



# Decking Installation Guide

v20170912AU



**IMPORTANT:**  
**Read All Sections Before You Start**

For the most up to date information, please visit our website @ [www.newtechwood.com.au](http://www.newtechwood.com.au)

Prior to installing any composite decking, 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 NewTechWood 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.

## Safety

When dealing with any type of construction project, it is necessary to wear appropriate safety equipment to avoid any risk of injuries. NewTechWood recommends but is not limited to the following safety equipment when handling, cutting, and installing NewTechWood: gloves, 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.

## Environment

A clean, smooth, flat, and strong surface is needed to install NewTechWood's products correctly. Please check with local building codes before ever installing any type of decking. If installation does not occur immediately, NewTechWood's products need to be put on a flat surface at all times. It should NEVER 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 perfect decking.

## Construction

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

## Static

Static can also be more prevalent in areas that are of higher altitude because the humidity is lower. For these areas, be careful of using conductive objects such as metal railing and chairs as static shocks might occur more often. A potential way to lower the amount of static shocks occurring is to apply an

anti-static product to your deck or use anti-static mats before doorways. NewTechWood's products have been tested against EN 1815 - Assessment of Static Electrical Propensity and have received values under the maximum standard of 2kV.

## Ventilation

NewTechWood products CANNOT be directly installed onto a flat surface. It must be installed onto a substructure that is made into a frame, so there is adequate and unobstructed air flow under the decking to prevent excessive water absorption. If there is excessive water absorption to any area that does not have the protection of the cap layer, there could be some swelling that occurs. A minimum of 100 mm 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. In the case that installation is below 100 mm, it is recommended to look up the maximum rainfall of the area to determine what height would need to be built to ensure no flooding of the deck occurs. If the rainfall is determined not to flood the deck, a slope of 1-2% must be used on the frame towards the direction of the drainage to ensure that there is no free standing water. If the deck is built below 100 mm without a slope, the areas without the protection of the cap layer could swell on the ends.

## Heat and Fire

Excessive heat on the surface of NewTechWood products from external sources such as but not limited to fire or reflection of sunlight from energy efficient window products. Low-emissivity (Low-E) glass can potentially harm NewTechWood products. Low-E glass is designed to prevent passive heat gain within a structure and can cause unusual heat build-up on exterior surfaces. This extreme elevation of surface temperatures, which exceeds that of normal exposure, can possibly cause NewTechWood products to melt, sag, warp, discolour, increase expansion/contraction, and accelerate weathering.

Current or potential NewTechWood customers that have concerns about possible damage by Low-E glass should contact the manufacturer of the product which contains Low-E glass for a solution to reduce or eliminate the effects of reflected sunlight.

## Fasteners

When fastening NewTechWood's products, all screws that are face fastened should always be driven in at a 90 degree angle to the decking surface. Top nailing/screwing should never be done to the products. An extra joist should be added if a 90 degree angle cannot be driven into the board as shown in Diagram 1.

All fasteners should be on their own independent joists, when two boards' ends meet each other there must be a sister joist with a minimum of 5 mm between the sister joists for water to go down between the joists. Excessive build up of water over long periods of time at the ends could result in swelling. The end of each board must sit on its own joist as shown in Diagram 2.

Use white chalk, straight boards, or string lines as templates for straight lines. NEVER USE COLOURED CHALK. Coloured chalk will permanently stain NewTechWood's products and are highly not recommended.

All nails/screws that are face fixed should always be stainless steel. When face fixing, always go in at least from the ends and width of the board by 25.4 mm as shown in Diagram 3.

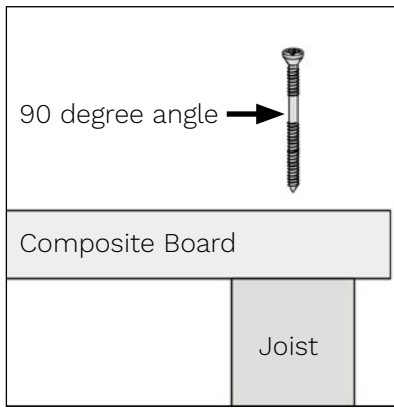


DIAGRAM 1

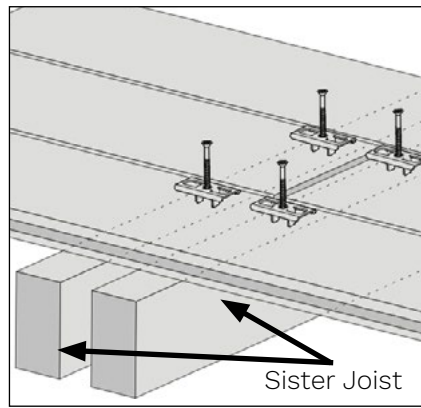


DIAGRAM 2

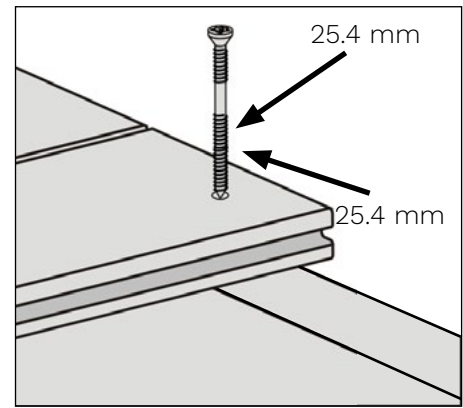


DIAGRAM 3

## Fasteners Continued

Always use screws designated for use with composite decking material. Always test the screws on a scrap piece of board to ensure the screws do not cause the surface of the decking to mushroom or bulge around the head of the screw. If it does cause this issue, change to a different brand of screw.

When choosing which screws/nails to use, always check first with your local home centres and hardware stores to see if they have screws that are engineered specifically for composite wood. These screws/nails will always work and give NewTechWood's products the best looking outcome. Using other screws/nails that are not recommended for composite could potentially damage the decking. If you are unsure which screw/nail to use, contact your manufacturer for more information.

**Note: Our metal Fix screws are suitable for steel joists of up to 2mm in thickness. If thicker than 2mm, then you must pre-drill each hole.**

**Recommended screws from other manufacturers: Cap-tor xd screws by Starborn Industries**

## Acclimate

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.

