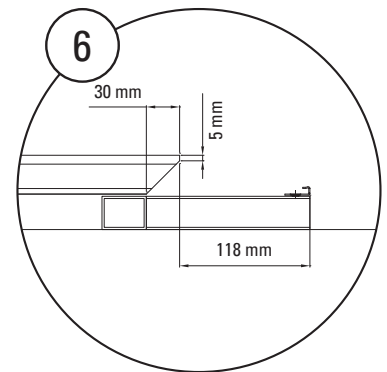
Create the **FIXED POINT** on the finishing profile by fixing two screws matching the position of one of the support planks (the head of the screws should prevent horizontal movement of the profile).



Then install the finishing profile by inserting the clip and turning it as shown.

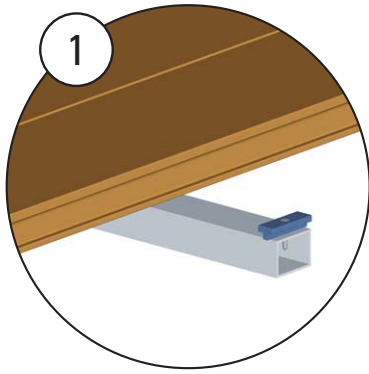


On the short side of the planks, create the substructure support for the finishing profile (in this case, the centre-to-centre distance between the support profiles should be at most 50 mm). On this side, the planks must be cut as indicated in the figure to allow for the application of the fixing clip.

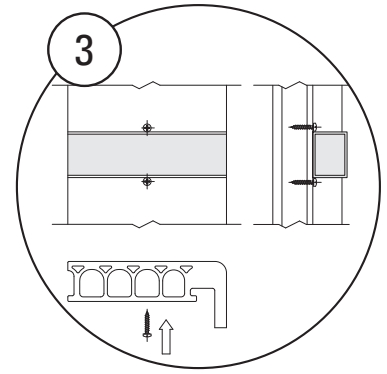
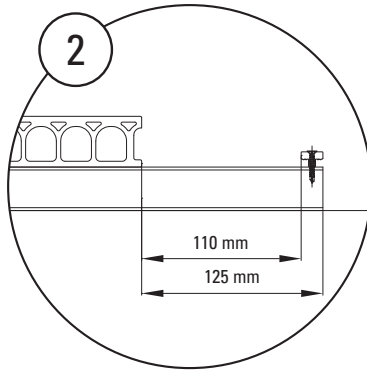


Then apply the finishing edges as on the long side of the planks, remember you need to make the **FIXED POINT** on the finishing profile.

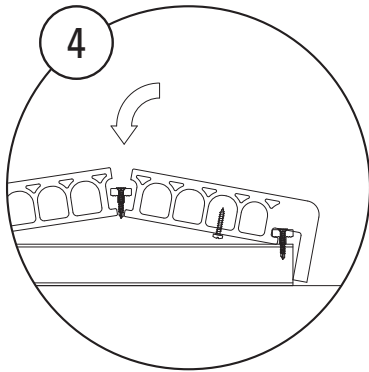
INSTALLATION WITH PLASTIC CLIP



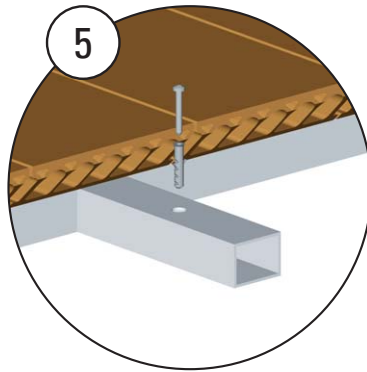
Install clip DT13835_ST on the long end of the planks as shown in the figure.



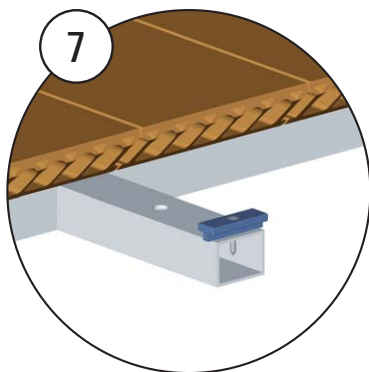
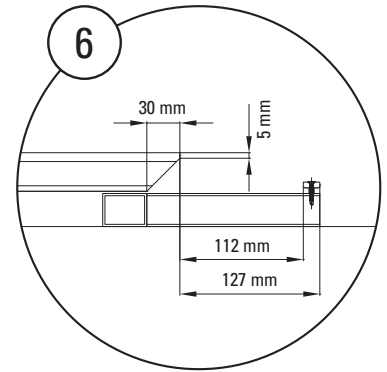
Create the **FIXED POINT** on the finishing profile by fixing two screws matching the position of one of the support planks (the head of the screws should prevent horizontal movement of the profile).



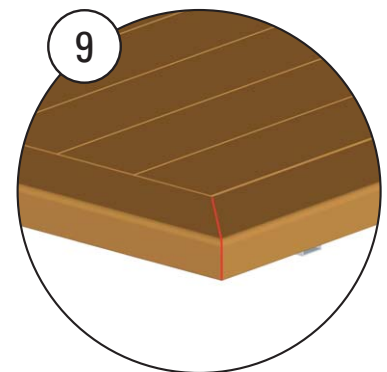
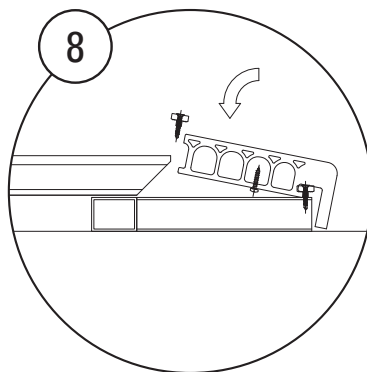
Then install the finishing profile by turning it as shown and attaching it with clip WADT13835_ST.



On the short side of the planks, create the substructure support for the finishing profile (in this case, the centre-to-centre distance between the support profiles should be at most 50 mm). On this side, the planks must be cut as indicated in the figure to allow for the application of the fixing clip.


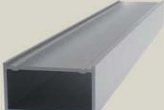
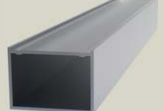

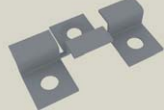
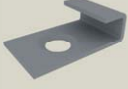





Then apply the finishing edges as on the long side of the planks, remember you need to make the **FIXED POINT** on the finishing profile.



Mitre cuts can be performed in the corners; in this case we recommend making the **FIXED POINT** as close as possible to the corner and matching the adjacent sides of the two profiles.

ACCESSORIES

accessory code	design
<p>Joists - LA01#N 55 x 20 (W x H)</p>	
<p>Joists - LA01#N 55 x 30 (W x H)</p>	
<p>Joists - LA01#N 55 x 40 (W x H)</p>	
<p>Plastic clip WADT13835_ST</p>	
<p>Stainless steel clip KKDT13835_4024_4.2</p>	
<p>Stainless steel clip KKDT13835_2314</p>	
<p>Stainless steel clip KKDT13835_4013</p>	
<p>Stainless steel clip KKDT13835_4029</p>	
<p>Raised floor supports AC010#SPESS/AC010#h15/AC010#2235 AC010#3555/AC010#5595/AC010#95165 AC010#165235/ AC010#PROL</p>	



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