

## **IMPORTANT: Read all sections before you start**

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

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 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, 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.

### **Environment**

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

### **Planning**

Plan a layout for your deck before starting it to ensure the best possible looking deck 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 deck 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 deck.

### **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 deck re-planking (removing old deck surface planks and installing NewTechWood on code-compliant substructure), NewTechWood boards CANNOT be installed on existing deck boards.

### **Routing**

NewTechWood UltraShield SHOULD NOT be routed aside from routing a groove on the side of solid boards US-07 for start/stop of UltraShield locking systems.

### **Static**

Static build-up is a natural occurring phenomenon that can occur with many plastic products. Dry and windy environments may make this even more apparent, this all varies depending on the climate and age of the deck.

## Ventilation

NewTechWood UltraShield 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 deck to prevent excessive water absorption. A minimum of 6" of continuous net free area under the deck surface is required for adequate ventilation on all decking so air can circulate between adjacent members to promote drainage and drying.

## Heat and Fire

Excessive heat on the surface of NewTechWood UltraShield 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 UltraShield 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 UltraShield products to melt, sag, warp, discolor, increase expansion/contraction, and accelerate weathering.

Current or potential NewTechWood UltraShield 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 UltraShield all screws that are face fastened should always be driven in at a 90 degree angle to the decking surface. Toe nailing/screwing should never be down to UltraShield. An extra joist should be added if a 90 degree angle cannot be driven into the board.

Use white chalk, straight boards, or string lines as templates for straight lines. **NEVER USE COLORED CHALK.** Colored chalk will permanently stain UltraShield and is highly not recommended.

Face fastening should follow the guidelines set out on page # of this installation guide. All nails/screws that are face fixed should always be stainless steel. Depending on the screws that you use when face fixing there could be potential bulging or mushrooming. It is recommended to take care of these mushrooms/bulges by taking a rubber mallet and patting them down to give your deck a better look.

When choosing which screws/nails to use always check first with your local home centers and hardware stores to see if they have screws that are engineered specifically for composite decking. These screws/nails will always work and give UltraShield the best looking outcome, using other screws/nails that are not recommended for composite could potentially damage/harm the deck. If you are unsure which screw/nail to use contact your manufacturer for

## Board Spacing

Two boards should NEVER be installed on the same joist, when butting up the ends of the board they have to be installed on separate joists with separate clips.

### Calculating Gap Requirements

#### What you will need to know:

-Coefficient of Linear Expansion (CLE):  $20.2 \times 10E-6$  inch/inch/°F

-Installation Temperature (°F)

-Max or Minimum Temperature in your region (°F)

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 (inches)

## Board Spacing (Cont.)

Example:

Amount of gapping required for Length of Board = Coefficient of Linear Expansion (CLE) x Length of the Board (inches) x (Max. or Min. Temp. in your region - Installation Temp.)

Amount of gapping required for a 192 inch Board =  $20.2 \times 10E-6$  inch/inch/°F x 192 inches x (104 °F - 68 °F)

Amount of gapping required for a 192 inch Board = 0.1396 inches (0.0698 inches on each end or 0.1396 inches on a single end)

**Note: Always round up to the nearest mm to make the gapping easier, like in the example above 0.0698 or 0.1396 inches would round up to 0.07 and 0.14 inches respectively.**

**Note: If the calculation comes out to be negative disregard the negative and take only the value**

**Note: There needs to be at least a minimum of 0.04 inches for the end of each board regardless if the calculation made is less than 0.08 inches.**

## 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 9 of this installation guide to see what spacing is required for your profile.***

## Decking

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

### Option 1: Screw from the side

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 a hole for the screw through the groove of the board and into the joist.
3. Next, fix the screw into the hole shown in Diagram 1 & 2.

