



Decking Installation Guide

v20180618 AUS



IMPORTANT:

Read All Sections Before You Start

For the most up to date information, please visit our website @ 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 not meant or implied to replace the expertise of 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 risk of injuries. NewTechWood recommends 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. We also recommend using blades with 60+ teeth. Standard stainless steel or acceptable coated deck screws and nails are preferred.

Environment

A clean, smooth, flat and strong surface is needed to install NewTechWood's products correctly. Please check with local building codes before installing any type of decking. If installation does not occur immediately, NewTechWood's products need to be stored on a flat surface at all times.

Planning

Plan a layout for your decking before starting to ensure the best possible design for your project. Building codes and zoning regulations generally apply to permanent structures, meaning anything that is anchored to the ground or attached to the house. We recommend drawing out a site plan of your proposed project to minimize errors and achieve the best outcome.

Construction

NewTechWood 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

All composite decking may be prone to some level of static. Static build-up is a phenomenon that may occur with many plastic products and there is no simple answer why some composite decks generate more static than others. Location, climate, capped composites, and the amount of time people spend on the deck, etc. are all potential factors that can have an impact.

There are some options that will help and possibly alleviate the static issue:

1. Install NBR rubber strips in the gaps between the first 3-4 boards. This is done successfully in Europe. See link to a supplier in Victoria: <http://reglinrubber.com.au/contact/>
2. Use a static mat on the deck at the door. <https://www.matshop.com.au/specialty-mats/anti-static-mats>

3. Use a Heavy Duty Staticide product. This works well, however, it will only give protection for 6 – 8 months.
https://www.aclstaticide.com/heavy_duty_staticide.html
4. Earth the subframe to the ground.

Generally, the static issue will lessen after time.

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 installed directly onto a flat surface. Decking must be installed onto a substructure, to ensure there is adequate and unobstructed air flow beneath the decking to prevent excessive water and moisture build-up.

Please refer to the NewTechWood Fixing Speciation table on page 5 for the minimum distance requirements between the ground surface and the deck boards.

Fire

Excessive heat on the surface of NewTechWood products from external sources such as 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 potentially cause NewTechWood products to melt, sag, warp, discolour, increase expansion/contraction, and accelerate weathering over time.

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

NewTechWood composite deck boards are designed to be installed with the NewTechWood hidden fix system, which is available with 2 gapping options: 5.5mm or 1.5mm. The NewTechWood hidden fixing clips allow the boards to expand and contract without issue.

NewTechWood does not recommend face-fixing the complete deck as the deck boards may not perform as designed, and under no circumstance are hollow deck boards to be face fixed, as this voids the manufacturer's warranty.

For those consumers and installers who plan to top-fix regardless, then, when top-fixing it is important to predrill the hole slightly larger than the screws, to allow for any ongoing expansion and contraction. Depending on the type of screw being used, it may be necessary to also countersink the holes to avoid any "mushrooming of the cap layer".

Fasteners continued.

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. 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 fixed to their own independent joists. When two board ends butt to each other, there must be a sister joist with a minimum of 5 mm between the joists so as not to allow water to sit between the joists. Excessive build up of water over long periods of time can potentially result in swelling at the ends. 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 thus not recommended.

It is recommended that all screws that are used should always be stainless steel. When face fixing fascias or picture frame boards, always go in at least 25mm from the ends and edges of the board as shown in Diagram 3.

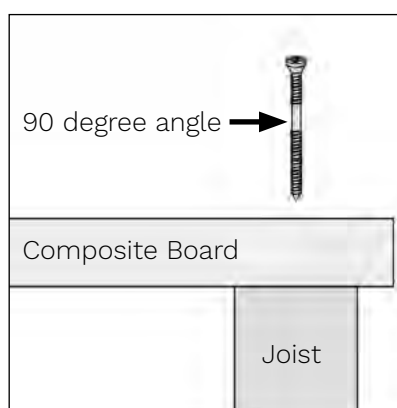


DIAGRAM 1

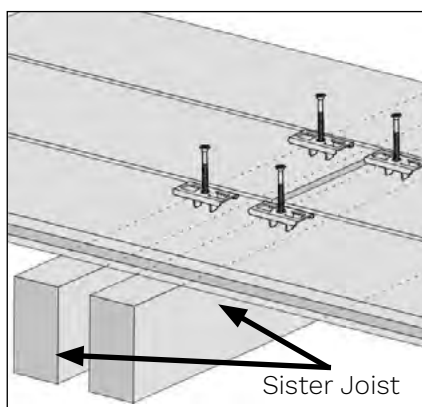


DIAGRAM 2

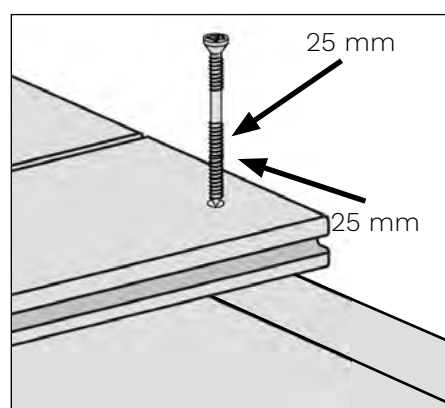


DIAGRAM 3

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 to use, always use screws that are engineered specifically for composite wood. Using screws that are not designed for composite material could potentially damage the decking. If you are unsure which screw to use, contact the manufacturer for more information.

