



INSTALLATION INSTRUCTIONS

For Composite Decking

2023-V02

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(For Composite Decking)

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READ BEFORE YOU START

IMPORTANT:

Prior to installing any composite decking system, it is recommended that you check with local building codes for any special requirements or restrictions. The diagrams and instructions outlined in this guide are for illustration purposes only and are not meant or implied to replace a licensed professional. Any construction or use of wood plastic composite (Hereinafter referred to as WPC) product must be in accordance with all local zoning and/or building codes. The consumer assumes all risks and liability associated with the construction and use of this product.

*Please read carefully and refer to the corresponding instructions during the installation. The methods and accessories involved in this instruction are the only recognized by the warranty. **Failure to follow this instruction or use other installation method besides this instruction may invalidate the warranty.***

SAFETY

When dealing with any type of construction project, it is necessary to wear appropriate safety equipment to avoid any risk of injuries. When handling, cutting, and installing, the following safety equipment is recommended but not limited to: gloves, a respiratory protection, long sleeves, pants, and safety glasses.

TOOLS

Standard woodworking tools may be used. It is recommended that all blades have a carbide tip. Standard stainless steel or acceptable coated deck screws and nails are recommended. When driving screws, the recommended torque for power drills is 2-3 N·m, with the torque set to 6. For maximum effect, it's recommended that the same torque is applied throughout.



Circular Saw



Power Drill



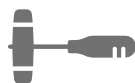
Impact Drill



Level



Tape Measure



Rubber Mallet

ENVIRONMENT

A clean, smooth, flat, and strong surface is needed to install WPC products correctly. Please check with local building codes before ever installing any type of decking. If installation does not occur immediately, WPC products need to be put on a flat surface at all times. Never ever should it be put on a surface that is NOT flat.

PLANNING

Plan a layout for your decking before starting it to ensure the best possible looking decking for your project. Building codes and zoning ordinances generally apply to permanent structures, meaning anything that is anchored to the ground or attached to the house. So nearly every kind of decking requires permits and inspections from a local building department. We recommend drawing out a site plan of your proposed project that you intend to do to minimize errors and make your project perfect.

CONSTRUCTION

WPC product is NOT intended for use as columns, support posts, beams, joist stringers or other primary load bearing members. WPC products must be supported by a code-compliant substructure. While WPC products are great for retrofits, WPC products CANNOT be installed on existing decking boards.

VENTILATION

WPC products CANNOT be directly installed onto a flat surface. It must be installed onto a substructure, so there is adequate and unobstructed air flow under the decking to prevent excessive water absorption. A minimum of 25 mm (1 inch) of continuous net free area under the decking surface is required for adequate ventilation on all decking, so air can circulate between adjacent members to promote drainage and drying.

HEAT & FIRE

The continuous high temperature generated by fire or other heat sources will cause damage to outdoor decking. Therefore, do not install the decking near a heat source such as a fireplace.

STORAGE

Acclimating at least 2 days prior to installation is recommended. Acclimating the boards will get rid of any unwanted shrinkage issues seen during and after installation.

If the products won't be used for a long time, please keep the package complete and store in a well-ventilated and drained indoor environment, avoid direct sunlight and rainwater. Products must be raised up by joist and stacked neatly on a even and solid ground. Uneven ground will cause the products to deform and warp. The spacing of each joist should be no more than 500mm. Do not store the products by putting on the ground directly.

During the construction, please cover products that are not in use to prevent the sand and gravel generated by the construction operation from falling on the surface and causing scratches by friction with the surface. Please lift and drop the products gently, and it is forbidden to drag or extract the products.

GROUND TREATMENT

A smooth and solid ground base that ensures good ventilation and drainage is crucial to the longevity of the decking. Please exercise proper ground treatment methods according to the ground condition at the job site. Here are the tips for some specific ground conditions, such as sandy land, soft soil, and grassland:

1. Build a concrete foundation. Dig holes in the ground with a suitable interval and depth below the frost line and then pour concrete in. They act as a foundation for lumber or metal framing. Then you can install the decking on the frame.

2. Use ground screws. Fix the ground screws to the ground at a suitable interval. Fixing the metal framing to the ground screws. Then you can install the decking on the frame.

3. Apply surface hardening treatment. Dig a depth of roughly 15-4/5" (400mm) depth (depending on the soil quality) under the ground. Then, ram the soil, lay the waterproof material, surface it with gravels and concrete slates (or pour concrete directly). After that, lay the joists and install the decking.

No construction measures that could cause damage to the surface structure shall be adopted on rooftops, balconies, and patios, as the waterproof layer might be damaged or other safety concerns could result. You can secure the joists with concrete before installing the decking. Joists must run in the direction of the pitch of the roof to facilitate proper drainage. If necessary, consult your local building code authority for information about the construction on roofs.

DECKING SUPPORT STRUCTURE

① **Framing:** It's recommended that code-compliant materials, such as pressure-treated wood or metal tubes, be used for the framing. Please follow the manufacturer's instructions for proper installation. The framing must be level without undulations, and the joist spacing should be determined depending on specific situations ([Refer to Appendix C on Page 16 for more information](#)).



Pressure-Treated Wood Framing



Galvanized Iron Framing

Joist: WPC or Aluminum or joists may be used on the ground that has undergone a hardening treatment, provided that adequate ventilation and drainage are ensured.



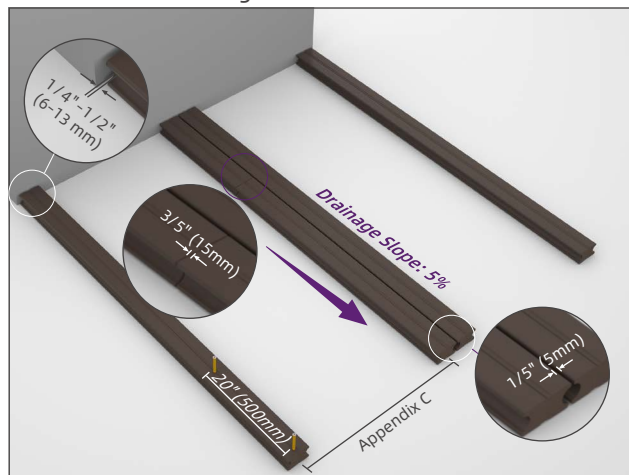
WPC Joist



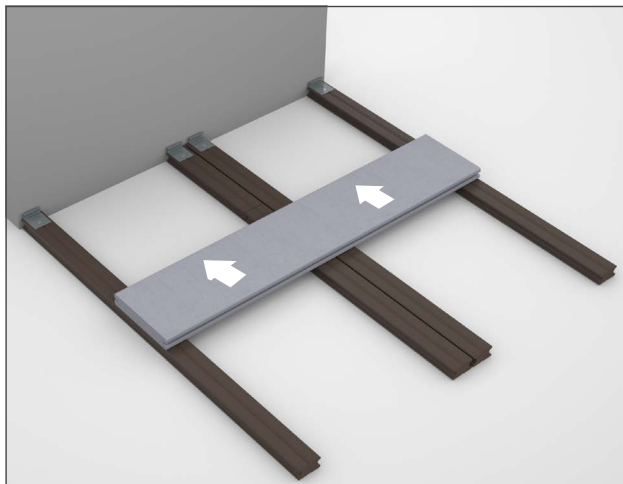
Aluminum Joist

OVERVIEW

① Fix the joists to the ground with expansion screws, the joist spacing should be determined depending on specific situations ([Refer to Appendix C on Page 16 for more information](#)). Double joists are needed at the end-to-end joint between decking boards.

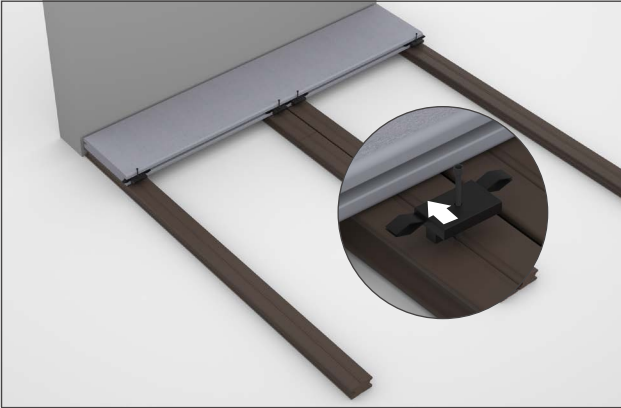


② Install the start clip and slide the first decking board into the start clip.