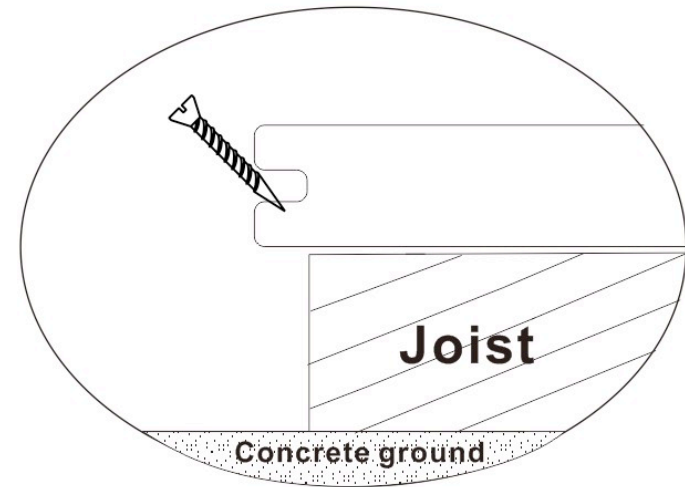


Diagram 1

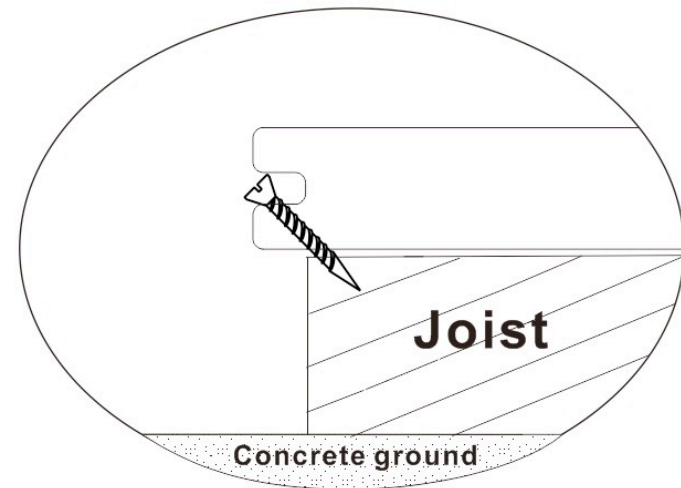


Diagram 2

## Decking

### Option 2: Screw from the top

1. After calculating the decking span and making the frame of your deck the first board is ready to be installed.
2. First, mark where you will drill on the top of board as shown in Diagram 3.

**Note: When face fastening the minimum distance is:**

- A. From the ends of the board 1-1 1/2" (38mm)
- B. From the sides of the board 1" (26 mm)

3. Pre-drill a hole for the screw through the board from above and into the joist.
4. Next, fix the screw into the hole shown in Diagram 4.
5. Repeat steps 1-4 for each joist for the first and last board of your deck.

**Note: When making the final cuts we recommend snapping a chalk line and using a circular saw to the cut the deck boards that ran wild during installation.**

### Option 3: Starting accessory

1. A starting accessory can be used by first drilling the accessory into the joist.
2. First pre-drill into the joist then fix the starting accessory into the joist as shown in Diagram 5
3. Then take your first board and push it into the starting accessory as shown in Diagram 5