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 minimise any unwanted shrinkage issues during and after installation.

Note: Always remember when allowing the boards to acclimate at the job site, it is important to place them on a flat and even surface. If put on an uneven surface there is a possibility that the boards may 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.

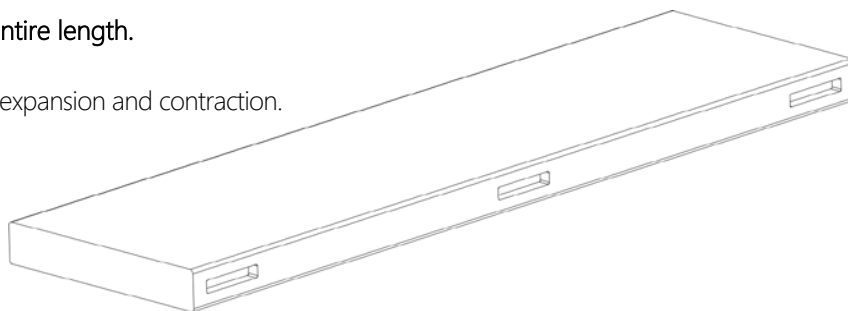
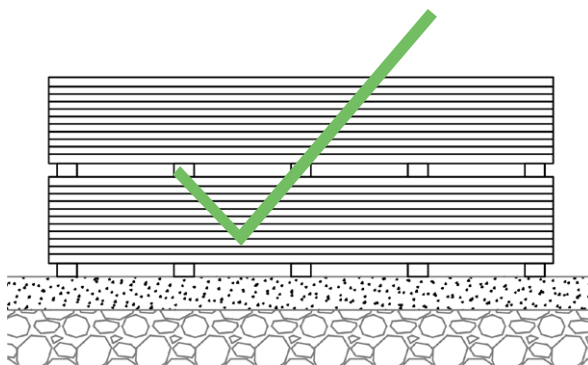


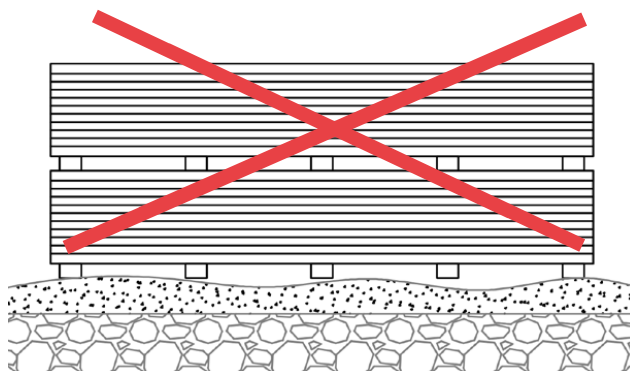
DIAGRAM 4

Storage

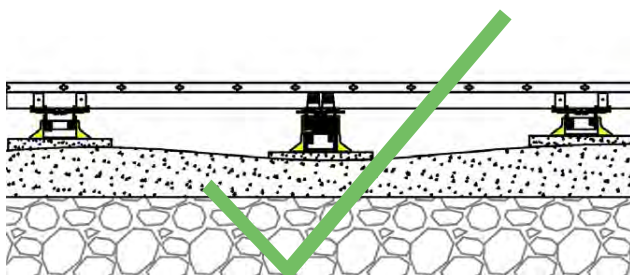
NewTechWood's products always need to be stored on flat solid surfaces. Surfaces such as dirt and grass are not sufficient as they can move over time.



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



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



NewTechWood products can be stored on pedestals or jacks if the surface is uneven, as shown above. 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 between the joists is required to keep the deck boards from bending. Please review the chart below to see what spacing is required for your NewTechWood deck profile.

NewTechWood Decking Fixing Specifications

	US49 / US49	UH02	US07
	138mm x 25mm Solid Deck Board	138mm x 23mm Hollow Deck Board	138mm x 23mm Solid Deck Board
Residential Span	450mm	350mm	400mm
Commercial Span	350mm	n/a	350mm
Min Ground Clearance	300mm	300mm	300mm
Min Ground Clearance over Concrete	40mm	40mm	40mm
Min End Gap to Solid Structure	4mm	4mm	4mm

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

Degree of Angle	Spacing
90	Refer to the above tables
60	50 mm less than the stated above tables
45	100 mm less than the stated above tables
30	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)								
Installation Temperature (°C)		1	2.44	2.8	3	3.66	3.9	4	4.88	5.4
	10	1.2	3.9	4.5	4.8	5.9	6.2	6.4	7.8	8.6
	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
										Gap (mm)

