AETERNUS

Outdoor Decking

El Bajío Mexico City (WIT10004)

MATERIAL'S FEATURES

Mechanical properties

Elasticity (bending)	UNI EN ISO 178	@73 °F @149 °F
Yield strenght (flexural)	UNI EN ISO 178	@73 °F @149 °F
Water absorbption and humidity	ASTM D1037	absorption 0,07%
Dynamic- Mechanical analysis of transition temperature	ASTM D4065/95	173.8 °F
Linear thermal expansion coefficient (from 14 °F to 158 °F)	TMA ASTM E 831/2006	longitudinal 46,9 x10^{-6} m/(m°C) trasversal 48 x10^{-6} m/(m°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*

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	890 °F
Average critical radiant flux of floor	AS ISO 9239 ASTM E648	≥ 11 kW/m^2 > 1,03 W/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^2h)

Surface characteristics (only for Aeternus)

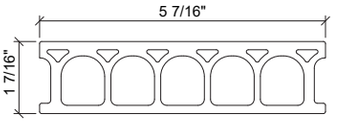
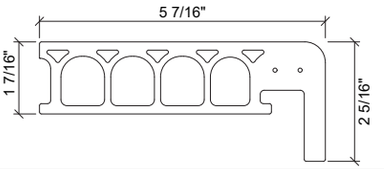
Surface resistance to slippage while wearing footwear (brushed finish)	DIN 51130 (06/2004)	R12
Surface resistance to slippage while wearing barefoot (brushed finish)	DIN 51097 (1992)	A+B+C
Flooring slip resistance (Pendulum test)	AS 4663-2013	Dry: 98 Wet: 70

GREEN COMPLIANT PRODUCT GREENTOP
www.GreenTop.com
contributes to
SSC4,SSC5,EAP2
EAC2,MRC3,MRC5
credits (v4 BD+C)
IT02-19092404

FSC
MIX
Wood from responsible sources
FSC™ C196729

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.woodngreenwood.com

PROFILES SECTION

DT13835		
DT13858		

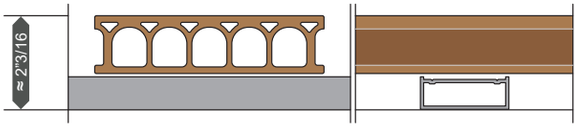
The external dimensions listed are nominal values.
The weights of the planks indicated in the tables are indicative and not binding.
Length tolerances according UNI EN-ISO 22768: class UNI EN-ISO 22768-vL.

Planks dimension and logistic

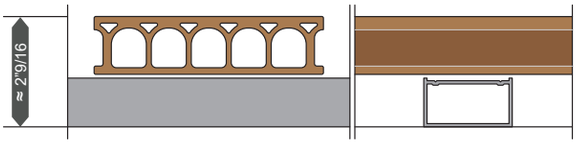
	DT13835	DT13858
Dimensions of the plank	138 x 35 x 1830 mm (≈ 5”7/16 x 1”7/16 x 6’)	138 x 58 x 1830 mm (≈ 5”7/16 x 2”5/16 x 6’)
Incidence	2,20 ft/sqft	-
Weight of a plank	~ 1.59 lb/ft	~ 2.43 lb/ft

System height

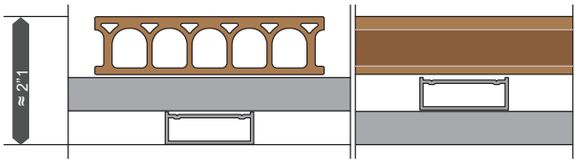
LAYING ON ALUMINUM JOISTS 2”3/16 x ”13/16 (W x H)



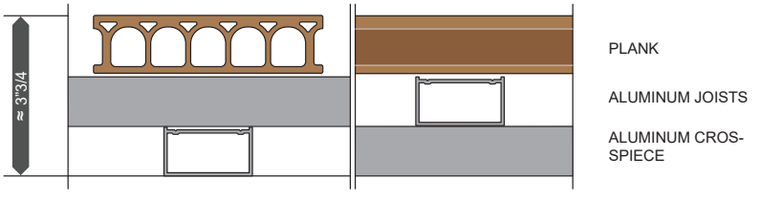
LAYING ON ALUMINUM JOISTS 2”3/16 x 1”3/16 (W x H)