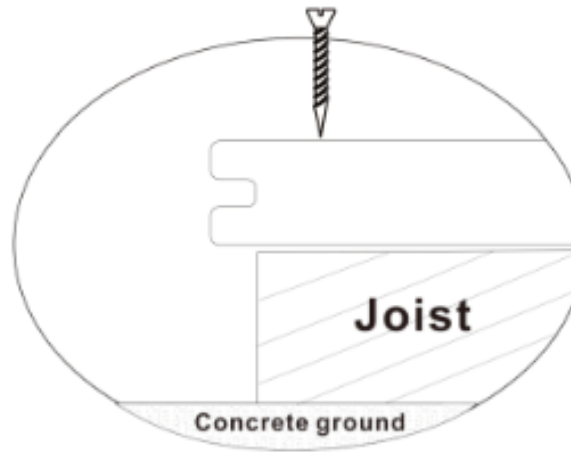


Diagram 3

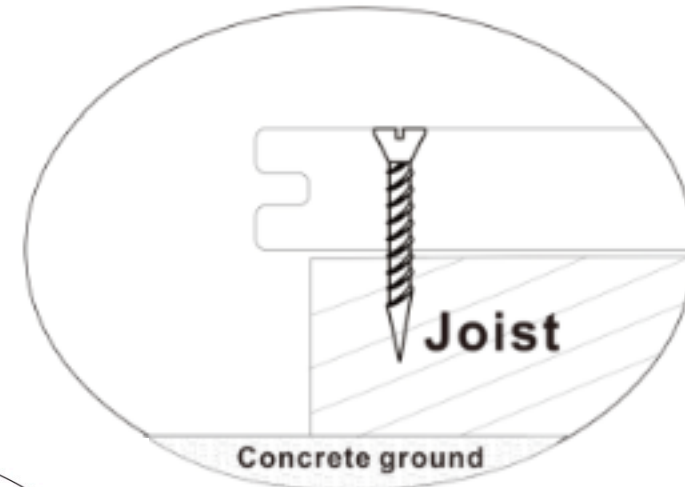


Diagram 4

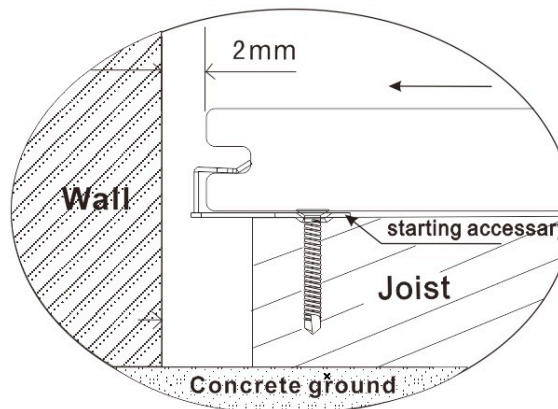


Diagram 5

## Hidden Fasteners

Installing hidden fasteners with UltraShield™ is relatively simple and quick compared to regular lumber.

**Before you installing hidden fasteners into UltraShield always figure out which type of style/ pattern you will be doing for your deck. Plan out where the locking and moving clips will be going on each joist. See page 10 & 11 for more information.**

There are two options when installing hidden fasteners into UltraShield:

### Option 1: T-Clip System

1. First slide the TC-1 and TC-2 clips into the groove of the boards with screws facing up.
2. After getting all the TC-1 and TC-2 clips into position take your next board and slide them into the fasteners as shown in Diagram 6 & 7.
3. Next screw down the TC-1 and TC-2 clips from the top
4. Repeat steps 1-3 until the deck is finished.

**Note: For an easier install with the T-Clip System try first pushing all the boards together and then coming back in and sliding the clips into the grooves and then into place on each joist as shown in Diagram 8**