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)
- Maximum 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 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 to suit your taste. Below we have taken some of the most popular types of installation from around the world, for examples:

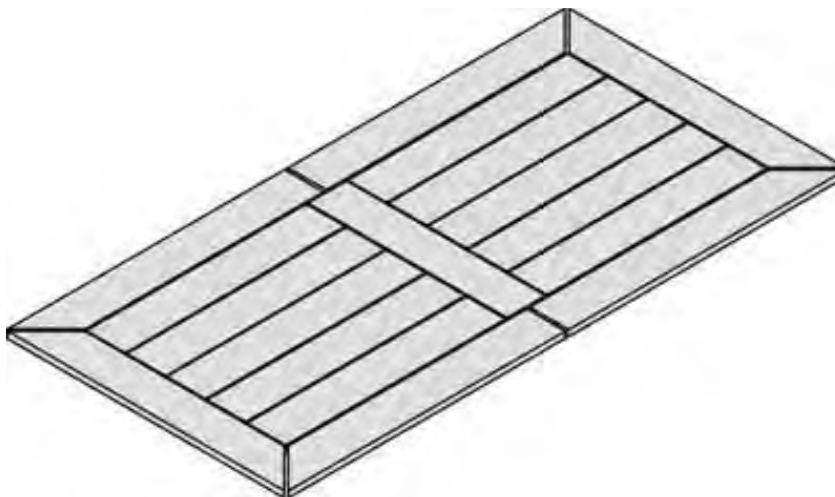


DIAGRAM 6

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.

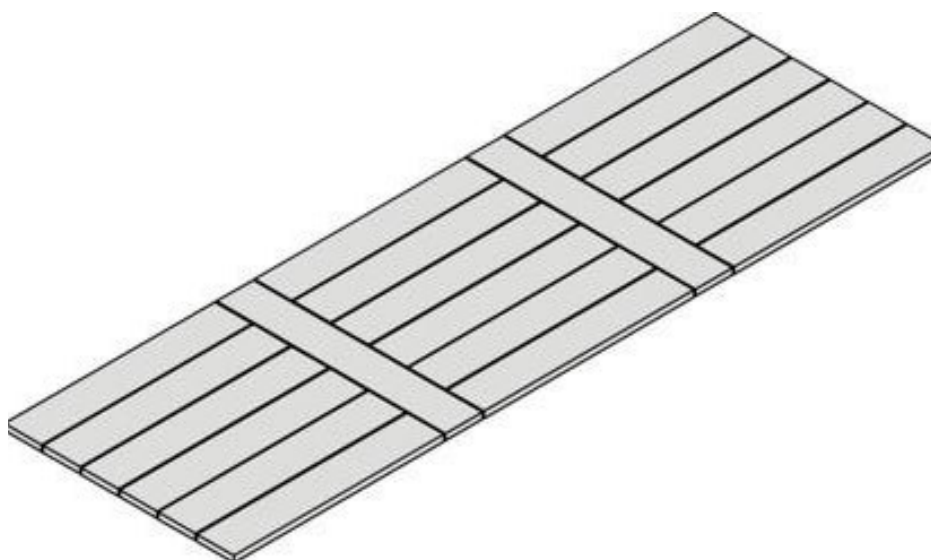


DIAGRAM 7

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.

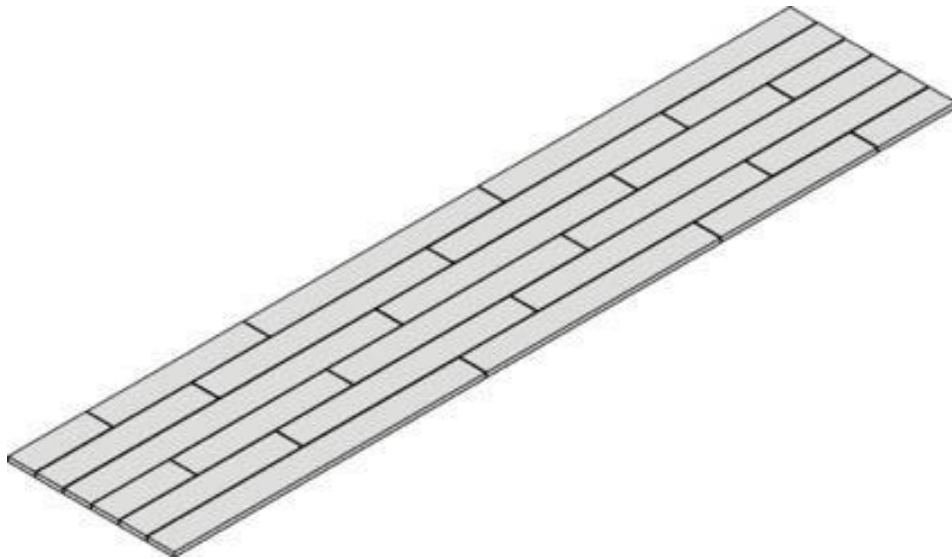


DIAGRAM 8

Diagram 8 shows a staggered pattern. This look gives the composite material an appearance similar to a traditional hardwood deck.