**Note: Always remember when allowing the boards to acclimate at the job site it is important to put it on a flat and even surface. If put on an uneven surface there is a possibility that the boards could warp to the shape of the terrain.**

## Routing

Solid boards can be routed for hidden fasteners to be placed in them as shown in Diagram 4.

**Note: Boards should never be routed the entire length.**

Fascia boards can also be routed to allow for expansion and contraction.

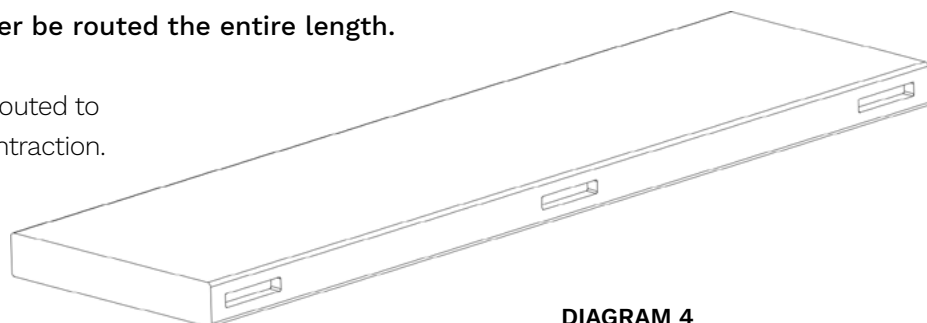
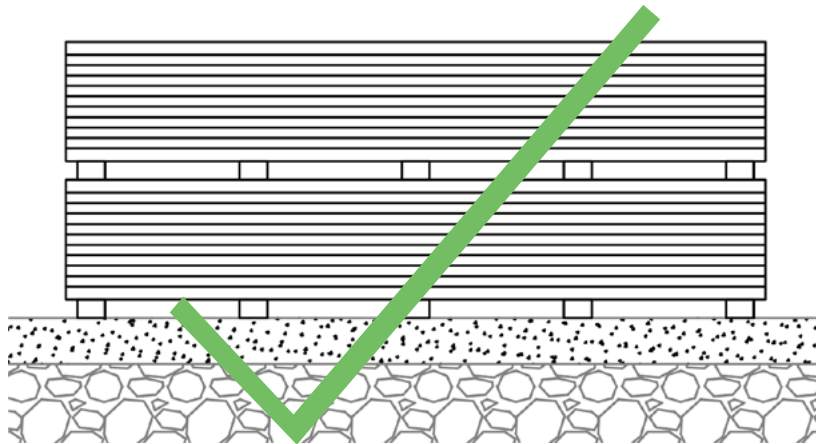


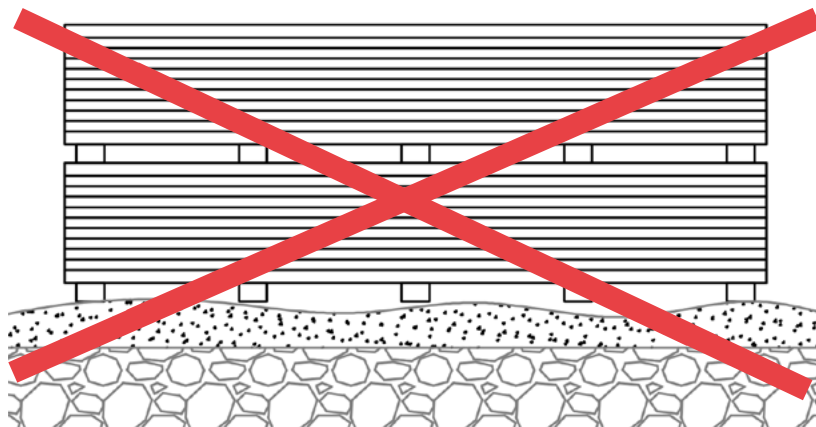
DIAGRAM 4

## Storage

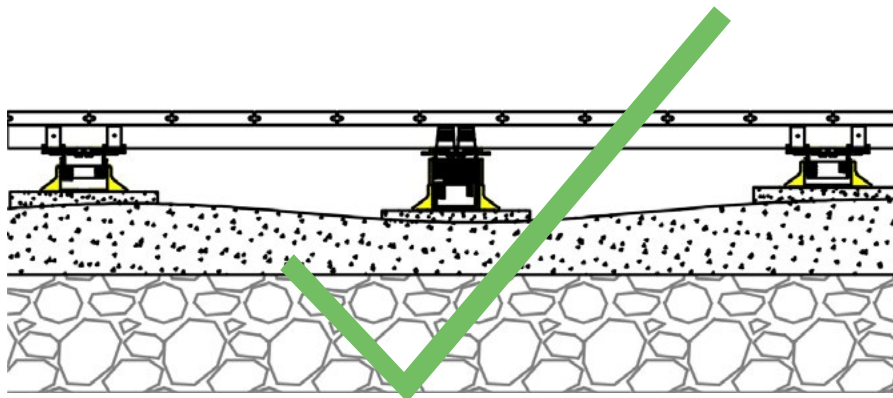
NewTechWood's products always need to be stored on flat solid surfaces. Surfaces such as dirt and grass are not sufficient as they can move over time.



NewTechWood products shown above put on a flat surface on joists is the correct way for storage.



NewTechWood products shown above on an uneven surface will make the products prone to warping and distortion.



NewTechWood products shown above can be on pedestals or jacks if the surface is uneven. Consult with the pedestal or jack manufacturer before using the product to ensure its compatibility with NewTechWood's products.

## Framing

First, determine the decking span, that is , how far apart your joists will be.

The frame needs to be completely level before installing any boards.

**Note:** Adequate spacing in the joists is required to keep the deck boards from bending. Please review the chart below to see what spacing is required for your profile.