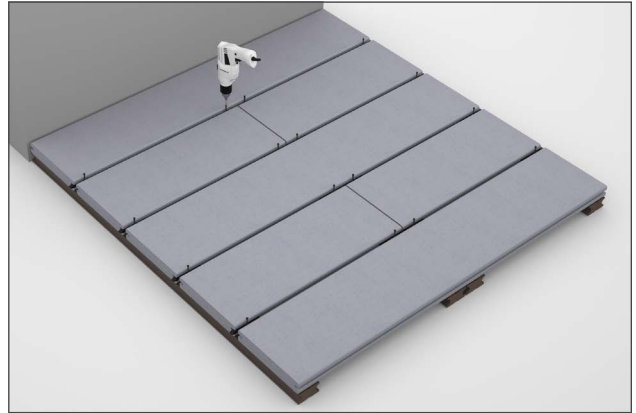


A. PLASTIC CLIP INSTALLATION

- ③ Squeeze the wings of the clips and place them into the grooves of the decking boards one by one. Gently push and slide into position the clips, each of which is located on top of its joist. Put the next row of decking boards into place.

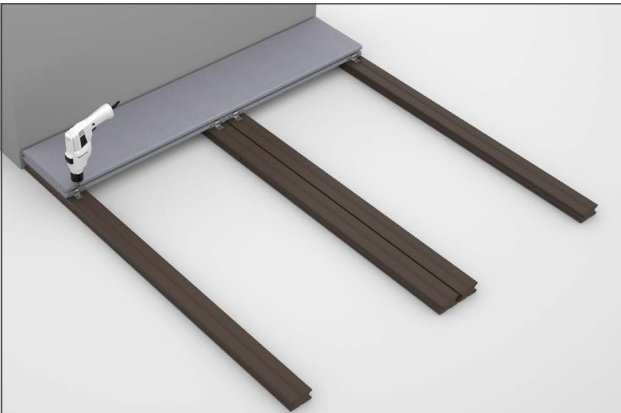


- ④ With all decking boards and clips in position, drive the screws into place using a power drill with the torque set to 6.

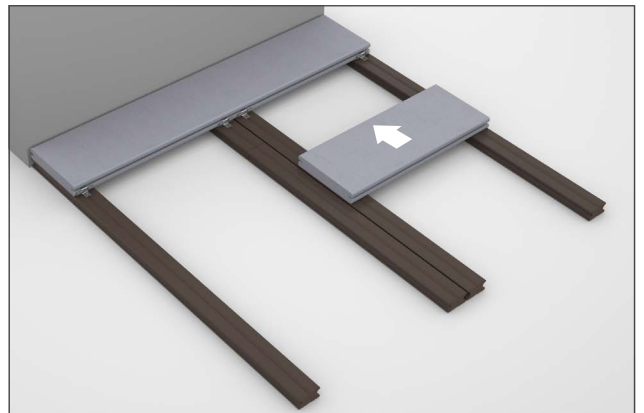


B. METAL CLIP INSTALLATION

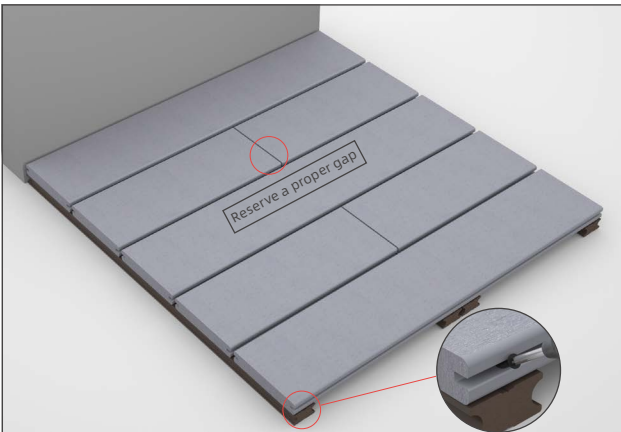
- ③ Slide the clips into the groove of the decking boards, secure the clip with screws.



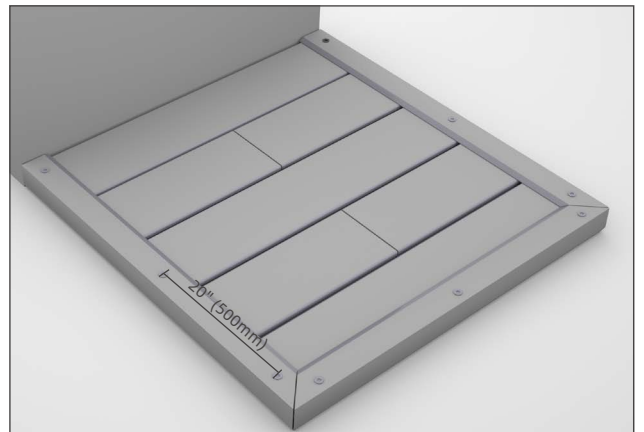
- ④ Push the next board into the clips.



- ⑤ Reserve a proper gap at the butt of the two boards for contraction and expansion ([Refer to THE RESERVE DECKING GAP on page 9 for details](#)). Along the edge, toenail screw to secure the decking boards.



- ⑥ Trim the L corner at a suitable angle and fix with screw. The spacing of the screws should be no more than 20" (500mm).



NOTE: some important details is not fully displayed in the Over View. We recommend that you read the following detailed Installation Instructions carefully and thoroughly before starting your project. Please note that the limited warranty can only be valid based on the entire content of the Installation Instruction.

INSTALLATION INSTRUCTIONS

WPC JOIST INSTALLATION

⚠ IMPORTANT

The WPC joist should be installed on a flat, sturdy ground with good ventilation and drainage. Before installing the joist, confirm that the maximum rainfall in the installation area does not exceed the height of the joist. It is recommended to use concrete to harden the ground and have a drainage slope of 5%.

Please make a reasonable plan for the decking project before starting installing the joist, which is very important to the safety and beauty of the project.

- ① Normally, the joist should be laid as vertical to the decking as possible, the joist spacing should be determined depending on specific situations ([Refer to Appendix C on Page 16 for more information](#)). If the joist and the decking cannot be vertical, please select the corresponding joist gap according to the angle between the joist and the decking ([Refer to Appendix A on page 15 for details](#)).