**(Continued on the next page)**

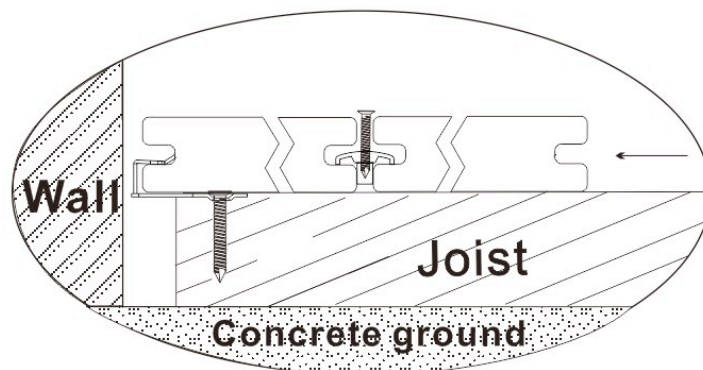


Diagram 6

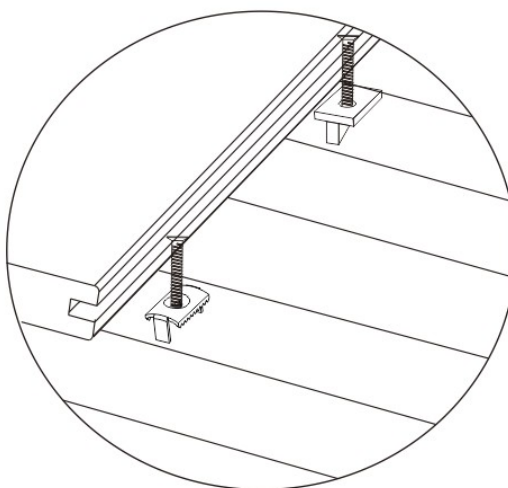


Diagram 7

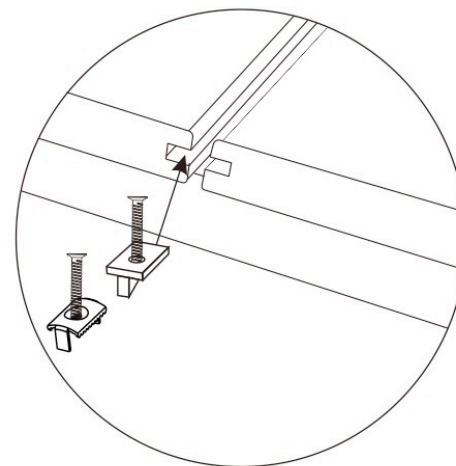


Diagram 8



## Hidden Fasteners (continued)

### Option 2: UltraLock System

1. First slide the UL-1 and UL-2 clips into the grooves of the boards at a 30-45 degree angle at their respective joists as shown in Diagram 9.
2. Once the clip is in press down and the clip will be ready to install into the joists as shown in Diagram 10 & 11.
3. Next screw the clips into the joists using a 45 degree angle.
4. Once all clips are screwed down the next board will come in at a 30-45 degree angle and then pushed down into place as shown in Diagram 12.
5. Repeat steps 1-4 until the deck is complete.

**Note: Using hidden fasteners that are not manufactured by NewTechWood nor recommended by NewTechWood are not warranted. Use these fasteners at your own risk.**