### Maximum Decking Spans on Centre-to-Centre

| Profile                                  | Dimensions    | Residential Span | Commercial Span |
|--|---------------|------------------|-----------------|
| <b>US07, Solid Board</b>                 | 138 x 22.5 mm | 400 mm           | 350 mm          |
| <b>US48, Solid Board</b>                 | 138 x 25 mm   | 450 mm           | 350 mm          |
| <b>US49, Grooved Solid Board</b>         | 138 x 25 mm   | 450 mm           | 350 mm          |
| <b>UH02, Grooved Circle Hollow Board</b> | 138 x 22.5 mm | 350 mm           | N/A             |

### Joist Spanning on Centre-to-Centre with Angled Decking Installations

| Degree of Angle | Spacing                                     |
|-----------------|---|
| <b>90</b>       | Refer to the above tables                   |
| <b>60</b>       | 50 mm less than the stated above tables     |
| <b>45</b>       | 100 mm less than the stated above tables    |
| <b>30</b>       | 1/2 the distance stated in the above tables |



## Expansion and Contraction Values

NewTechWood deck boards will experience expansion and contraction with changes in temperature. Expansion and contraction are most significant where extreme temperature changes occur. Fastening the deck planks according to the gapping requirements noted in the following table accommodates for this movement.

|                               |    | Length (Metres) |      |     |     |      |     |     |      |     |          |
|-------------------------------|----|-----------------|------|-----|-----|------|-----|-----|------|-----|----------|
|                               |    | 1               | 2.44 | 2.8 | 3   | 3.66 | 3.9 | 4   | 4.88 | 5.4 |          |
| Installation Temperature (°C) | 10 | 1.2             | 3.9  | 4.5 | 4.8 | 5.9  | 6.2 | 6.4 | 7.8  | 8.6 | Gap (mm) |
|                               | 15 | 1.4             | 3.4  | 3.9 | 4.2 | 5.1  | 5.5 | 5.6 | 6.8  | 7.6 |          |
|                               | 20 | 1.2             | 2.9  | 3.4 | 3.6 | 4.4  | 4.7 | 4.8 | 5.9  | 6.5 |          |
|                               | 25 | 1.0             | 2.4  | 2.8 | 3.0 | 3.7  | 3.9 | 4.0 | 4.9  | 5.4 |          |
|                               | 30 | 0.8             | 2.0  | 2.2 | 2.4 | 2.9  | 3.1 | 3.2 | 3.9  | 4.3 |          |
|                               | 35 | 0.6             | 1.5  | 1.7 | 1.8 | 2.2  | 2.3 | 2.4 | 2.9  | 3.2 |          |
|                               | 40 | 0.4             | 1.0  | 1.1 | 1.2 | 1.5  | 1.6 | 1.6 | 2.0  | 2.2 |          |
|                               | 45 | 0.2             | 0.5  | 0.6 | 0.6 | 0.7  | 0.8 | 0.8 | 1.0  | 1.1 |          |

DIAGRAM 5

**If you want to manually calculate the expansion and contraction you can follow the below guidelines:**

What you will need to know:

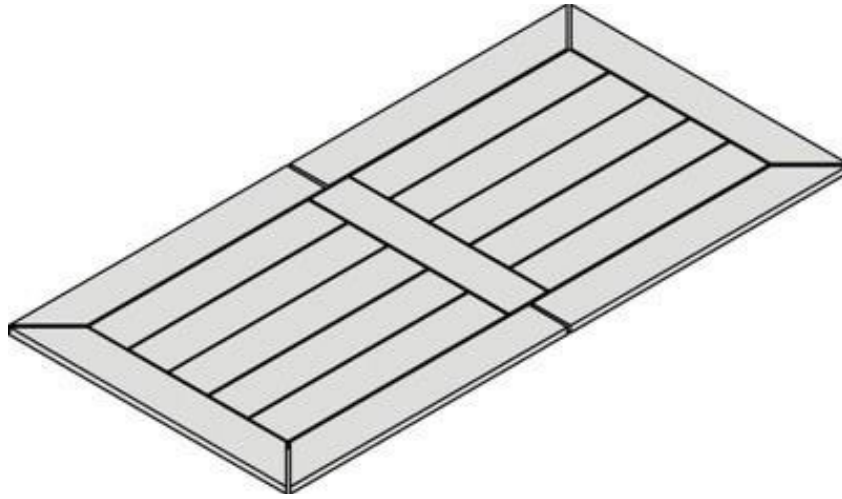
- Coefficient of Linear Expansion (CLE): 0.04 mm/m (°C)
- Installation Temperature (°C)
- Max or Minimum Temperature in your region (°C)
  - a. When installing at a low temperature always use the maximum temperature in your region to calculate
  - b. When installing at a high temperature always use the minimum temperature in your region to calculate
- Length of the Board (mm)
 

Gapping = Coefficient of Linear Expansion (CLE, °C) x Length of the Board (m) x (Max. or Min. Temp. in your region - Installation Temp., °C)

**Note: If you are still unsure of what gapping to use contact the manufacturer and they will give you the correct gapping requirements based on your environment and area.**

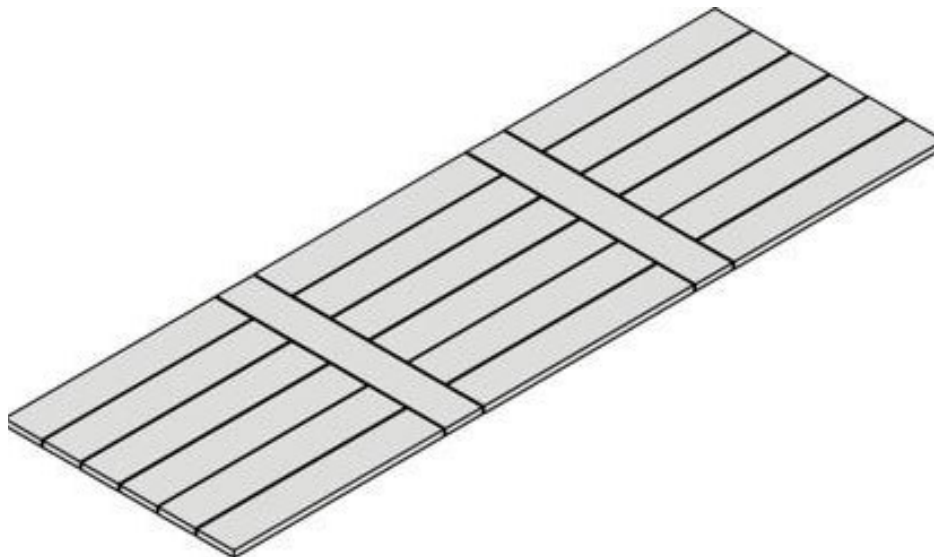
## Decking Layouts

When installing decking there are a multitude of different designs and patterns you can do to fit your style. Below we have taken some of the most popular types of installation from around the world for you to see.