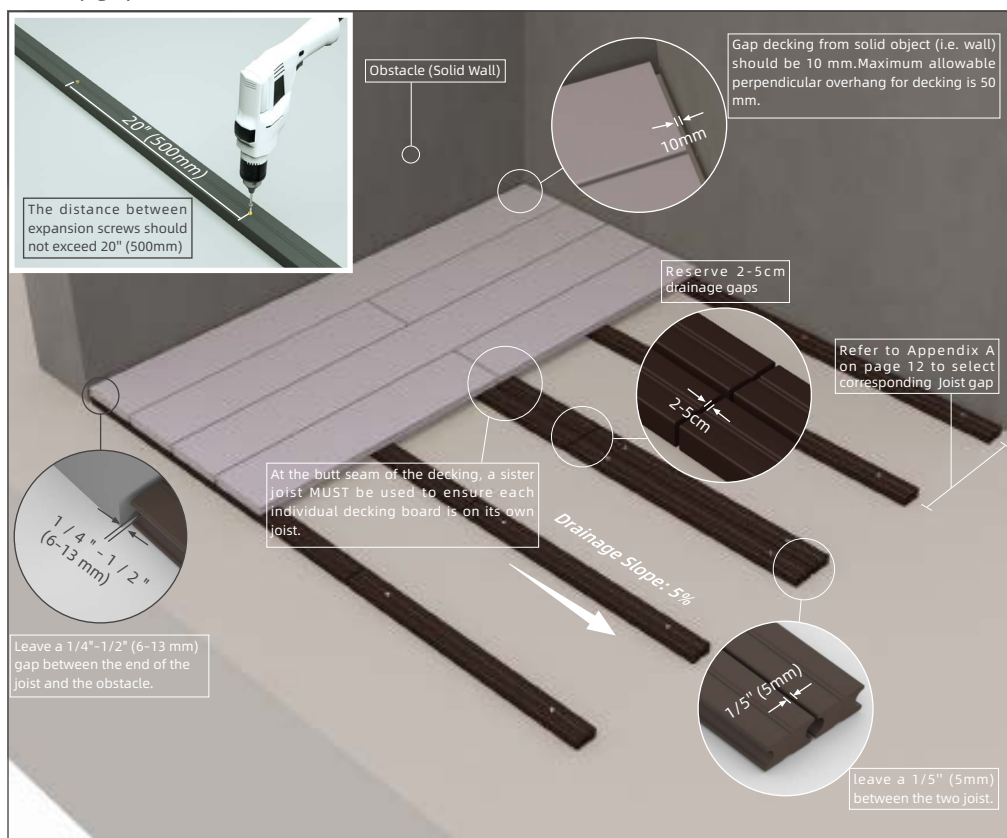
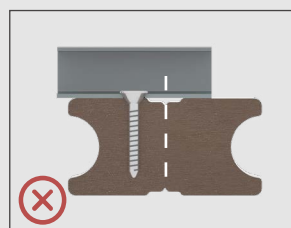
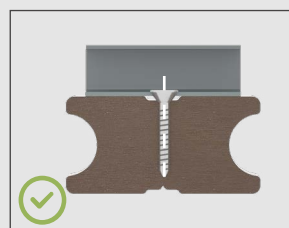
Leave a 1/4"-1/2" (6-13mm) gap between the end of the joist and the obstacle.

- ② At the butt seam of the decking, a sister joist must be used so that each individual decking board is on its own joist to ensure that the board will not slide off the joist, otherwise the warranty will be invalid. Leave a 1/5" (5mm) gap between the two joists for ventilation and drainage.
- ③ Fix the joist with expansion screws. Ensure that the expansion screw is installed at the center of the joist. The distance between expansion screws should not exceed 20" (500mm).

NOTE: When fixing accessories on the WPC joist with a screw, always pre-drill a pilot hole before securing the screw to avoid damage to the joist.

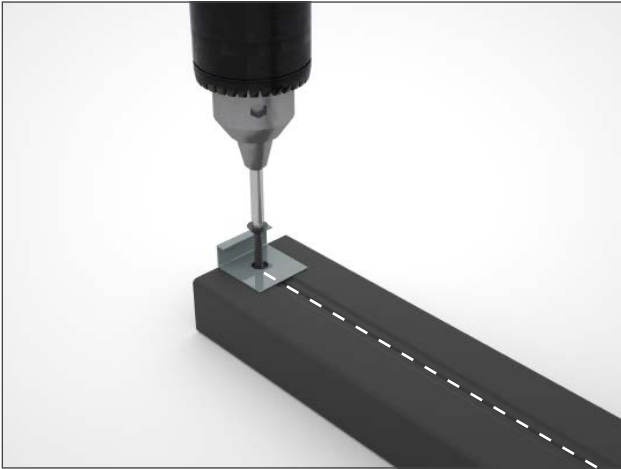


Ensure that the screw is installed vertically in the middle of the joist, offset may affect the fixing stability.

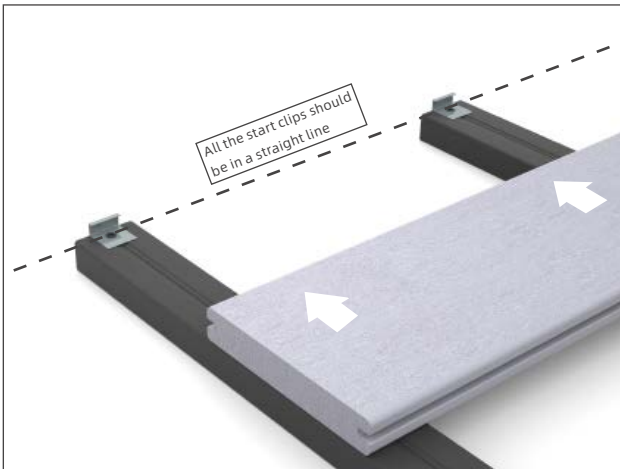


START CLIP INSTALLATION

- ① Pre-drill a pilot hole and use a screw to fix the start clip on the middle of the joist. Ensure that each start clip is installed in a straight line.



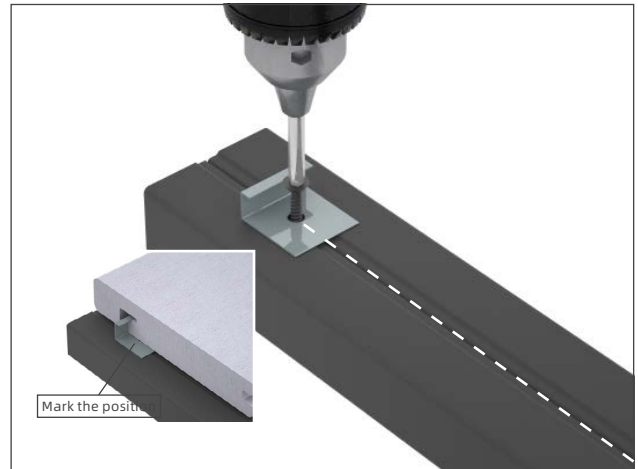
- ② Slide the decking board into the start clip. Important: The first board MUST be straight and well secured.



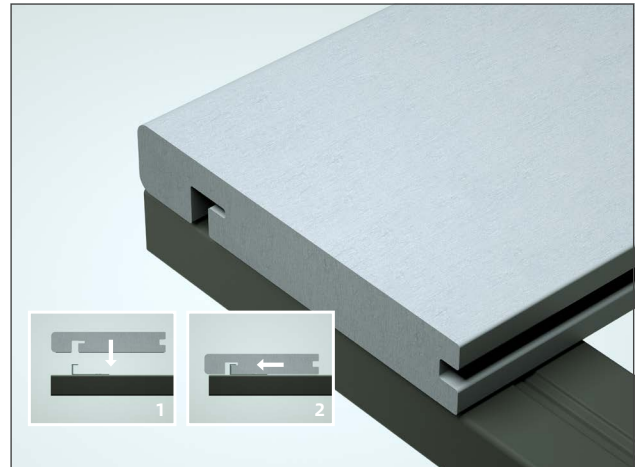
START BOARD INSTALLATION

1" (25MM) START BOARD

- ① Use a short board to determine the position of the start clip and mark. Then, use a screw to fix the start clip to the joist. ([Refer to the START CLIP INSTALLATION on page 5 for detailed steps](#)) at the marked position.

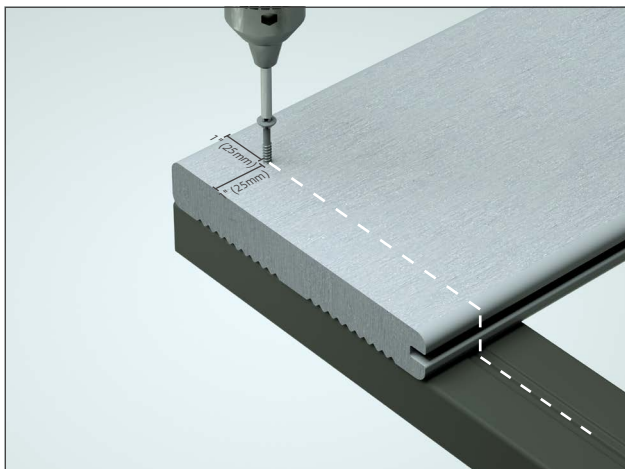


- ② Place the start board over all start clips, lay down, make the start clip all inside of the underside of the start board. Then, push forward to the end.

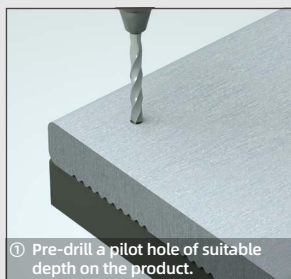


0.82" (21MM) START BOARD

Put the 0.82" 21mm start board on the joist. Fix the screw at the angle of 90° to the middle of the joist. The distance between the screw and the side ends of the decking should be at least 1"(25 mm).



NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.



① Pre-drill a pilot hole of suitable depth on the product.



② Secure the screw through the pilot hole.

DECKING CLIP INSTALLATION

⚠ IMPORTANT

Please select the correct decking clip and screw for the installation of the decking. Unsuitable accessories may affect the service life of the decking.

INSTALL BY PLASTIC CLIP

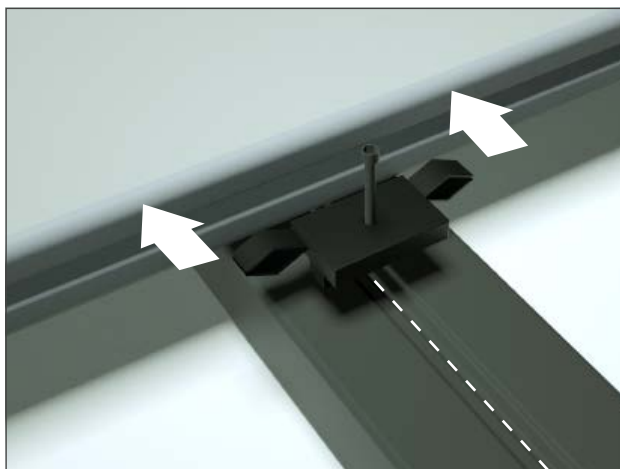


EA-16 Plastic Clip
(The wings of the clip can be removed if needed)

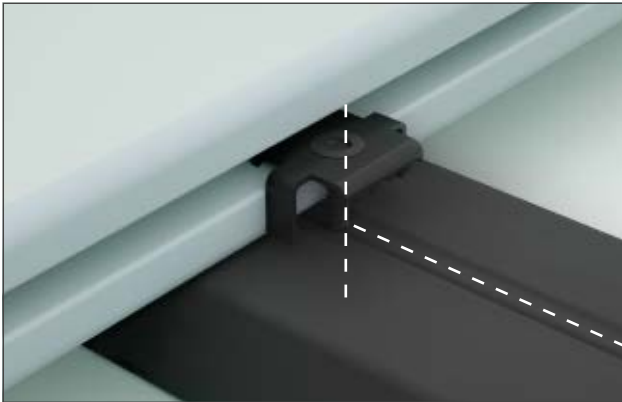


EA-18 Locking Clip
(for locking decking)

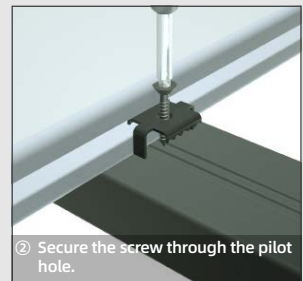
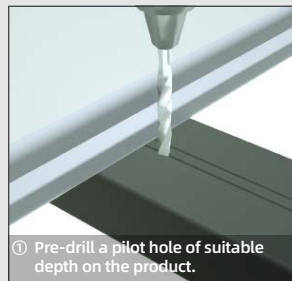
- ① Squeeze the wings of the clips and place them into the grooves of the decking boards one by one. Gently push and slide into position the clips, each of which is located on top of its joist.



- ② In the middle of the board, fix the locking clip on the center of the joist, then continue to install the next row of decking boards.



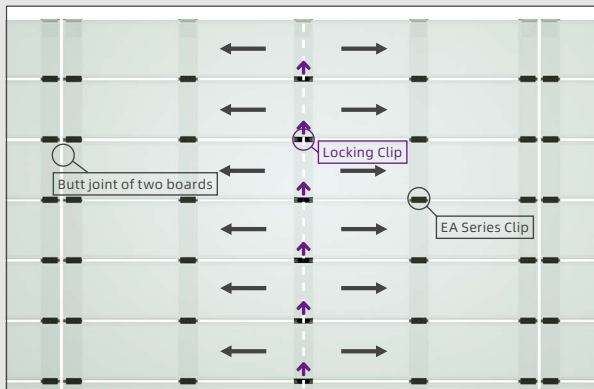
NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.



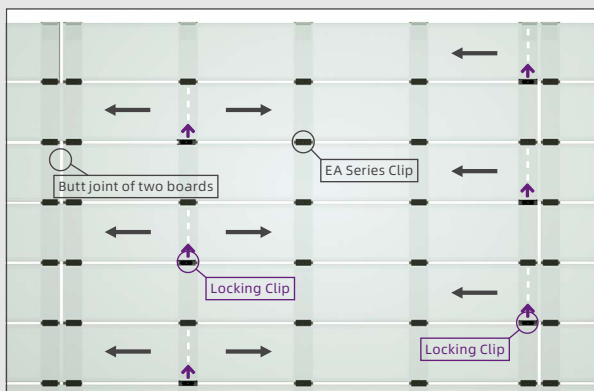
NOTE: Only one piece of locking clip on one side of the decking is required, make sure that the locking clip is in the middle of each decking, and the side with the locking teeth of the locking clip face the same direction.



Normal Installation:



Decking Splicing Installation:



--- : Middle of decking
 ↑ : Direction of locking teeth of locking clips
 → : Direction of expansion and contraction of decking

- ① Gently push and slide into position the clips, each of which is located on top of its joist.

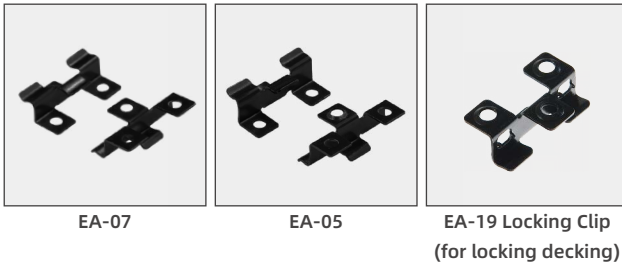


- ② With all decking boards and clips in position, drive the screws into place using a power drill with the torque set to 6.

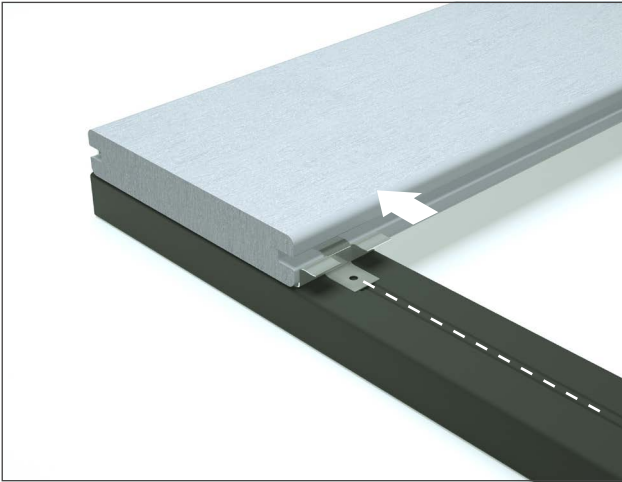


NOTE: When driving screws, the recommended torque for power drills is 2-3 N·m, with the torque set to 6. For maximum effect, it's recommended that the same torque is applied throughout.