LAYING ON ALUMINUM JOISTS AND CROSSPIECES 2”3/16 x ”13/16 (W x H) WITH SUPERIMPOSED FRAME

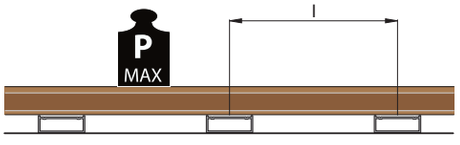


LAYING ON ALUMINUM JOISTS AND CROSSPIECES 2”3/16 x 1”3/16 (W x H) WITH SUPERIMPOSED FRAME

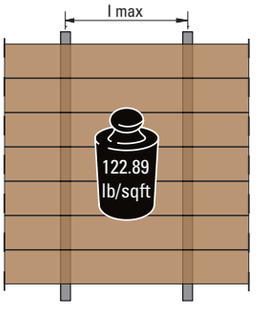


Laying instructions

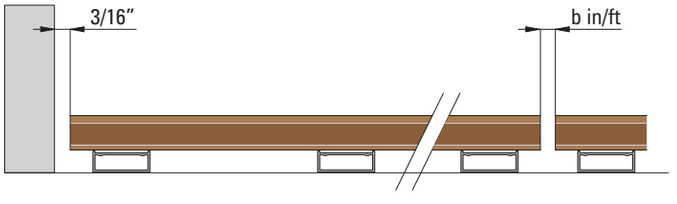
	Maximum centre-to-centre joists distance [in] I_{max}	Maximum load on a single plank [lb] P_{max}
Woodn™ Aeternus DT13835	16” o.c.	265



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

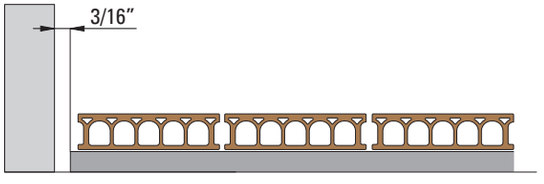


Load distributed over 1 sqft

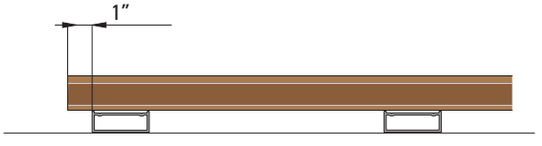


The minimum distance between the ends of the plank and the wall

The minimum distance between the ends of two consecutive planks must be equal to “b” inch per foot of plank length, as indicated in the table.



The distance between the joist and the wall must be at least ”3/16 regardless of the width of the surface.



Position the joist no more than 1”inch 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 32 °F.
- 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 breathable material such as painter felt sheets.
- 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 immediatly after installation. Immediately remove major stains such as paint, concrete or tar residues.
- For cleaning and maintenance instructions refer to page 154. 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 0.4% 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

Laying temperature	Distance b [in/ft]	Distance b [inch] for planks 6’ long
< 68 °F	1/40”	1/6”
> 68 °F	1/80”	1/13”

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.