**DIAGRAM 6**

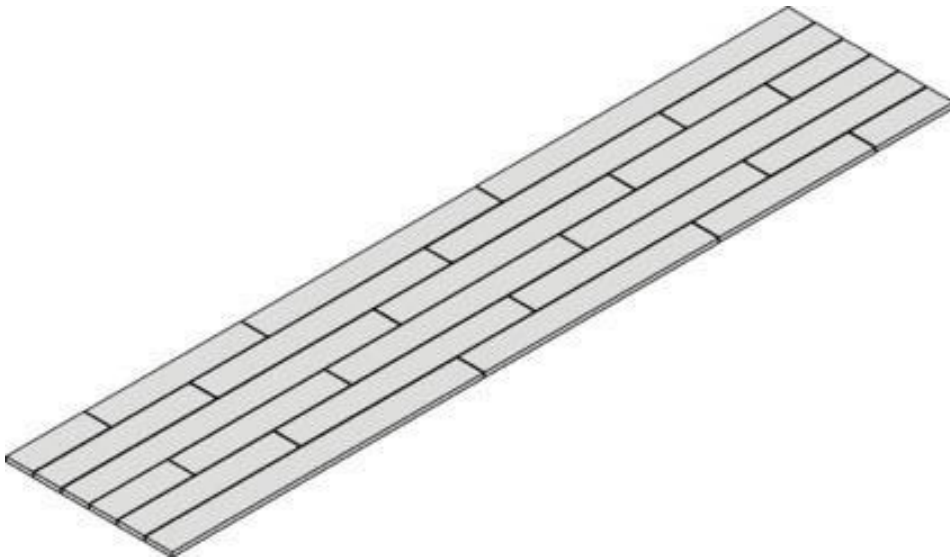
Diagram 6 shows a deck that utilizes breaker boarding (a vertical board to divide the deck when the deck is too long) and picture framing. Picture framing is when a border is created to wrap around the deck. Picture framing is great when you want to give your deck that eye-catching pop. Get this look by using a different colour on the border.



**DIAGRAM 7**

Diagram 7 shows a deck utilizing the breaker board, which is a board running vertically across to split up two sections of the deck if the deck is too long. Breaker boarding also helps minimize the appearance of expansion and contraction.





**DIAGRAM 8**

Diagram 8 shows a staggered pattern. This look gives the composite material an appearance similar to a traditional hardwood deck and takes care of any unsightly expansion and contraction gaps.

## Stair Tread Installation

Review Diagram 9 and the table below with the maximum spacing from centre to centre for stair tread installation.

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

A minimum of four (4) stringers are required.

Overhang on a stair tread should not exceed more than 15 mm.