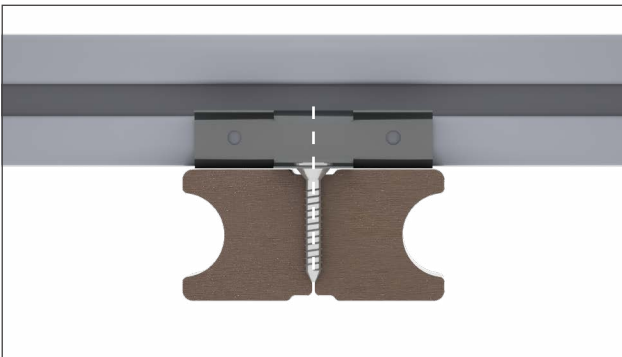
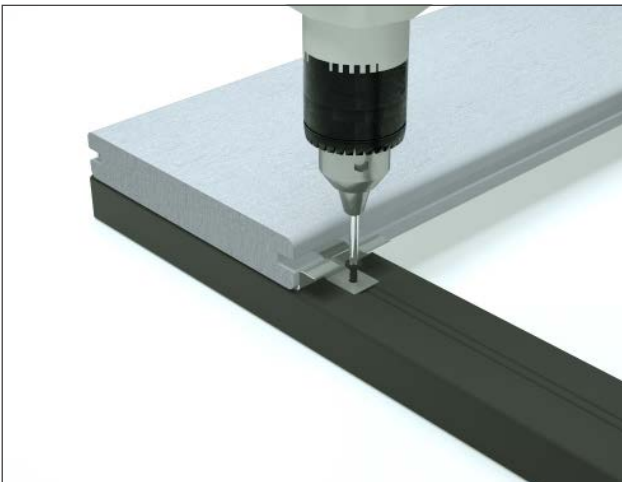
INSTALL BY METAL CLIP



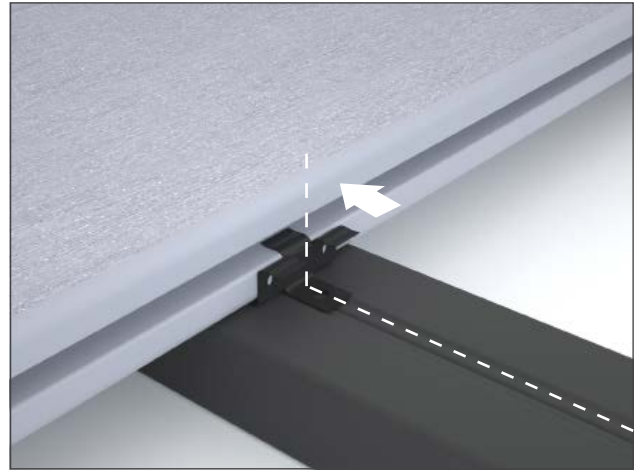
- ① Slide the clips into the grooves of the boards.



- ② Pre-drill pilot holes on the middle of the joist and fix the clip with screws.

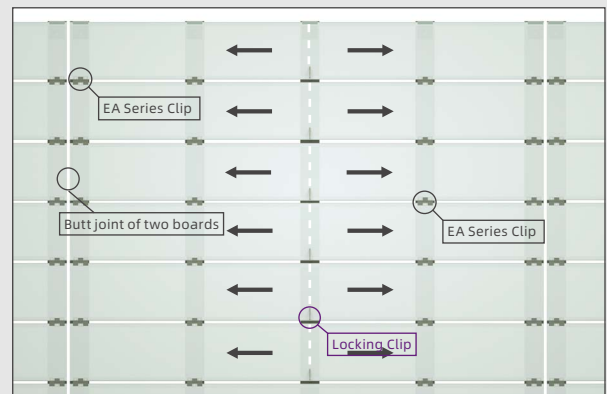


- ① In the middle of the board, fix the locking clip on the center of the joist, then continue to install the next row of decking boards.

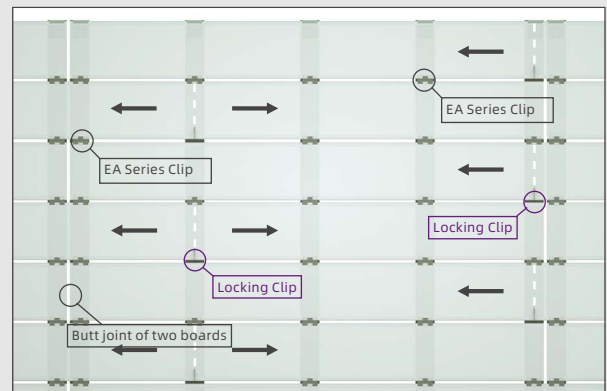


NOTE: One piece of the board only needs to be fixed with one screw in the middle to avoid sliding.

Normal Installation:



Decking Splicing Installation:



--- : Middle of decking

→ : Direction of expansion and contraction of decking

NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.

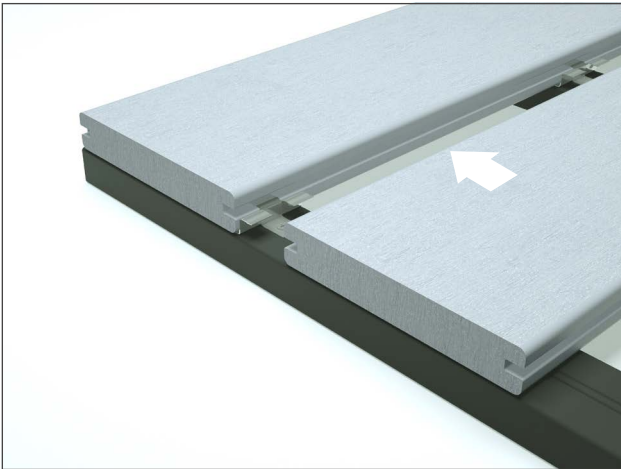


① Pre-drill a pilot hole of suitable depth on the product.



② Secure the screw through the pilot hole.

- ③ After fixing all clips, push the next board into the clips.



RESERVE DECKING GAP

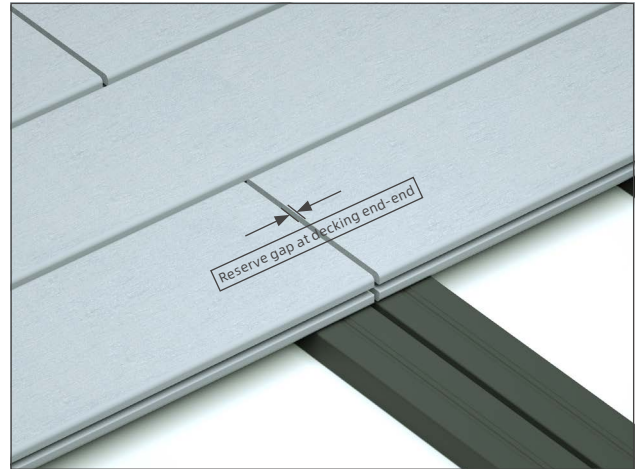
! IMPORTANT:

The decking will expand and contract to a certain extent as the environment changes, and gaps at the end of decking must be reserved during installation to prevent deformation and warpage caused by thermal expansion and contraction. Gapping also allows for the shrinkage of the WPC joist.

Please select the correct reserved decking gap when end-width or end-end according to the length of the decking and the temperature during installation. ([Refer to Appendix B on page 16 for details](#)).

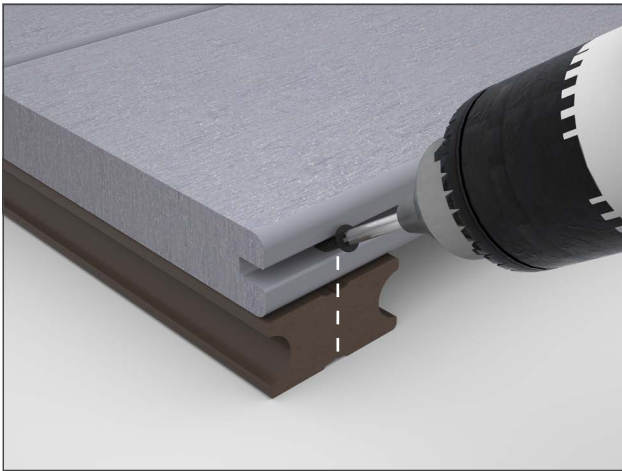
Gap decking from solid object (i.e. wall) should be 1/4"-1/2" (6-13 mm).

Maximum allowable perpendicular overhang for decking is 2" (50 mm).

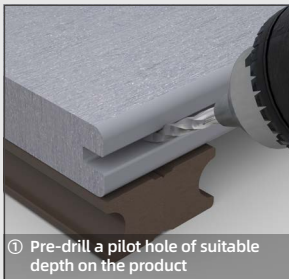


DECKING FINISHING

- ① Slide the last piece of decking board into the clip, toenail screw at an angle through the grooved edge of the board to fix to the middle of the joist.



NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.