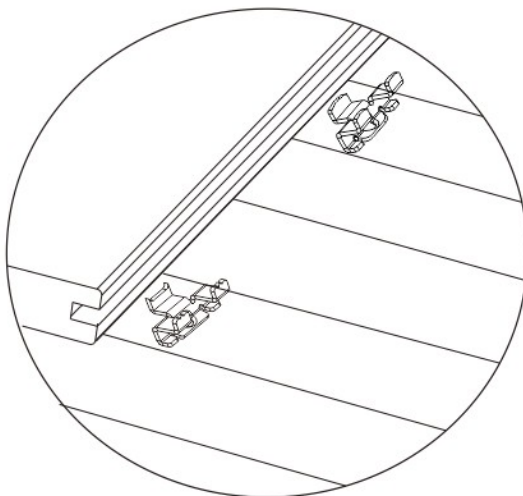


Diagram 9

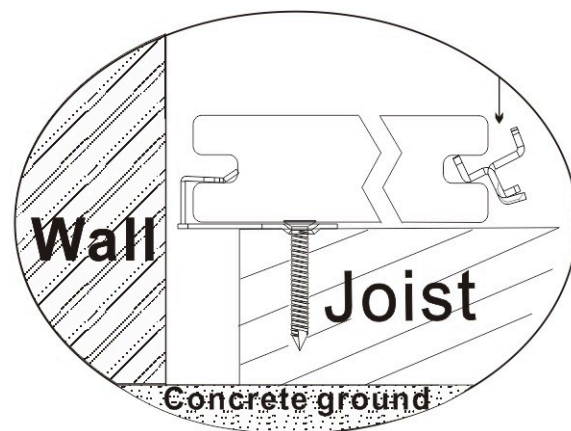


Diagram 10

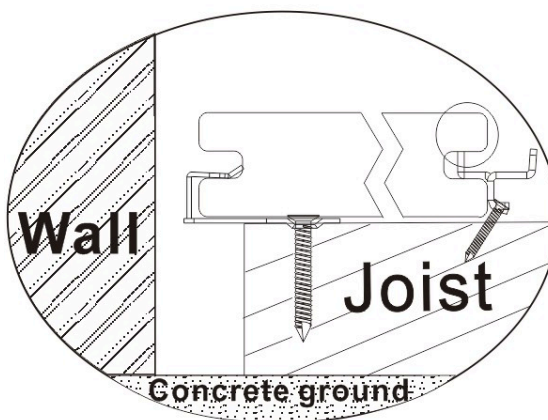


Diagram 11

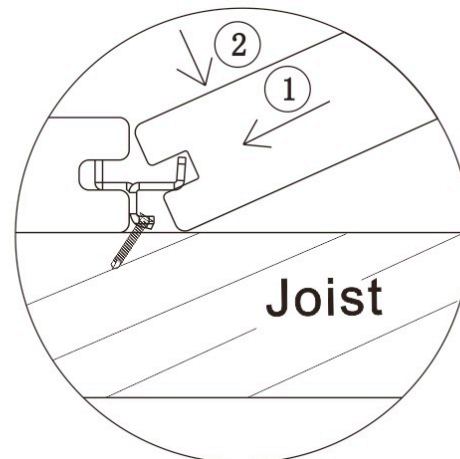


Diagram 12



## Fascia Board

First make sure you know which type of installation you are doing for your fascia board. There are two types:

### Option 1: Installing against the length of decking

1. First the distance from where the board is locked to the end of deck where the fascia board is to be installed needs to be measured
2. After measuring remember that your gapping will be 2mm/meter from the locking clip.
3. Since there will be a gap at the end of the deck an extra piece of wood will need to be added at the end of the joist to make up the gapping distance.
4. The fascia board will now be installed into the block of wood and into the joist as show in Diagram 13

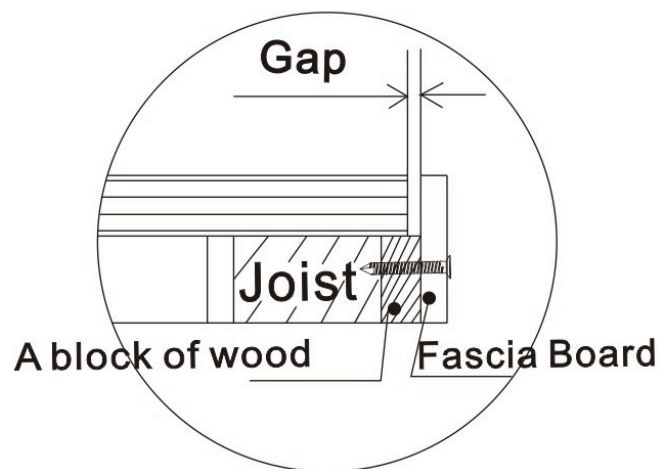


Diagram 13

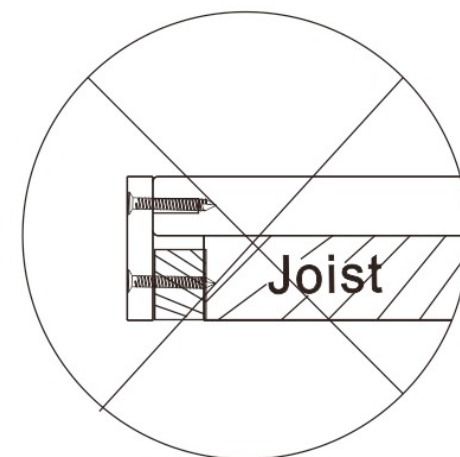


Diagram 14

### Option 2: Installing against the width of decking

1. If you have installed where the edge of the board hangs over the joist a block of wood will need to be used under as shown in Diagram 15. If you have installed where the edge of the board is flush with the joist than the fascia will just be installed through the joist as shown in Diagram 16
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 17. When fixing the bigger holes it is recommended to use washers.
3. The fascia board will be installed into the the block wood and through the joist.