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

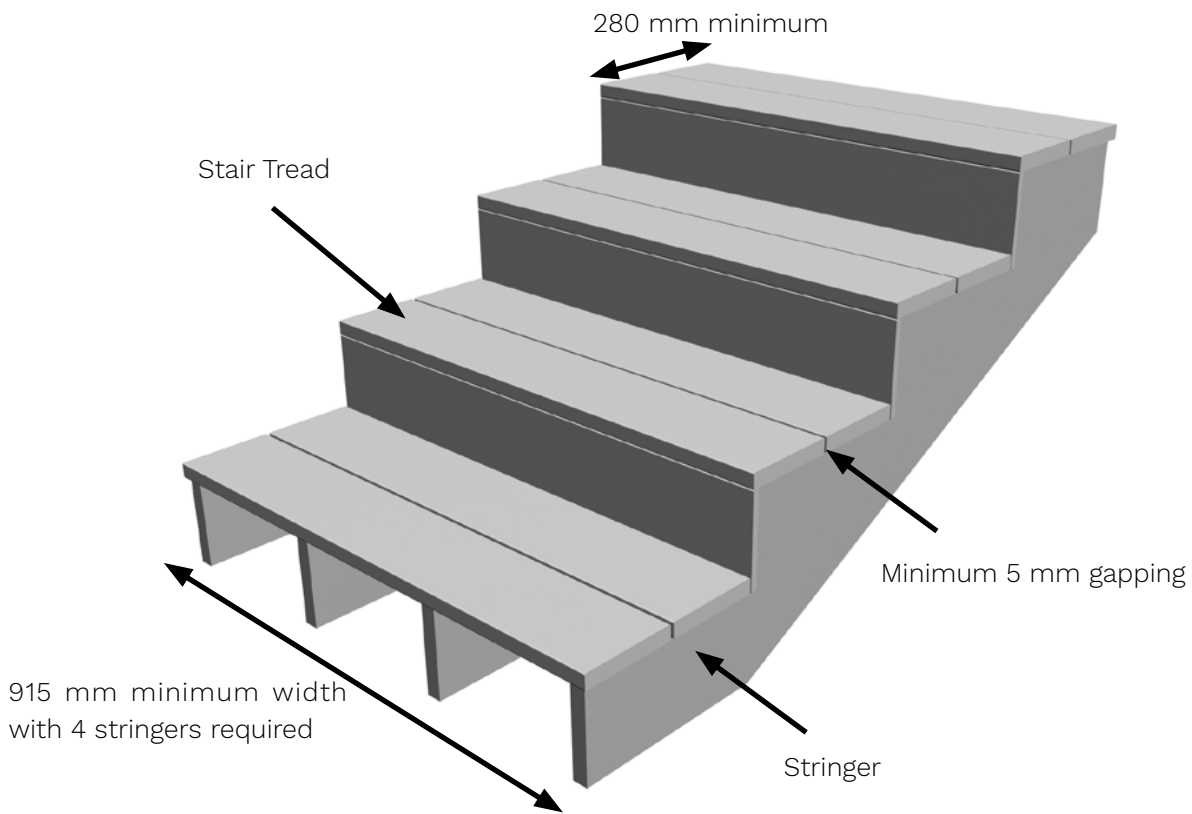


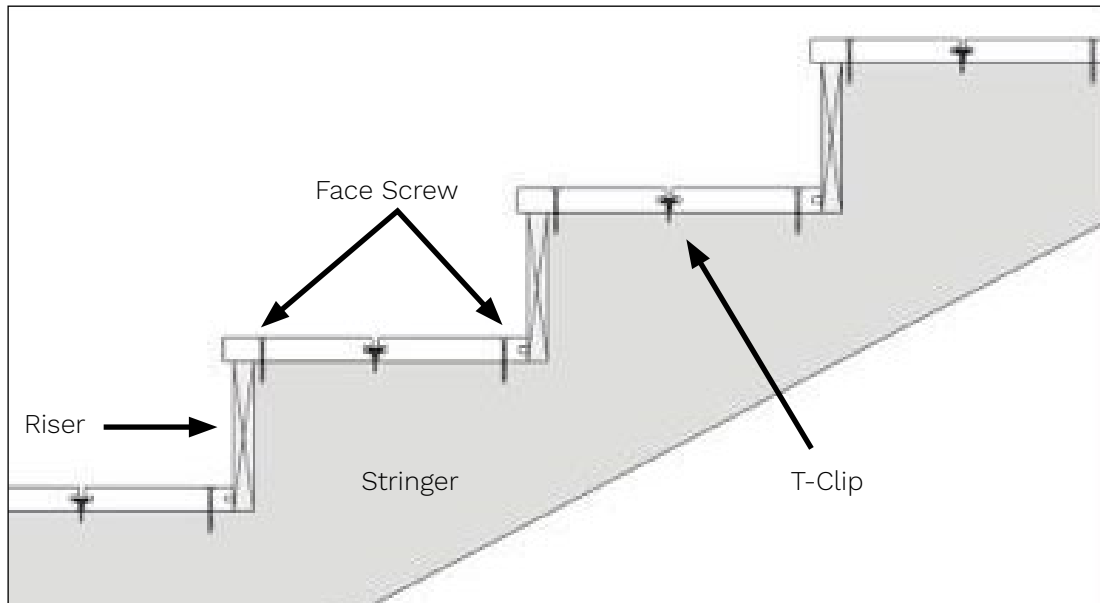
DIAGRAM 9

### Maximum Spacing Centre-to-Centre on Stair Stringers and Bullnose

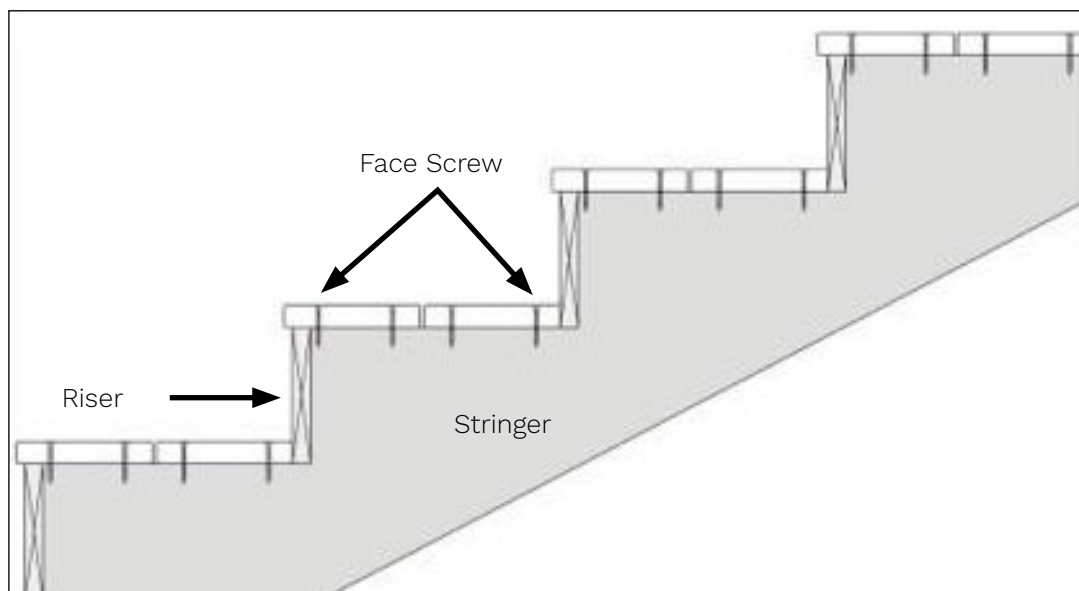
| Profile                   | Dimensions    | Spacing |
|---------------------------|---------------|---------|
| US07 Solid Board          | 138 x 22.5 mm | 305 mm  |
| US01 Solid with Grooves   | 138 x 22.5 mm | 305 mm  |
| US48, Solid Board         | 138 x 25 mm   | 305 mm  |
| US49, Grooved Solid Board | 138 x 25 mm   | 305 mm  |

Stair treads can be installed in the two ways shown below.

**Note: All nails/screws that are face fixed should always be stainless steel. When face fixing always go in at least from the ends and width of the board by 25.4 mm.**



**DIAGRAM 10**



**DIAGRAM 11**

## Framing

First, determine the decking span, that is, how far apart your joists will be.

The frame needs to be completely level before installing any boards.

**Note:** Adequate spacing in the joists is required to keep the deck boards from bending. Please review the chart on page 5-6 of this installation guide to see what spacing is required for your profile.

## Decking Installation

When installing the deck, the first and last board of your project will need to use a starting accessory. Every other board will use the hidden fastener for its installation.

### Starting Accessory MG-3 Installation:

- 1 After calculating the decking span and making the frame of your deck the first board is ready to be installed.
- 2 First pre-drill into the joist then fix the starting accessory into the joist as shown in Diagram 12.

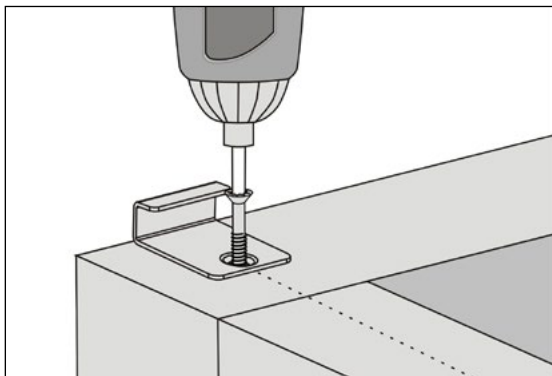
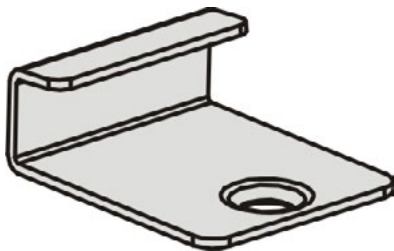


DIAGRAM 12

- 3 Then take your first board and push it into the starting accessory as shown in Diagram 13.