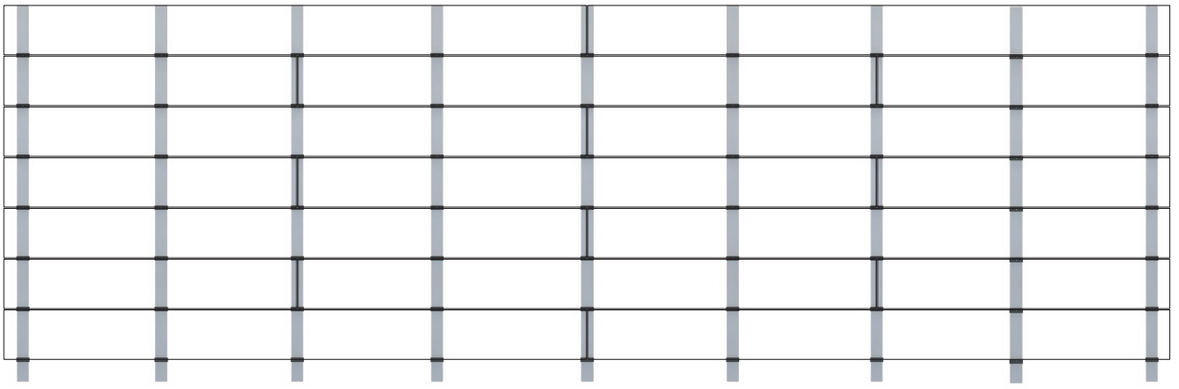
LAYING METHOD 1 - SINGLE FRAME

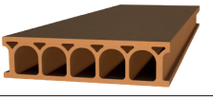
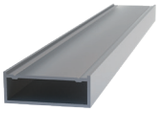
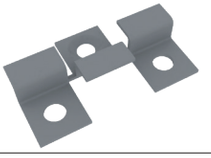
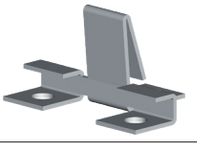
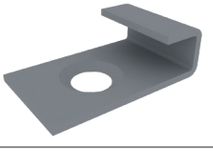
LAYING ON STABLE GROUND

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, please refer to “LAYING METHOD 2 - DOUBLE FRAME”

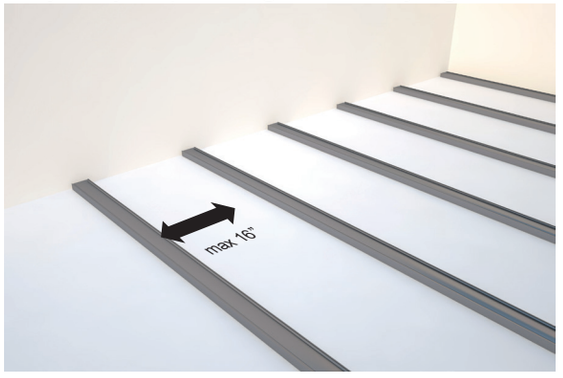
LAYING PATTERN - RUNNING BOND



DT13835	
Aluminum joists ZPCM-55X20-6060-T6 2”3/16X13/16”(W X H)	
staniless steel clip ZCLW-KKDT13835_4024_4.2	
staniless steel clip ZCLW-KKDT13835_4029	
staniless steel clip ZCLW-KKDT13835_2314	
Screws for clips and dowel attachment ZFHC-3.5X19-A2-7504O ZFHC-4.8X25-A2-7504P	

LAYING AND FIXING OF ALUMINUM JOISTS (standard 2” 3/16 x 13/16”)

Arrange the joists on the ground in a position perpendicular to the plank laying direction, with a maximum centre-to-centre distance equal to 400mm (≈16”) 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.

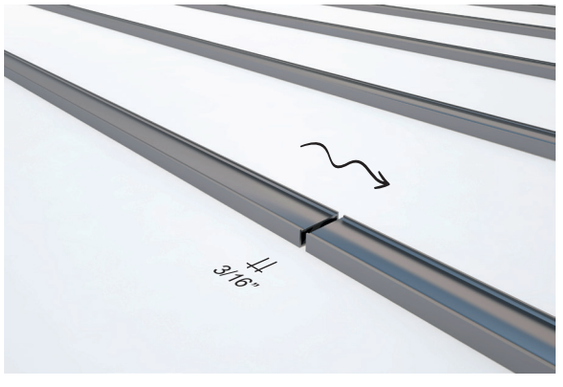


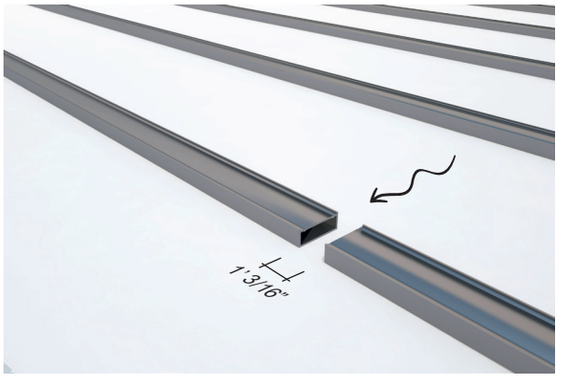
1. Arrange the joists on the ground with a maximum centre-to-centre distance of 400 mm (≈ 16 ”),, and take into account the floor laying pattern.

2. Drill a through hole with a diameter 1/16” to 1/8” 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 400 mm (≈ 16”)..

4. If the ground is uneven, and shimming is therefore required, ensure support to the aluminium joists at least every 400 mm (≈ 16”).