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.

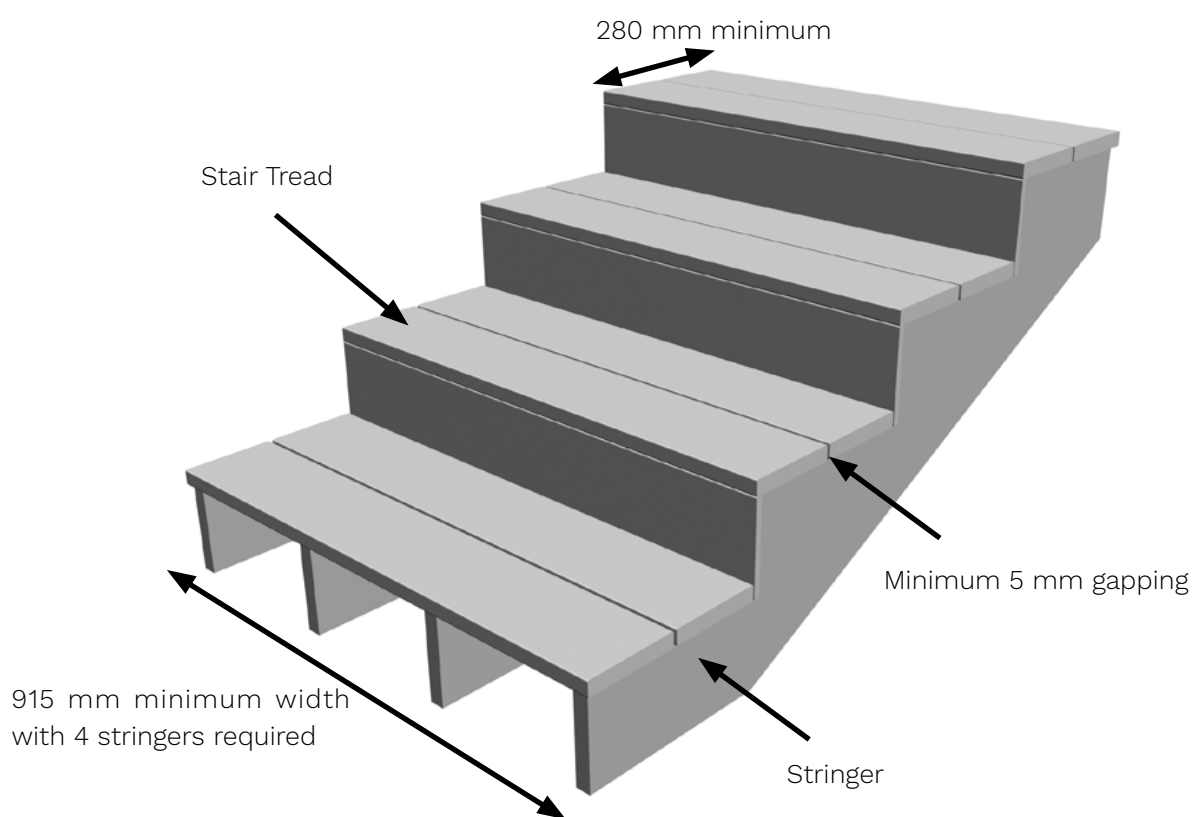


DIAGRAM 9

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 as shown below.

Note: All screws that are face fixed should always be stainless steel. When face fixing, always go in at least 25mm from the ends and width of the board.

