2018 INSTALLATION GUIDE
WALLONG® DECKING

Read All Sections Before You Start

For the most up to date information, please visit our website @www.wallong-wpc.com

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 a licensed professional. Any construction or use of Wallong® 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. Wallong® recommends but is not limited to the following safety equipment when handling, cutting and installing Wallong®: 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 Wallong®'s products correctly. Please check with local building codes before ever installing any type of decking. If installation does not occur immediately, Wallong®'s 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 perfect decking.

Construction

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

Ventilation

Wallong® products CANNOT be directly installed onto a at 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 (4 inches) 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 (4 inches), it is recommended to look up the maximum rainfall of the area to determine what height would need to build to ensure no flooding of the deck occurs. If the rainfall is determined not to flood the deck, a slop 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 build below 100 mm (4 inches) 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 Wallong® 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 Wallong® products. Low-E glass is designed to prevent passive heat gain within a structure and can cause unusual heat build-up on exterior surface. This extreme elevation of surface temperatures, which exceeds that of normal exposure, can possibly cause Wallong® products to melt, sag, warp, discolor, increase expansion / contraction, and accelerate weathering.

Current or potential Wallong® 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 effect of reflected sunlight.

Fasteners

When fastening Wallong®'s products, 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 done to the products. An extra joist should be added if a 90 degree angle cannot be driven into the board as shown in Diagram1.

All fasteners should be on their own independent joist, when two boards ends meet each other there must be a sister joist with a minimum of 5 mm between the sister joist for water to go down between the joists. Excessive build 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 Diagram2.

Use white chalk, straight boards, or string line as templates for straight lines. NEVER USE COLORED CHALK. Colored chalk will permanently stain Wallong® 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 boards by 1" 1/2 (25.40 mm) as shown in Diagram 3.

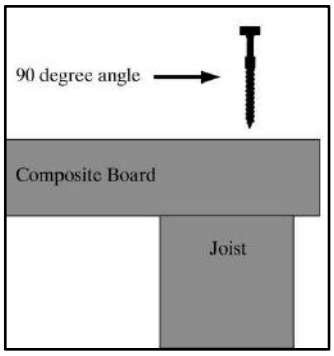


DIAGRAM 1

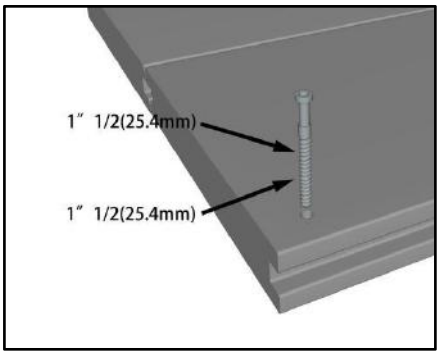


DIAGRAM 2

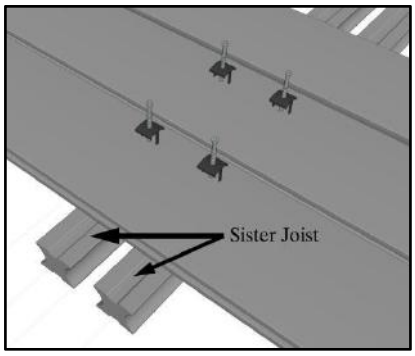


DIAGRAM 3

Fasteners Continued

Always use screws designated for use with composite decking materials. 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 centers and hardware stores to see if they have screws that are engineered specifically for composite wood. These screws / nails will always work and give Wallong®'s product the best looking outcome, using other screws / nails that are not recommended for composite could potentially damage / harm the decking. If you are unsure which screw / nail to use, contact your manufacturer for more information.

Acclimate

Acclimating at least 2 days prior to installation is recommended.

Acclimating the boards will get rid of any unwanted shrinkage issue 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 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.