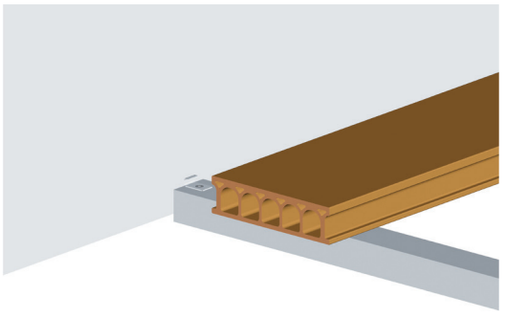




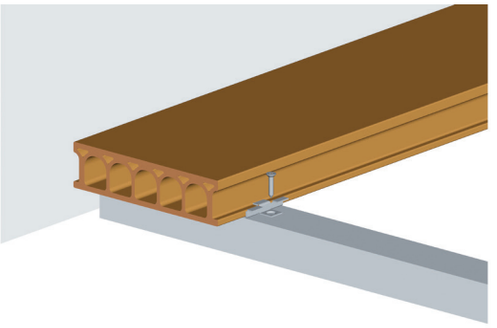
5. The distance between the ends of adjacent joists must be at least 5 mm (≈ 3/16”) in the case of installation of the joists along the sloping side of the floor and 30 mm (≈ 1”3/16) in case of installation perpendicular to the slope to allow for the outflow of rainwater.

Woodn recommends to refer only to the values expressed in mm the US values are to be considered approximate.

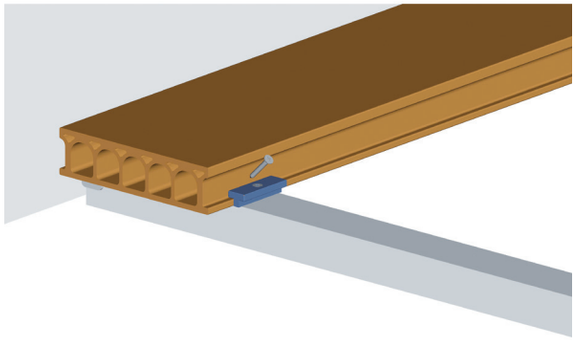
INSTALLATION OF THE PLANKS



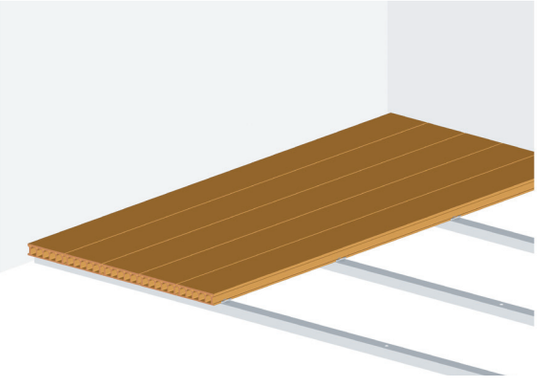
1. Install the first plank by inserting the lower flap into the cavity of the clip.



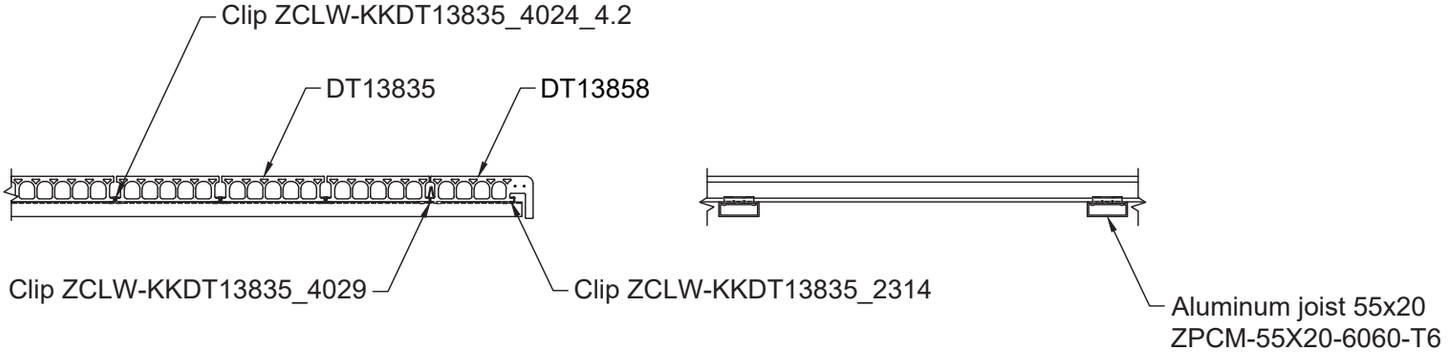
2. Insert clip ZCLW-KKDT13835_4024_4.2 and fasten the screws for the fastening to the joist.