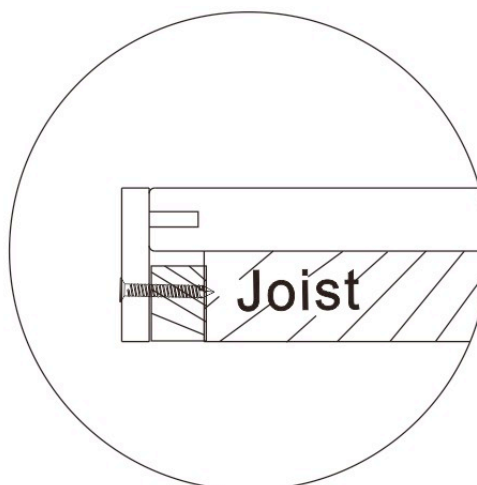


Diagram 15

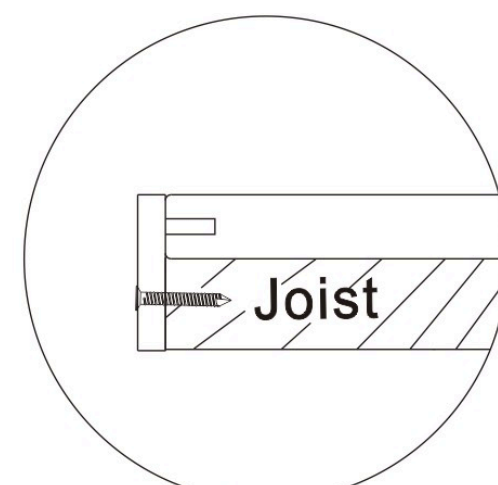


Diagram 16

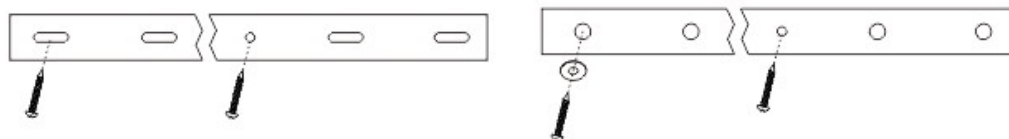



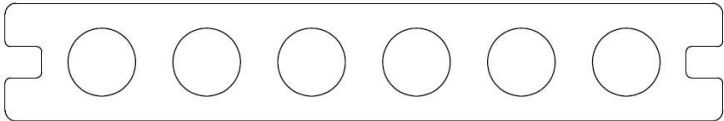
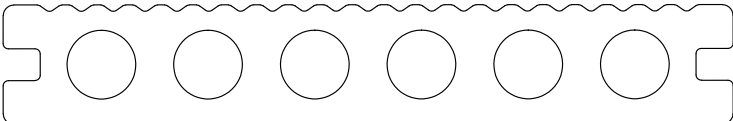



Diagram 17

**Note: NEVER install the fascia by drilling into the decking as shown in Diagram 14. ALWAYS install the fascia into the joist. ALWAYS pre-drill the fascia board**

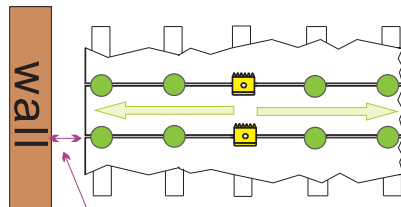
## MAXIMUM DECKING SPAN FROM CENTER TO CENTER (OC) OF JOISTS ALLOWED

	Profile	Decking Span Residential	Decking Span Commercial
Solid Board US07		400 mm (16 in)	350 mm (14 in)
Solid Board with Grooves US01		400 mm (16 in)	350 mm (14 in)
Channeled Solid Board with Grooves US02		400 mm (16 in)	350 mm (14 in)
Circle Hollow Board with Grooves UH02		400 mm (16 in)	300 mm (14 in)
Channeled Circle Hollow Board with Grooves UH07		400 mm (16 in)	300 mm (14 in)
Square Hollow Board with Grooves UH01		300 mm (12 in)	This profile is only for Residential use, and cannot be used for stair treads