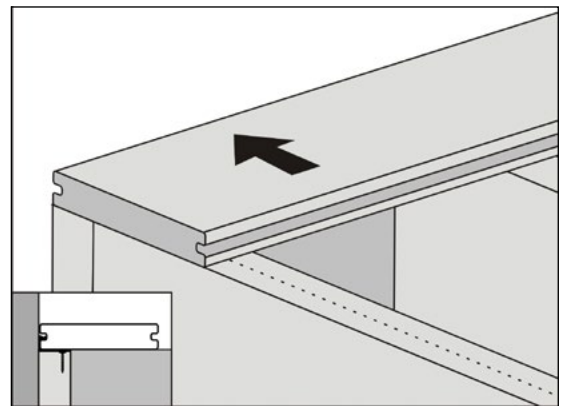
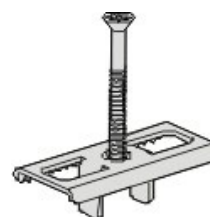


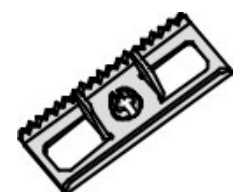
DIAGRAM 13

### Option 1: TC-16 Installation:

- 1 First slide the TC-16 clips into the grooves of the boards with screws facing up as show in Diagram 14. Ensure that the clips are all going into the groove with the teeth on the same side.



TC-16



Teeth on one side  
of the clip

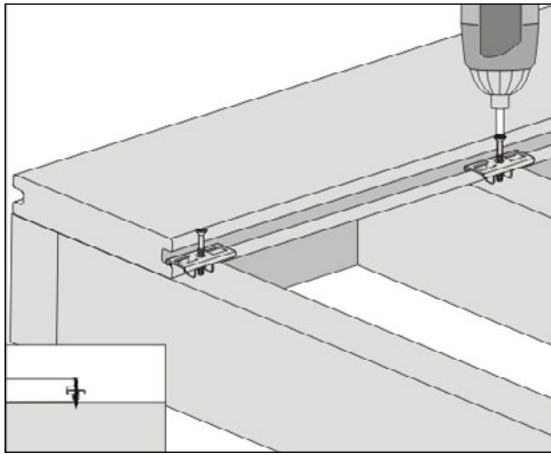


DIAGRAM 14

- 2 After getting all the TC-16 into position above each respective joist, begin to fasten them from above as shown in Diagram 15 and 16. Only fasten the clips half way down.

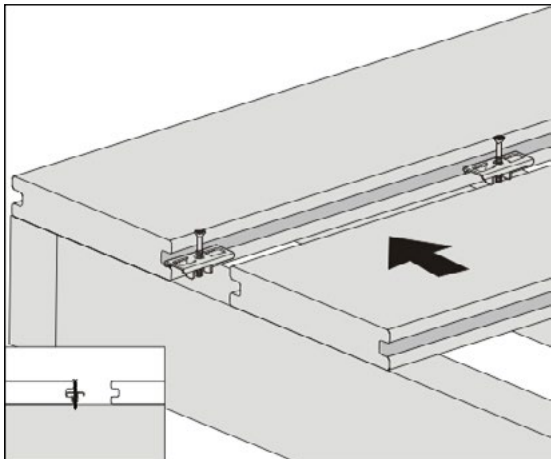


DIAGRAM 15

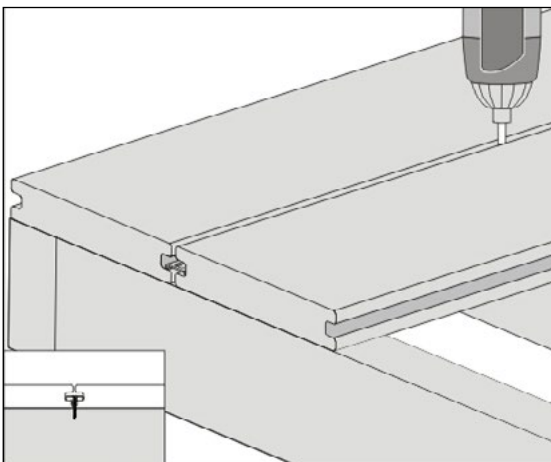


DIAGRAM 16

- 3 Push the board into the board before and then finish fixing the TC-16 fully into the joist as shown in Diagram 16.

- 4 Repeat steps 2-3 and finish the rest of the boards.

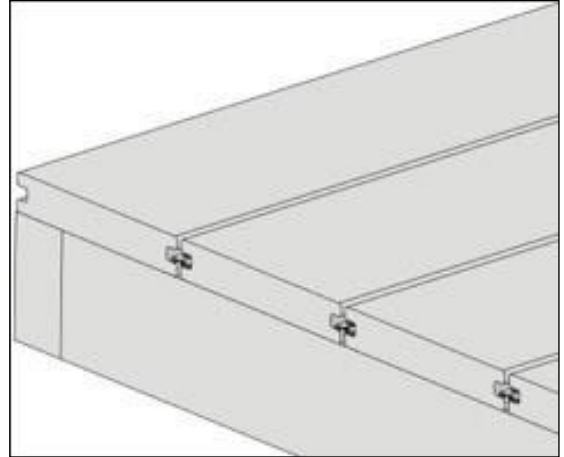


DIAGRAM 17

- 5 Finally, finish your last board by face fixing into the board at every joist as shown in Diagram 18.

**Note:** Remember to pre-drill before face fixing into the board. Also face fixing must happen at a 90 degree angle and must be at least 25.4 by 25.4 mm from the ends and the width of the board.