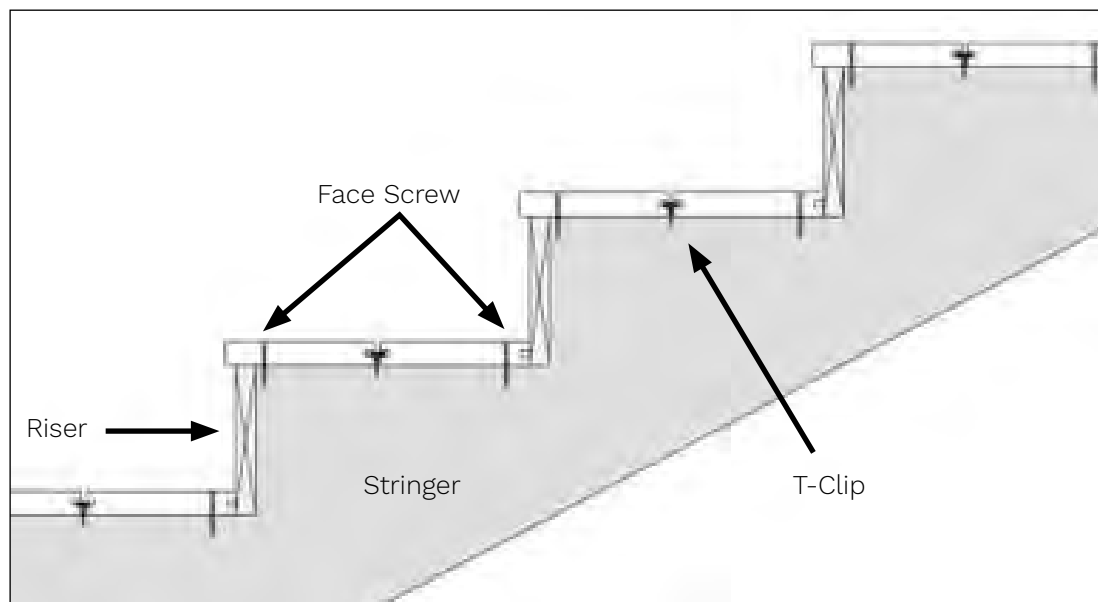


DIAGRAM 10

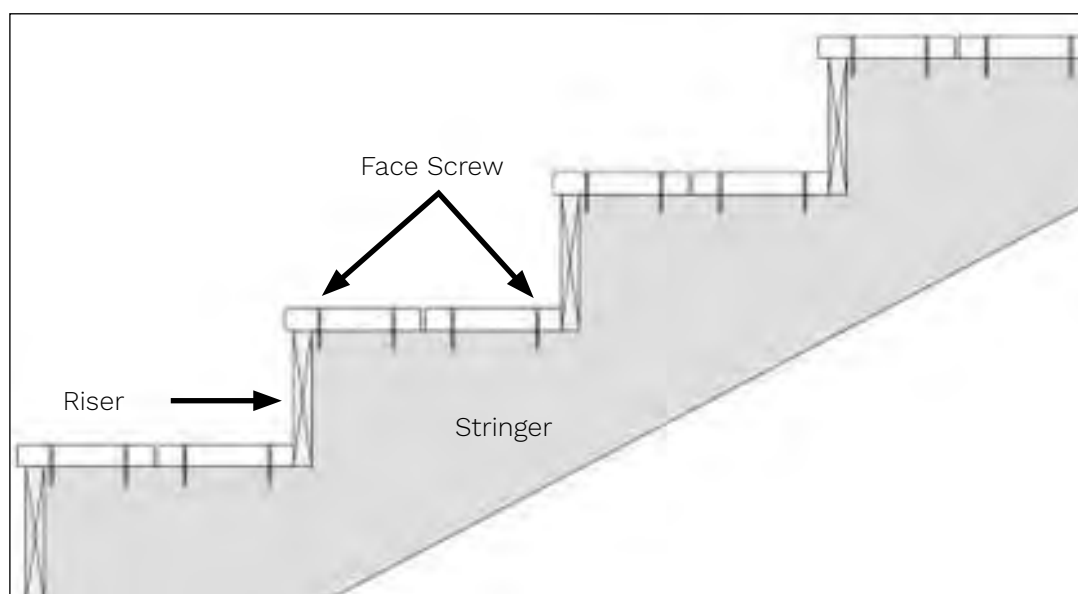


DIAGRAM 11

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 NewTechWood 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 constructing 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.

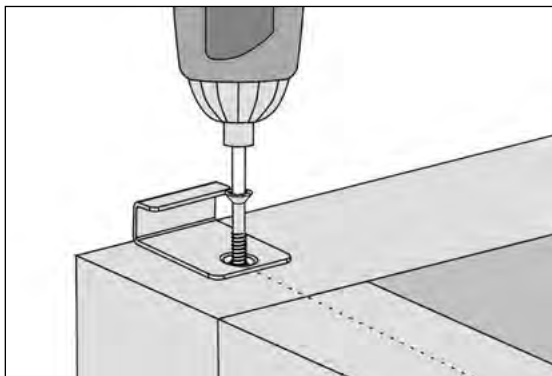


DIAGRAM 12

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

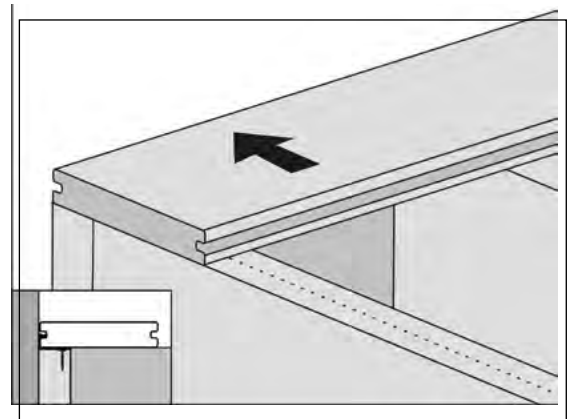


DIAGRAM 13

Starting Accessory K-37 Installation:

- 1 After calculating the decking span and constructing 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