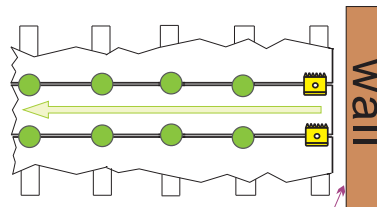
## Parallel Layout



**Situation 1:**  
Only one board  
in a row

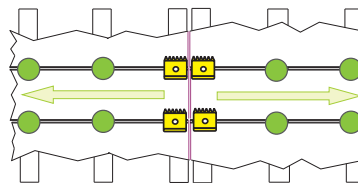


**A** CEC clip against wall:  
min 2mm gap per 1m board

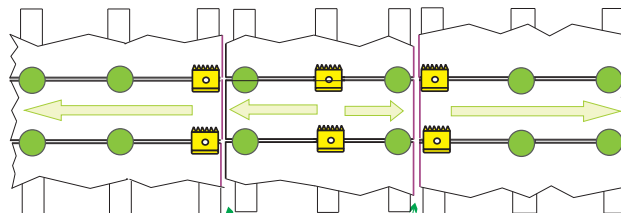


**B** Locking clip against wall:  
no gap

**Situation 2:**  
Two boards  
in a row



**Situation 3:**  
Three or more  
boards in a row



in between middle board:  
2mm gap on each side

**\*\*Note: Always one Locking clip on one board.**

**A:** If there is no wall on both sides or walls on both sides:  
locking down in the middle.

Remember to leave minimum 2mm gap for every meter  
of decking board, when CEC clip against wall.

**B:** If only one side has a wall: lock down closest to the wall.

Lock down where the two boards meet on butt joints

Lock down along the central line on the butt joints and the  
neighbor boards at where they meet the middle board.

The middle board should be as short as possible and  
no longer than 2 meters, and leave 2mm gap on each sides.



Locking Clip



CEC Clip (T Clip)



Direction of expansion  
and contraction

Move



Lock

note the bite side  
as the Lock side

Move

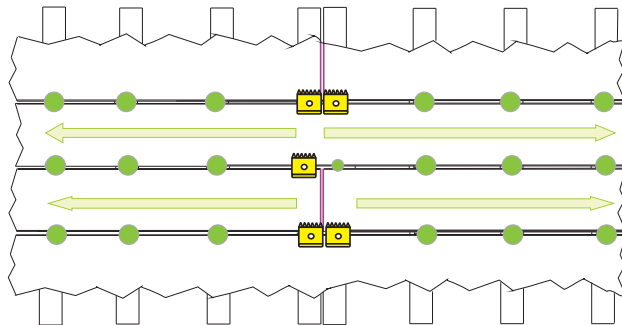


Lock

## Brick Layout



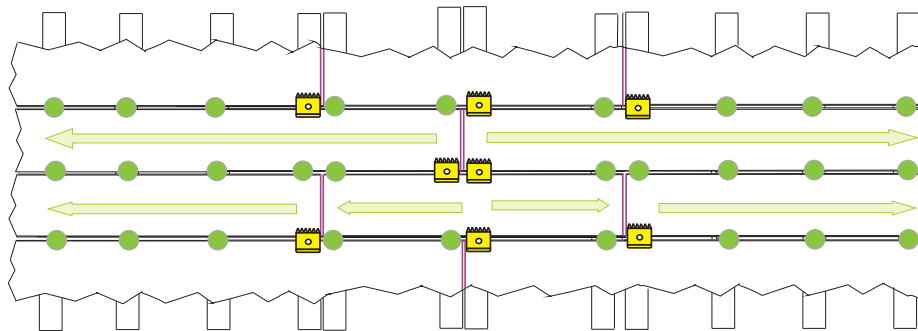
Situation 1:  
2-1-2 Layout



Lock down along the central line on the butt joints.

Remember to leave minimum 2mm gap for every meter of decking board, when CEC clip against wall.

Situation 2:  
3-2-3 Layout



The middle board should be as short as possible and no longer than 2 meters, and leave 2mm gap on each sides.

**\*\*Note: Always one Locking clip on one board.**