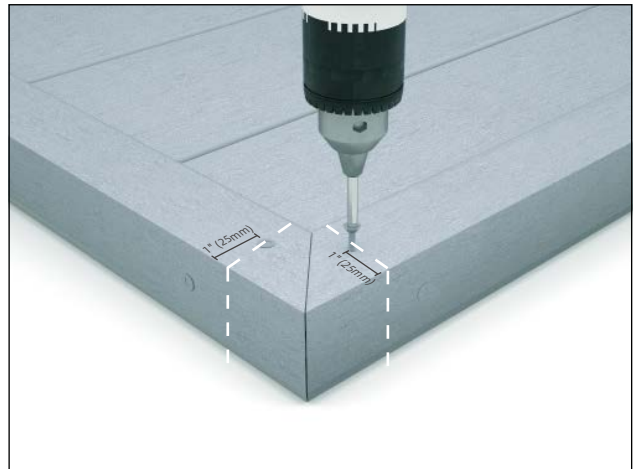


① Pre-drill a pilot hole of suitable depth on the product

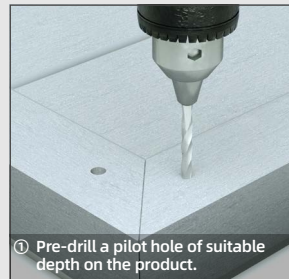


② Secure the screw through the pilot hole

- ① Fix the color-match screw at the angle of 90 ° to the L corner. The distance between the screw and the side ends should be at least 1" (25 mm).



NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.

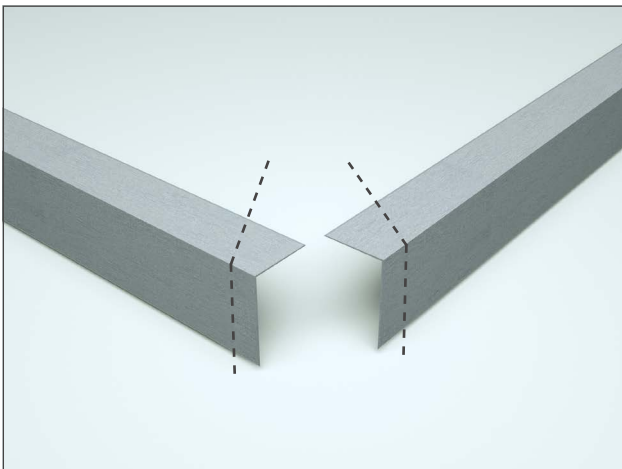


① Pre-drill a pilot hole of suitable depth on the product.



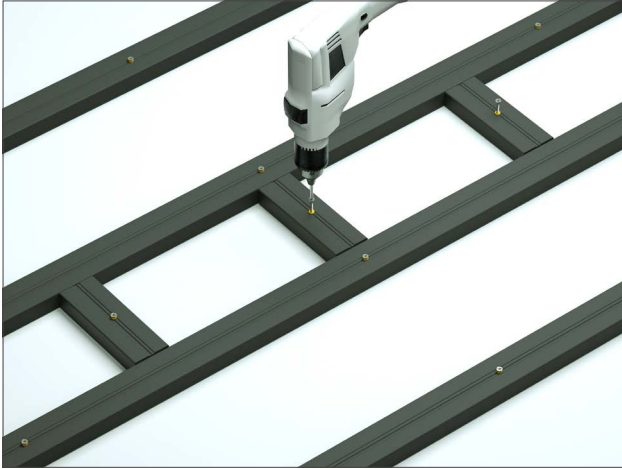
② Secure the screw through the pilot hole.

- ② Trim the L corner at a suitable angle.

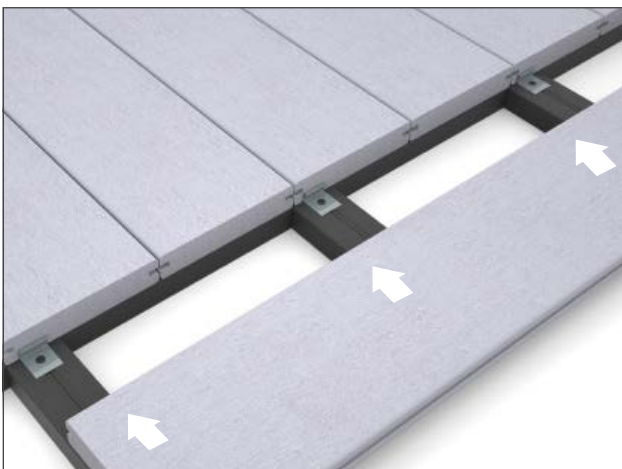
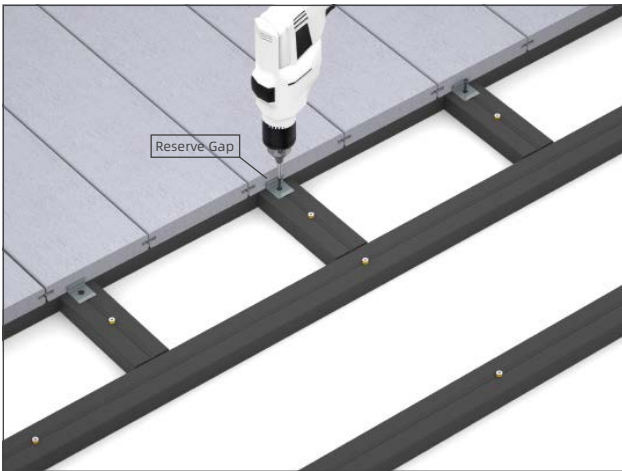


BREAKER BOARD INSTALLATION

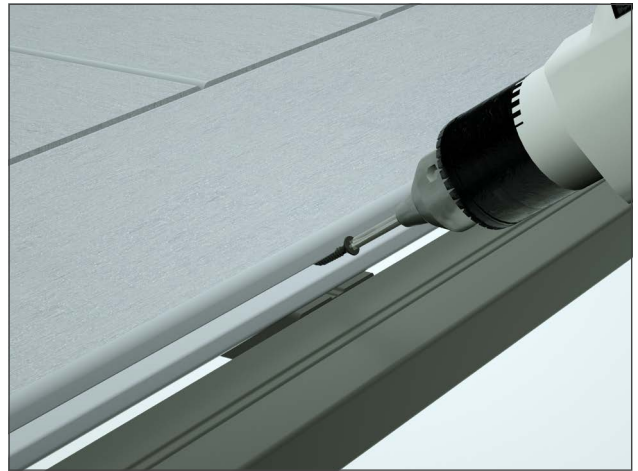
- ① Plan the location of the partition. Install the joist ([Refer to WPC JOIST INSTALLATION on page 4 for detailed steps](#)) vertically to the breaker board.



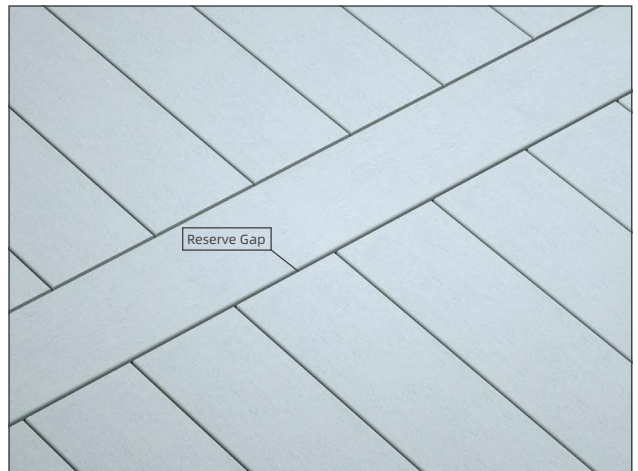
- ② After installing the decking before the partition, fix the start clips and slide the breaker board into the start clips. You can also use start boards this step..., leave a suitable gap between the end of the decking and the breaker board. ([Refer to RESERVE DECKING GAP on page 9 for details](#)).



- ① To enail screw to fix the breaker board to the middle of the joist. ([Refer to the DECKING FINISHING step 1 on page 10 for details](#)).



- ② Continue to install another part of the decking, leave a suitable gap between the end of the decking and the breaker board. ([Refer to RESERVE DECKING GAP on page 9 for details](#)).