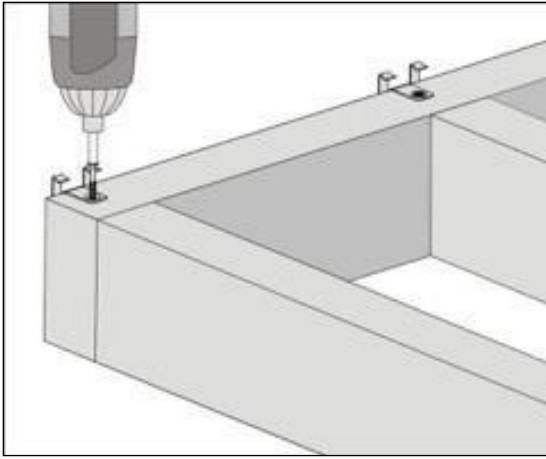


DIAGRAM 25

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

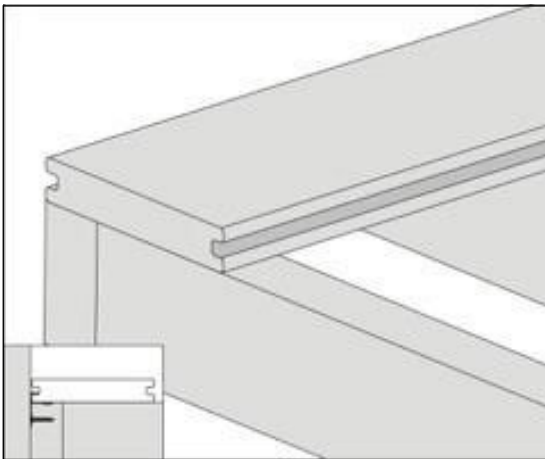


DIAGRAM 26

- 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.

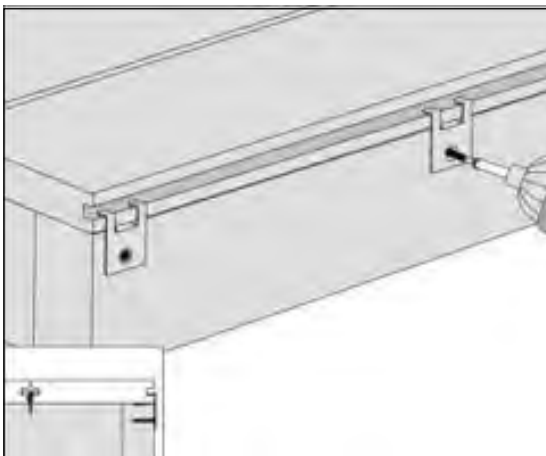
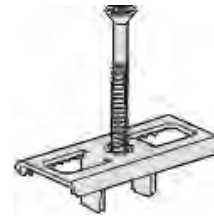


DIAGRAM 27

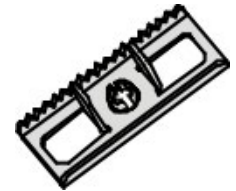
Option 1:

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

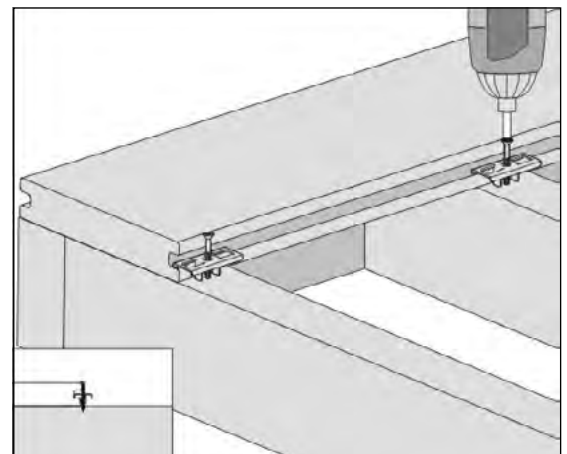


DIAGRAM 14

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

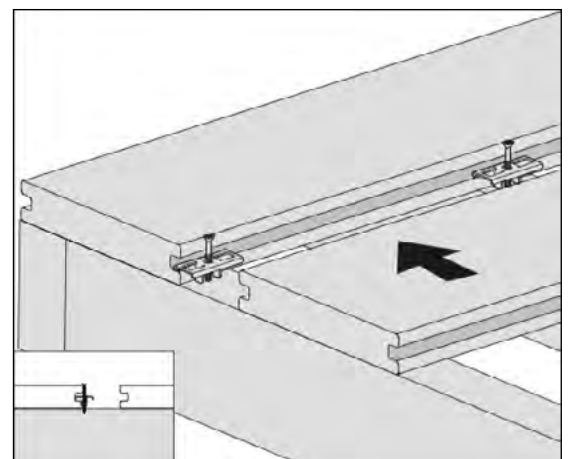


DIAGRAM 15

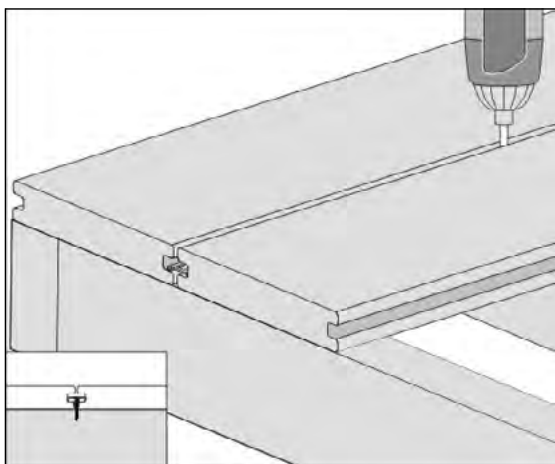


DIAGRAM 16

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

- 4** Repeat steps 2-3 and finish the remaining boards.