3. 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,



4. Repeat the above steps until completion of the decking.



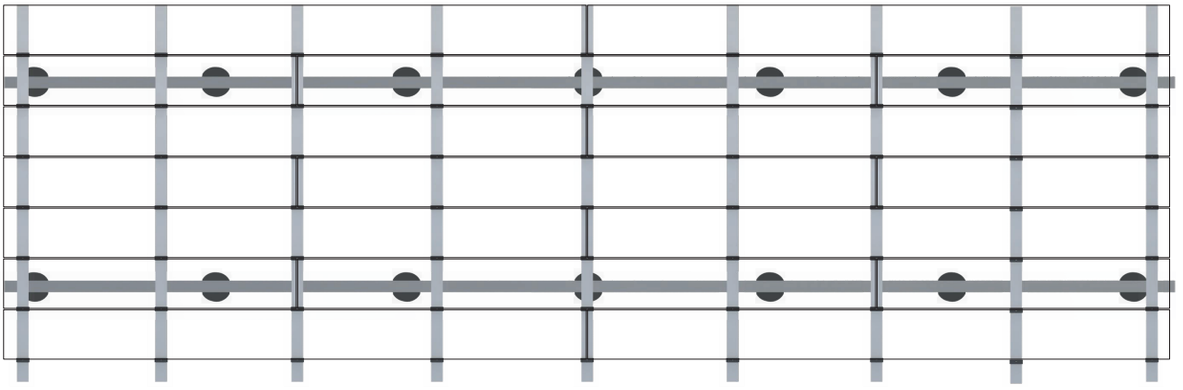
LAYING METHOD 2 - DOUBLE FRAME

LAYING ON UNSTABLE OR ELEVATED GROUND

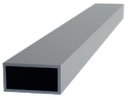
The laying system involves the creation of a frame consisting of aluminum joists and crosspieces and does not require fixing to the ground; it is suitable for laying on unstable or not drillable grounds such as: soil with vegetation, stabilized gravel, sand, waterproofed floors with a sheath or in general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

LAYING PATTERN - RUNNING BOND

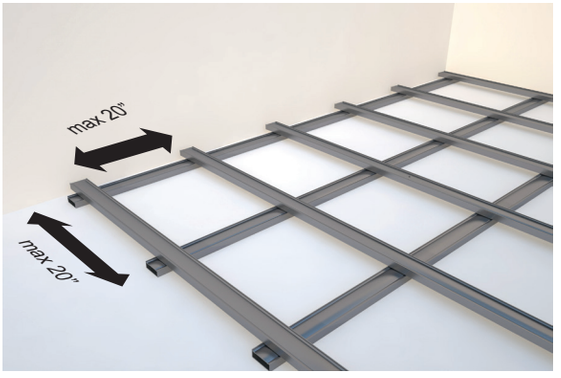


ACCESSORIES FOR DOUBLE FRAME

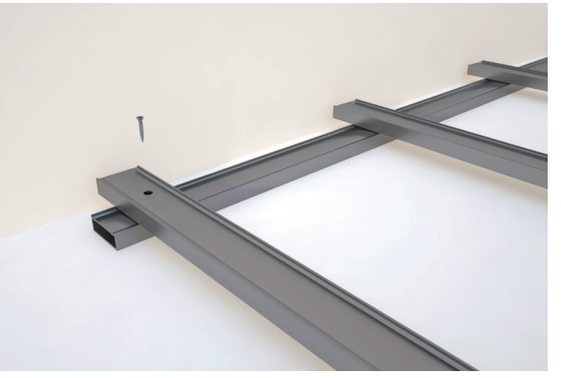
Aluminum Joist AZTRW-45X25.4X1.5-6060-T6 45 x 25.4 " (L x H) (≈ 1"49/64 x 1" W x H)	
Raised floor supports ZPSC-AC010#SPESS / ZPSC-AC010#H15 ZPSC-AC010#2235 / ZPSC-AC010#3555 ZPSC-AC010#5595 / ZPSC-AC010#95165 ZPSC-AC010#165235 / ZPSC-AC010#PROL	