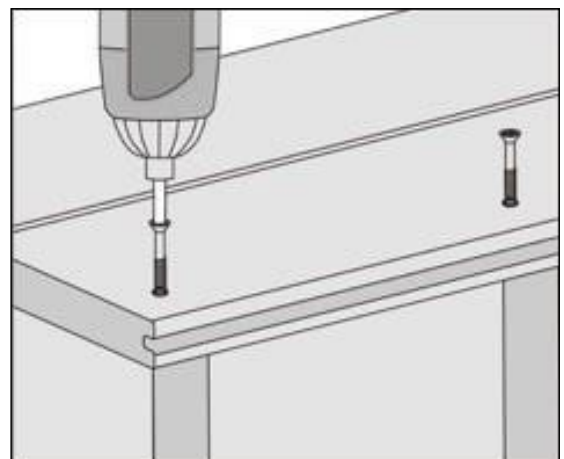
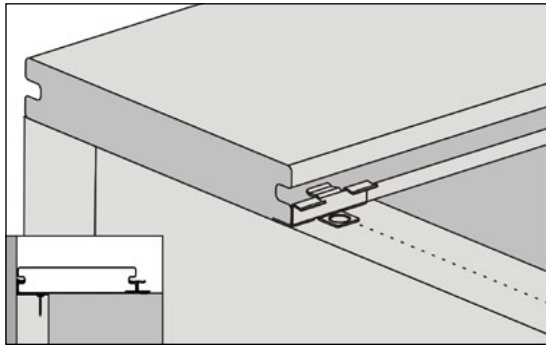
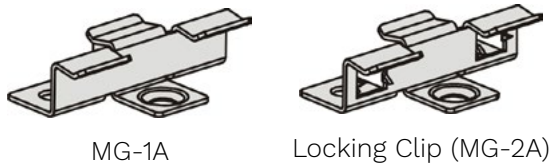


DIAGRAM 18

**Option 2:**  
**Mini Gap Clip Installation**

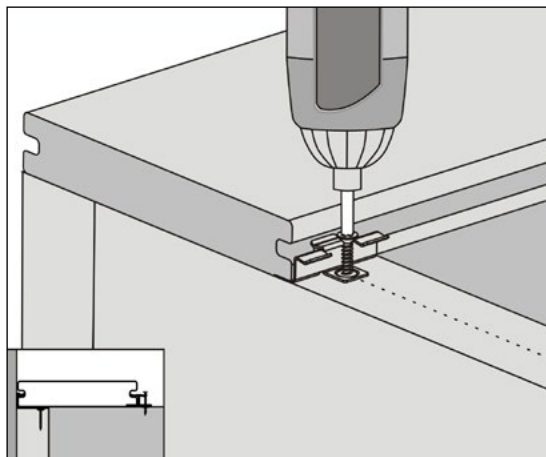
**Note:** The following shows how to install the mini gap clip system. A starting accessory (MG-3/K-37) still needs to be used to install the first board.

- 1 First, slide the MG-1A and MG-2A clips into the grooves of the boards as shown in Diagram 19.



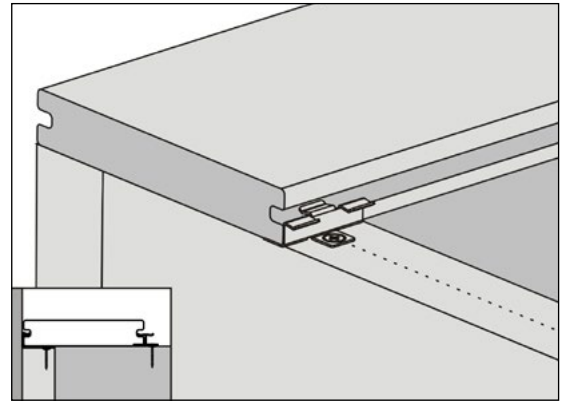
**DIAGRAM 19**

- 2 Place a screw in the outside hole of the MG-1A and MG-2A as shown in Diagram 20.



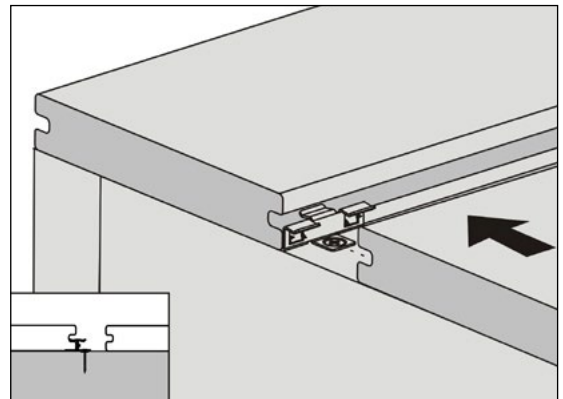
**DIAGRAM 20**

- 3 Next, fix the screw down into the joist as shown in Diagram 21.

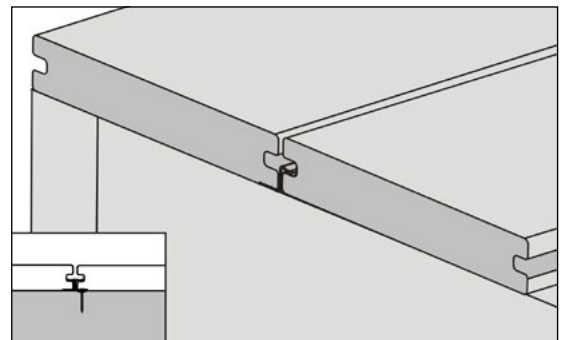


**DIAGRAM 21**

- 4 After fixing all clips, push the next board into the clips as shown in Diagram 22 and 23.



**DIAGRAM 22**



**DIAGRAM 23**

- 5 Repeat steps 1-4 until complete.



- 6 The final look should be like the below Diagram 24.

**Note:** The locking clip is in the middle of Diagram 24 to show the expansion and contraction is happening in both directions.

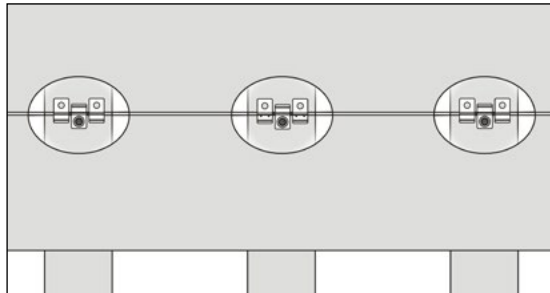


DIAGRAM 24

### Starting Accessory K-37 Installation:

- 1 After calculating the decking span and making the frame of your deck the first board is ready to be installed.
- 2 First pre-drill into the joist then fix the starting accessory into the joist as shown in Diagram 25.