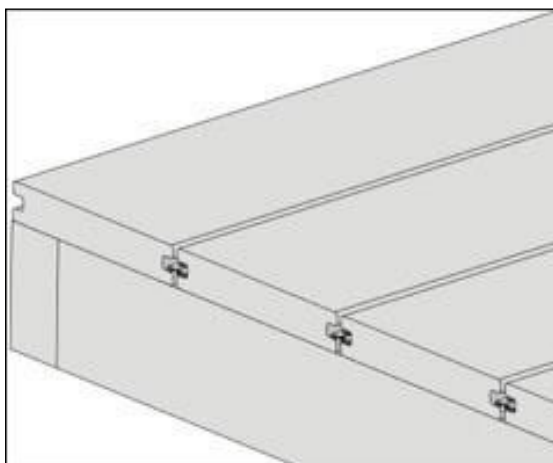


DIAGRAM 17

- 5** Finally, finish your last board by face fixing into the solid board at every joist as shown in Diagram 18, or by using the K37 End Clip, as shown in Diagram 27.

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 x 25 mm from the ends and the width of the board.

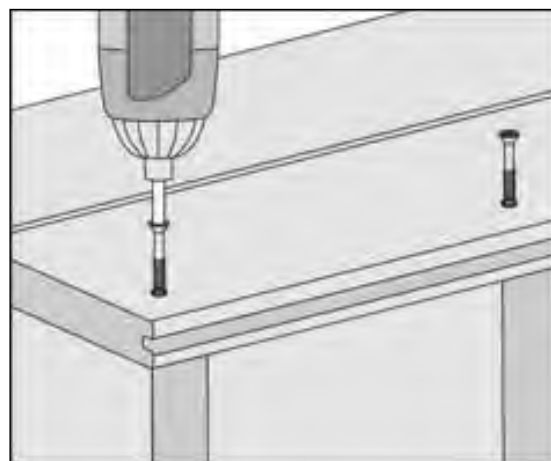


DIAGRAM 18

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.

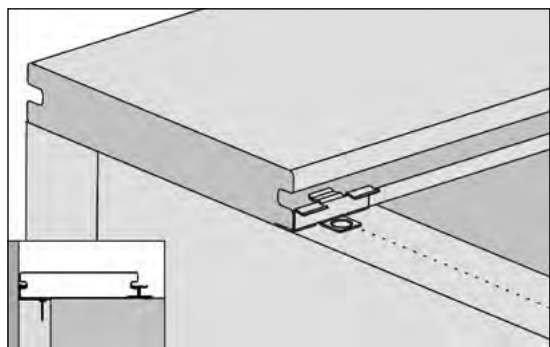
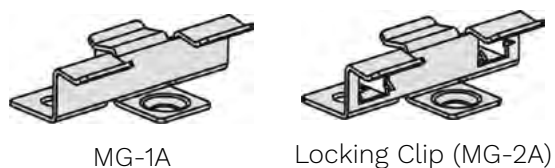