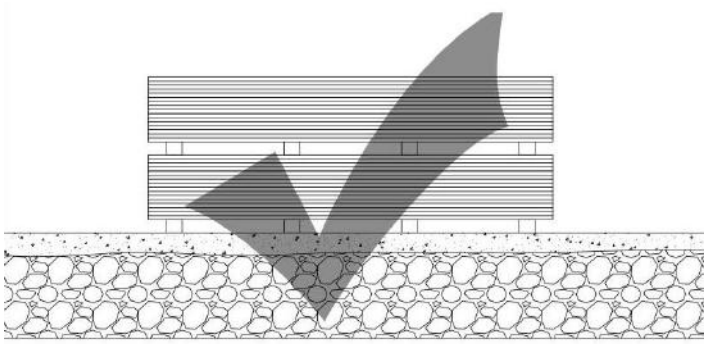
Note: boards should never be routed the entire length.

DIAGRAM 4

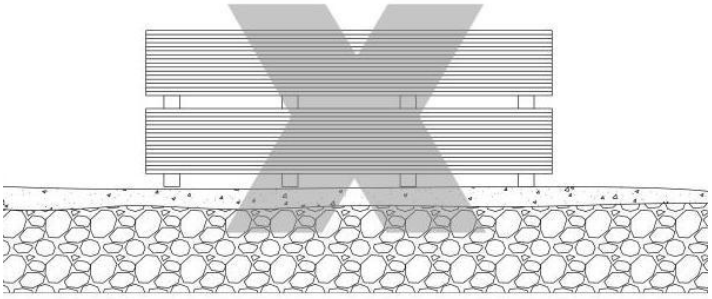
Fascia boards can also be routed to allow for expansion and contraction.

Storage

Wallong®'s products always need to be stored on flat solid surface. Surface such as dirt and grass are not sufficient as they can move over time.



Wallong® products shown above put on a flat surface on joists, this is the correct ways for storage.



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

Wallong® 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 Wallong®'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 Center-to-Center

Region	Profile	Dimension	Residential Span	Commercial Span
North America South America Europe South Korea	WL-SDK13923	139 x 23 (5.5 x 0.9 inches)	400 mm (14 inches)	300 mm (10 inches)
	WL-SSDK13923	139 x 23 (5.5 x 0.9 inches)	400 mm (14 inches)	300 mm (10 inches)
	WL-SDK14022	140 x 22 (5.52 x 0.87 inches)	400 mm (14 inches)	300 mm (10 inches)
	WL-SSDK14022	140 x 22 (5.52 x 0.87 inches)	400 mm (14 inches)	300 mm (10 inches)

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

Degree of Angel	Dimensions	Spacing
90	139 x 23 (5.5 x 0.9 inches)	Refer to the above tables
60	139 x 23 (5.5 x 0.9 inches)	50 mm (2 inches) less than the stated above tables
45	139 x 23 (5.5 x 0.9 inches)	100 mm (4 inches) less than the stated above tables
30	139 x 23 (5.5 x 0.9 inches)	1/2 the distance stated in above tables

Maximum Decking Spans on Center-to-Center

Region	Profile	Dimension	Residential Span	Commercial Span
Middle East Asia (excluding South Korea)	WL-SDK13923	139 x 23 (5.5 x 0.9 inches)	350 mm (14 inches)	250 mm (10 inches)
	WL-SSDK13923	139 x 23 (5.5 x 0.9 inches)	350 mm (14 inches)	250 mm (10 inches)
	WL-SDK14022	140 x 22 (5.52 x 0.87 inches)	400 mm (16 inches)	300 mm (12 inches)
	WL-SSDK14022	140 x 22 (5.52 x 0.87 inches)	400 mm (16 inches)	300 mm (12 inches)

Expansion and Contraction Values

Wallong® 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 gaping requirements noted in the following table accommodates for this movement.