K-37

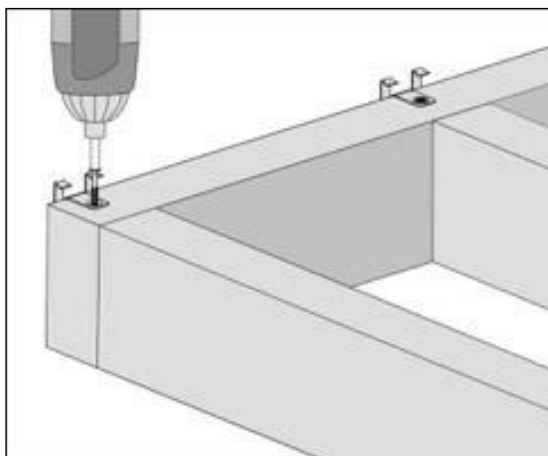


DIAGRAM 25

- 3 Then take your first board and push it into the starting accessory as shown in Diagram 26.

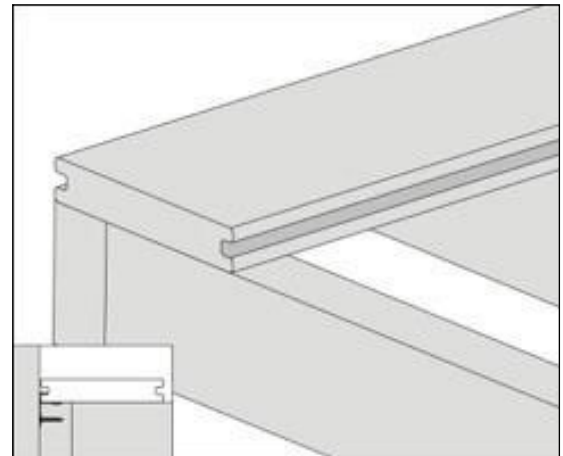


DIAGRAM 26

- 4 Repeat the installation from above for the TC-16 clip.
- 5 The K-37 can be used as the final clip as shown below in Diagram 27. The K-37 needs to be fixed in the back where the designated screw hole is.

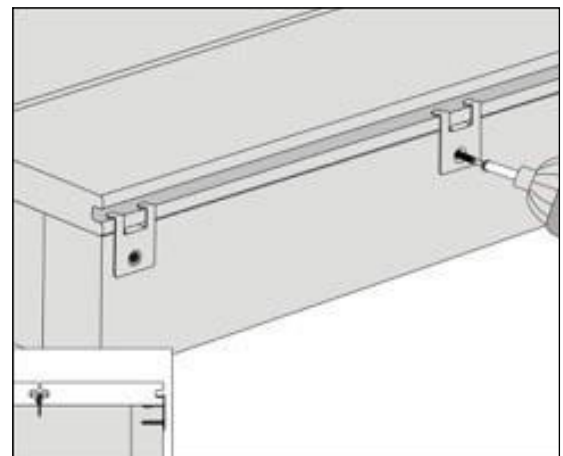


DIAGRAM 27

## Fascia Board Installation

Installing against the width and length of decking

- 1 The fascia should be installed on the rim board of the frame. The fascia should be installed as shown in Diagram 28. The distance between screws must be less than or equal to 300 mm. Two screws must be used 38 mm away from the ends.

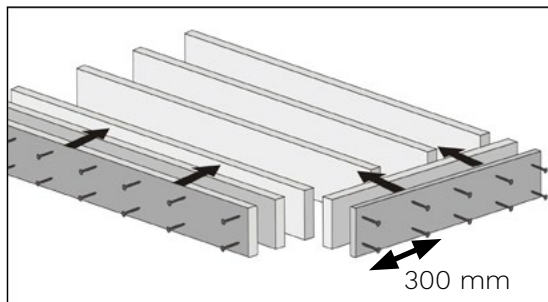


DIAGRAM 28

- 2 First pre-drill the holes for the fascia board. The fascia board should be drilled with bigger holes or routed to allow for expansion and contraction and fixed either at either end or in the middle as shown in Diagram 28. When fixing the bigger holes it is recommended to use washers.

- 3 The fascia board will be installed into the block wood and through the joist.

**Note: NEVER install the fascia by drilling into the decking ALWAYS install the fascia into the joist and ALWAYS pre-drill the fascia board.**

## End Cap Installation

- 1 Place the end cap in front of the hollow boards holes and push in as shown in Diagram 29.

**Note: A mallet could be used as well to push in the end caps.**

**Note: A dab of silicon (shown in Diagram 23) can be used on the end cap or inside the holes of the board in order to secure the end caps better.**

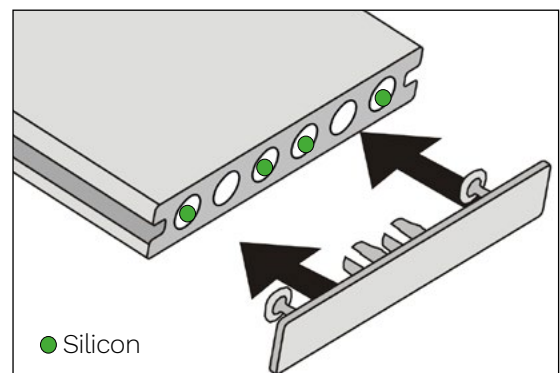


DIAGRAM 29

- 2 The final finish should look like Diagram 30 below.

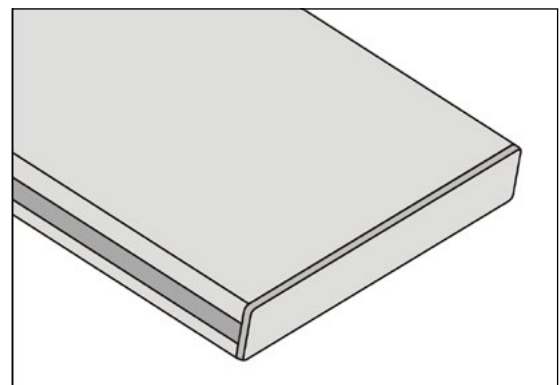


DIAGRAM 30



# Decking Installation Guide

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