CREATING THE ALUMINIUM FRAME and LAYING OF RAISING SUPPORTS (standard 45 x 25.4 mm-1” 49/64x 1”)

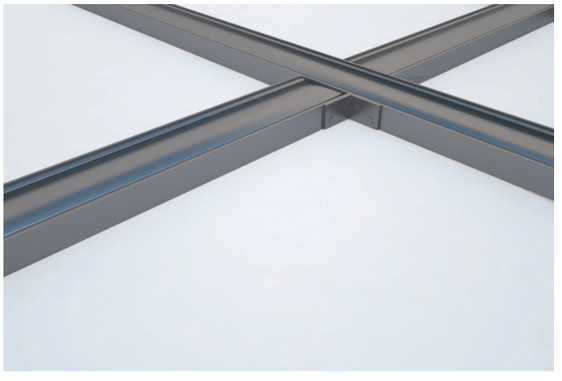
Place on crosspieces and joists in accordance with the chosen laying pattern, maintaining a maximum centre-to-centre distance between the joists as per technical sheet and 500 mm (≈ 20”) between the crosspieces. In the case of raised floors, place the supports in accordance with the laying pattern. In any case, the distance between the supports must be maximum 500 mm (≈ 20”) in the direction parallel to the length of the planks and 500 mm(≈ 20”)in the direction perpendicular to the length of the planks.



1. Place crosspieces and joists as shown in the figure.The joists must be firmy fixed to the crosspieces.



2. In the case of a superimposed frame, drill through holes with a Ø 5 mm (≈ 3/16”) on the joist and widen them to Ø 12 mm (≈ 15/32”) on the upper surface. Then, fix it with the self-drilling screw.



3. 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.

4. In the case of raised floors, place the supports as shown in the figure.

5. Then create the frame as indicated in the steps 1 and 2. Mechanically fix crosspieces and joists to the supports. Other forms of fix are not allowed (for example chemical, cement, etc.)

Woodn recommends to refer only to the values expressed in mm the US values are to be considered approximate.

ALUMINIUM CAPACITY (centre-to-centre distance crosspieces)

Joists	I_{max}
45 x 25.4 mm (W x H) 1” 49/64 x 1” (W x H)	500 mm (≈ 20”)

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

Support code	Support height	Height of the finished surface*	Frame configuration
ZPSC-AC010#2235	22 - 35 mm ≈ 7/8” - 1”3/8	84 - 97 mm ≈ 3”5/16 - 3”13/16	Overlapped
ZPSC-AC010#3555	35 - 55 mm ≈ 1”7/16 - 2”3/16	97 - 117 mm ≈ 3”13/16 - 4”19/32	Overlapped
ZPSC-AC010#5595	55 - 95 mm ≈ 2”3/16 - 3”3/4	117 - 157 mm ≈ 4”19/32 - 6”3/16	Overlapped
ZPSC-AC010#95165	95 - 165 mm ≈ 3”3/4 - 6”1/2	157 - 227 mm ≈ 6”3/16 - 8”15/16	Overlapped
ZPSC-AC010#165235	165 - 235 mm ≈ 6”1/2 - 9”5/16	227 - 297 mm ≈ 8”15/16 - 11”11/16	Overlapped

The heights reported above are calculated considering aluminum joists and crosspieces45 x 25.4mm- 2” 3/16 x 13/16” (W x H)

To the ZPSC-AC010#95165 and ZPSC-AC010#165235 supports (and only to them) the extension code ZPSC-AC010#PROL can be applied, up to a maximum of 3 extensions. Each extension applied increases the height of the system by 100 mm (3”15/16).

For example:
System composed of: ZPSC-AC010#95165 overlapped frame + 2 extensions finished floor height = (157 - 227) (6”3/16 - 8”15/16) + (2 x 100) (2 x 3”15/16) = 357 - 427 mm (357 mm minimum height, 427 mm maximum height) 14”3/64 - 16”13/16 (14”3/64 minimum height, 16”13/16 maximum height).

	stacked bond	running bond
Woodn™ Aeternus	0.46pcs/sqft	0.46pcs/sqft

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