STAIR TREAD INSTALLATION

⚠ IMPORTANT:

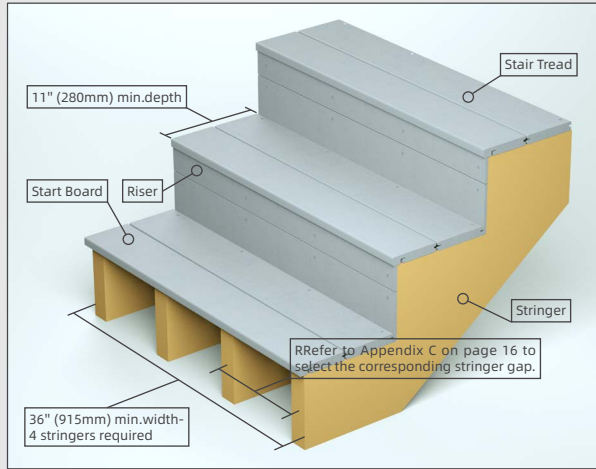
Stair treads built with composite decking must meet requirements by the major national building codes. Consult your local municipality for specific requirements.

Properly adjust the stringer spacing, which should be determined depending on specific situations ([Refer to Appendix C on page 16 for details](#)).

Most model building codes require the stair treads to be constructed under the following requirements:

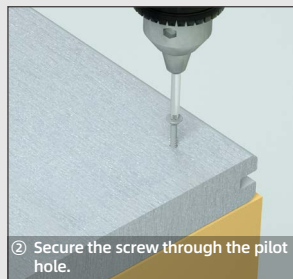
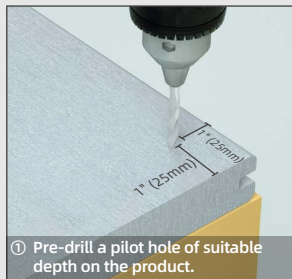
- Stairways must be at least 36" (915mm) wide*
- Stair treads must be at least 11" (280mm) deep

Gapping between decking boards on stair treads should be no less than 1/8" (3 mm). The overhang of the stair tread is not to exceed 1/2" (13 mm).



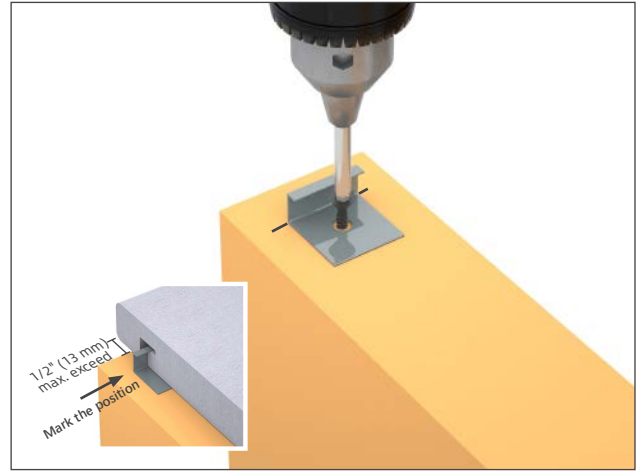
NOTE: Stair treads should only be installed using solid profiles. Using any type of hollow decking for stair treads will not be warranted.

NOTE: Always pre-drill a pilot hole before fixing the screw to avoid damage to WPC products.. Fix the screw at the angle of 90° and the distance between the screw and the side ends should be at least 1" (25 mm).

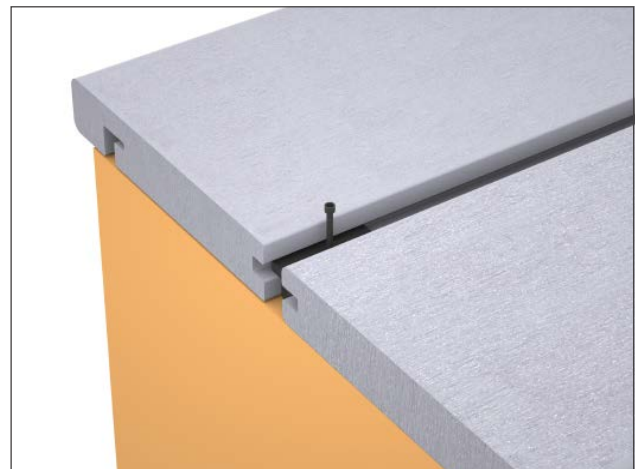


INSTALL BY 1" (25MM) START BOARD

- ① Fix the 25mm start board on the stringer ([Refer to START BOARD INSTALLATION—1" \(25MM\) START BOARD on page 5 for detailed steps](#)). Ensure that the overhang of the start board is not to exceed 1/2" (13 mm).



- ② Use TS or TW series decking clips to continue to install the stair tread. ([Refer to DECKING CLIP INSTALLATION on page 6 for detailed steps](#)).



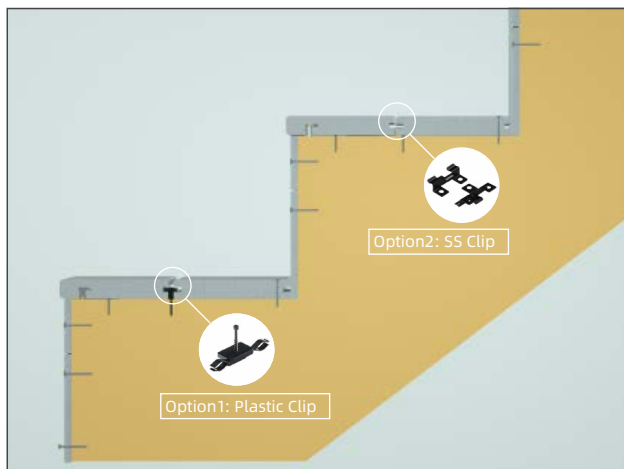
- ③ Pre-drill pilot holes and fix the other side of the stair tread with screws.



- ④ Pre-drill pilot holes and use screws to fix the fascia board.

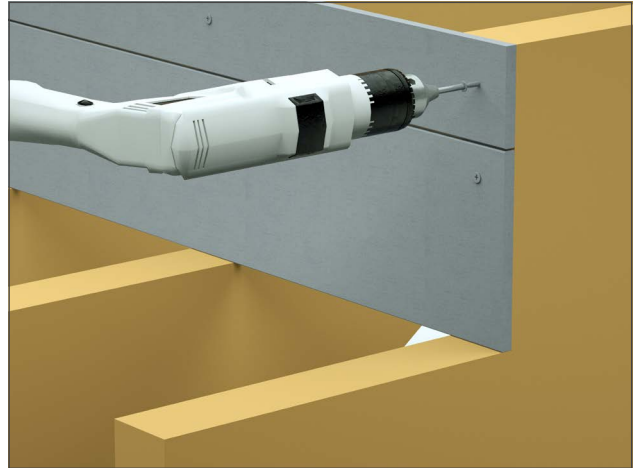


- ⑤ The finished effect of the staircase is shown in the diagram below.

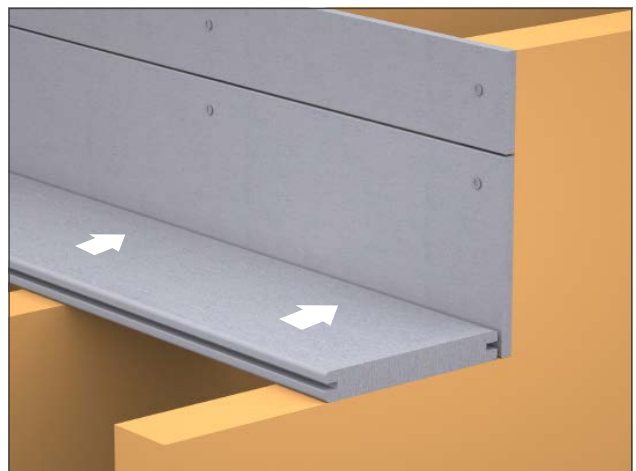
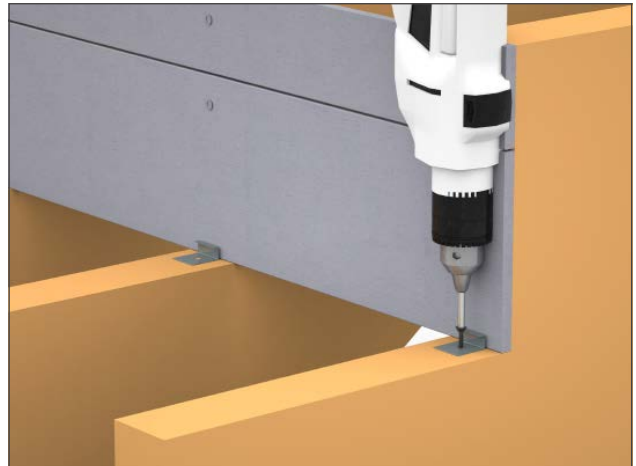