DIAGRAM 19

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

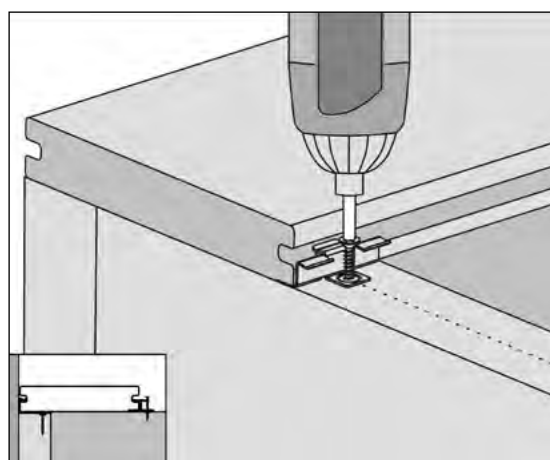


DIAGRAM 20

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

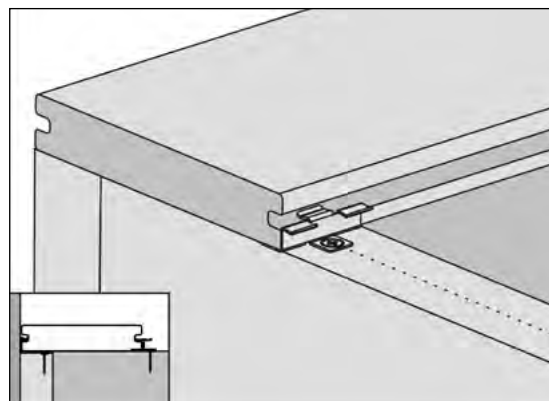


DIAGRAM 21

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

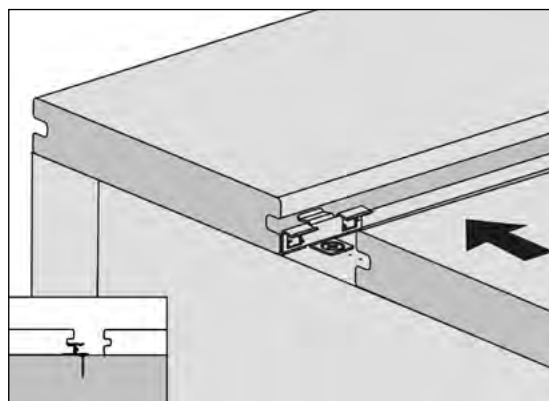


DIAGRAM 22

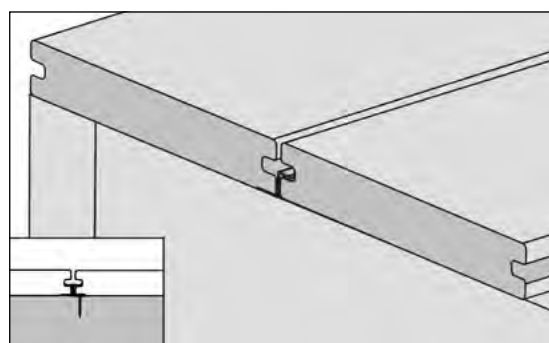


DIAGRAM 23

- 5 Repeat steps 1-4 until complete.

- 6** The final look should be as below - see Diagram 24.

Note: The MG-2 locking clip is placed on the middle joist as per Diagram 24 which controls expansion and contraction.

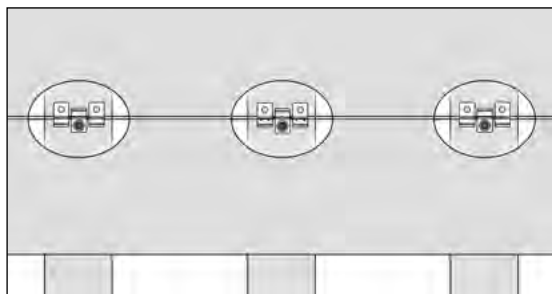


DIAGRAM 24

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 25 mm away from the edges.

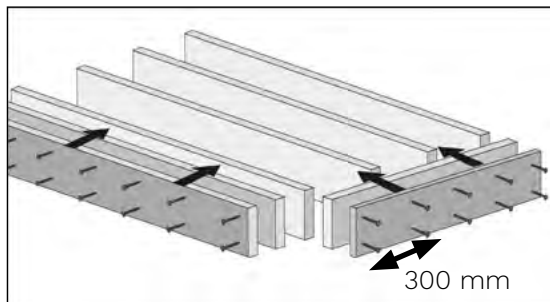


DIAGRAM 28

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

- 3 The fascia board will be installed into the sub frame or into 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 board holes and push in as shown in Diagram 29.

Note: A mallet can also be used 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.

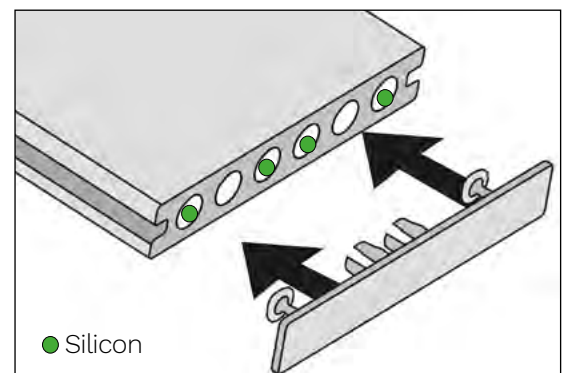


DIAGRAM 29

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

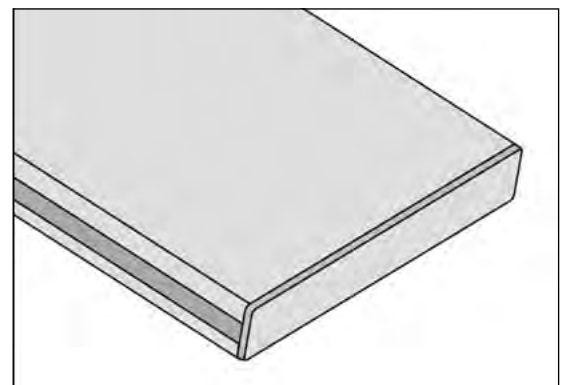


DIAGRAM 30



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