INSTALL BY 0.82" (21MM) START BOARD

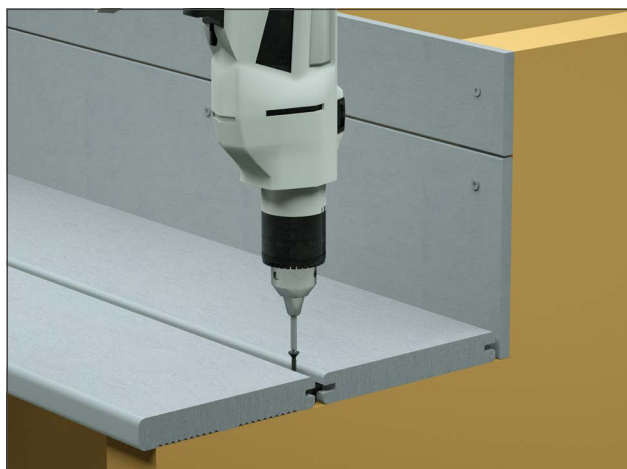
- ① Pre-drill pilot holes and use screws to fix the fascia board first.



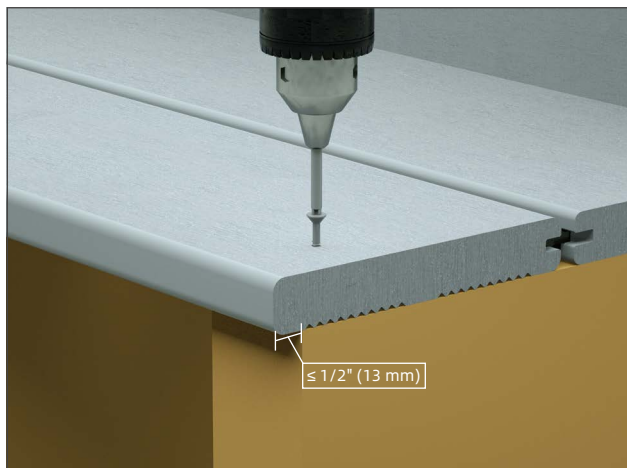
- ② Use screws to fix the start clip to the stringer, and slide the first decking board. ([Refer to START CLIP INSTALLATION on page 5 for detailed steps](#)). The decking board can also be fixed with screws directly.



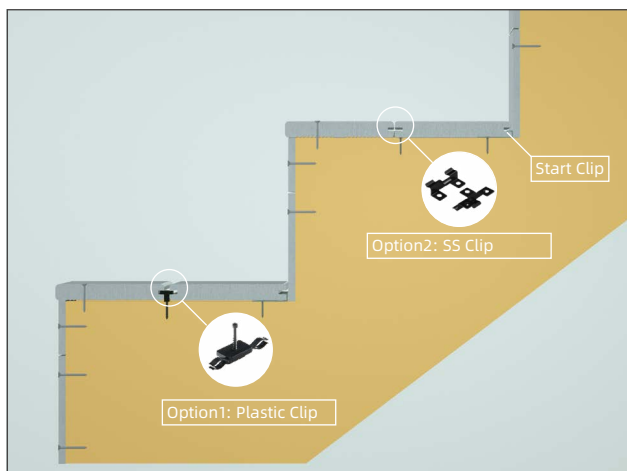
- ③ Use TS or TW series decking clips to continue to install the stair tread ([Refer to DECKING CLIP INSTALLATION on page 6 for detailed steps](#)).



- ④ Pre-drill pilot holes and use screws to fix the 21mm start board ([Refer to START BOARD INSTALLATION—0.82" \(21MM\) START BOARD on page 6 for detailed steps](#)). Ensure that the overhang of the start board is not to exceed 1/2" (13 mm).



- ⑤ The finished effect of the staircase is shown in the diagram blow.



APPENDIX

Appendix A

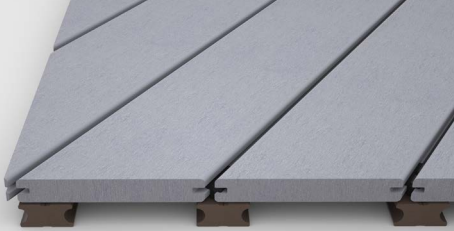
JOIST SPAN (ON CENTER) UNDER ANGLED DECKING INSTALLATION	
ANGLE WITH DECKING	SPAN
90° 	14" (350mm)
60° 	12" (305mm)
45° 	10" (254mm)
30° 	7" (178mm)

Table A
Joist Gap (On center) Under Angled Decking Installation

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Appendix B

DECKING RESERVED GAP REFERENCE (TEMPERATURE-LENGTH)					
THE TEMPERATURE OF INSTALLATION DECKING LENGTH	7.2' (2.2m)	9' (2.7m)	12' (3.66m)	16' (4.88m)	18' (5.4m)
14° F (-10° C)	0.34" (8.5mm)	0.36" (9.0mm)	0.38" (9.5mm)	0.44" (11.0mm)	0.52" (13.0mm)
23° F (-5° C)	0.34" (8.5mm)	0.36" (9.0mm)	0.38" (9.5mm)	0.42" (10.5mm)	0.50" (12.5mm)
32° F (0° C)	0.32" (8.0mm)	0.34" (8.5mm)	0.36" (9.0mm)	0.40" (10.0mm)	0.48" (12.0mm)
41° F (5° C)	0.32" (8.0mm)	0.34" (8.5mm)	0.36" (9.0mm)	0.38" (9.5mm)	0.46" (11.5mm)
50° F (10° C)	0.30" (7.5mm)	0.32" (8.0mm)	0.34" (8.5mm)	0.36" (9.0mm)	0.44" (11.0mm)
59° F (15° C)	0.30" (7.5mm)	0.30" (7.5mm)	0.32" (8.0mm)	0.34" (8.5mm)	0.42" (10.5mm)
68° F (20° C)	0.28" (7.0mm)	0.28" (7.0mm)	0.30" (7.5mm)	0.32" (8.0mm)	0.40" (10.0mm)
77° F (25° C)	0.26" (6.5mm)	0.26" (6.5mm)	0.28" (7.0mm)	0.30" (7.5mm)	0.38" (9.5mm)
86° F (30° C)	0.24" (6.0mm)	0.24" (6.0mm)	0.26" (6.5mm)	0.28" (7.0mm)	0.34" (8.5mm)
95° F (35° C)	0.20" (5.0mm)	0.22" (5.5mm)	0.24" (6.0mm)	0.26" (6.5mm)	0.30" (7.5mm)
104° F (40° C)	0.16" (4.0mm)	0.18" (4.5mm)	0.20" (5.0mm)	0.24" (6.0mm)	0.24" (6.5mm)
Note: The information about the reserved gap in the table is for reference only, it still needs to be adjusted according to the product type and local climatic conditions, please consult your consultant for the recommended reserved gap.					

Table B
Decking Reserved Gap Reference (Temperature-Length)

Appendix C

Maximum Joist/Stringer Spacing on Center*			
Thickness of Board	Residential	Commercial	Stairs
< 0.90" (23mm)	13.78" (350mm)	11.81" (300mm)	7.87" (200mm)
≥ 0.90" (23mm), < 1.18" (30mm)	15.75" (400mm)	13.78" (350mm)	9.84" (250mm)
≥ 1.18" (30mm)	17.72" (450mm)	15.75" (400mm)	11.81" (300mm)

Table C

*Note: For areas where the annual average temperature exceeds 25°C (77° F), the joist/stringer spacing should be 80% of the corresponding figures recommended above.



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