Expansion and contraction table of values for Europe, Russia, Northern Asia (between 40N and 20N in latitude)

Length (Meters)

Installation Temperature (℃)	1	2.44	2.8	3	3.66	3.9	4	4.88	5.4	Gap (mm)
-10	2.4	5.9	6.7	7.2	8.8	9.4	9.6	11.7	13.0	
-5	2.2	5.4	6.2	6.6	8.1	8.6	8.8	10.7	11.9	
0	2.0	4.9	5.6	6.0	7.3	7.8	8.0	9.8	10.8	
5	1.8	4.4	5.0	5.4	6.6	7.0	7.2	8.8	9.7	
10	1.6	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	

Expansion and Contraction table of values for North America, Canada, Australia and Asia (between 20N and 20S in latitude)

Length (Meters)

Installation Temperature (℃)	1	2.44	2.8	3	3.66	3.9	4	4.88	5.4	
0	1.4	3.4	3.9	4.2	5.1	5.5	5.6	6.8	7.6	Gap (mm)
5	1.2	2.9	3.4	3.6	4.4	4.7	4.8	5.9	6.5	
10	1.0	2.4	2.8	3.0	3.7	3.9	4.0	4.9	5.4	
15	0.8	2.0	2.2	2.4	2.9	3.1	3.2	3.9	4.3	
20	0.6	1.5	1.7	1.8	2.2	2.3	2.4	2.9	3.2	
25	0.4	1.0	1.1	1.2	1.5	1.6	1.6	2.0	2.2	
30	0.2	0.5	0.6	0.6	0.7	0.8	0.8	1.0	1.1	

Expansion and Contraction table for value for Africa, Middle East, GCC, South America, and Latin America

Length (Meters)

Installation Temperature (℃)	1	2.44	2.8	3	3.66	3.9	4	4.88	5.4	
10	1.6	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	

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

When installing boards one full length across the deck, we recommended locking the board in the middle to allow for even expansion and contraction to take place on both ends shown in Diagram 5.

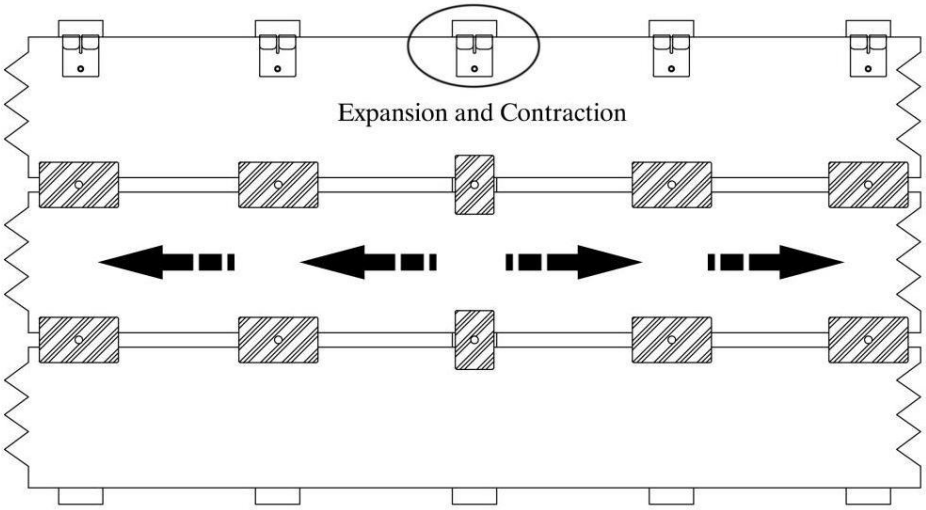


DIAGRAM 5

When installing two boards across the deck, locking clips are recommended to used at the butt joints to ensure proper gaping during expansion and contraction as shown in Diagram 6.

Note: When butt jointing boards, sister joists must be used so that each individual board is on this own joist to ensure that the board will not slide off the joist, failure to do so will void the warranty, as shown in Diagram 6. Also there needs to be a minimum of 5 mm between the sister joists for water to go down between the joists or swelling could occur at the ends.

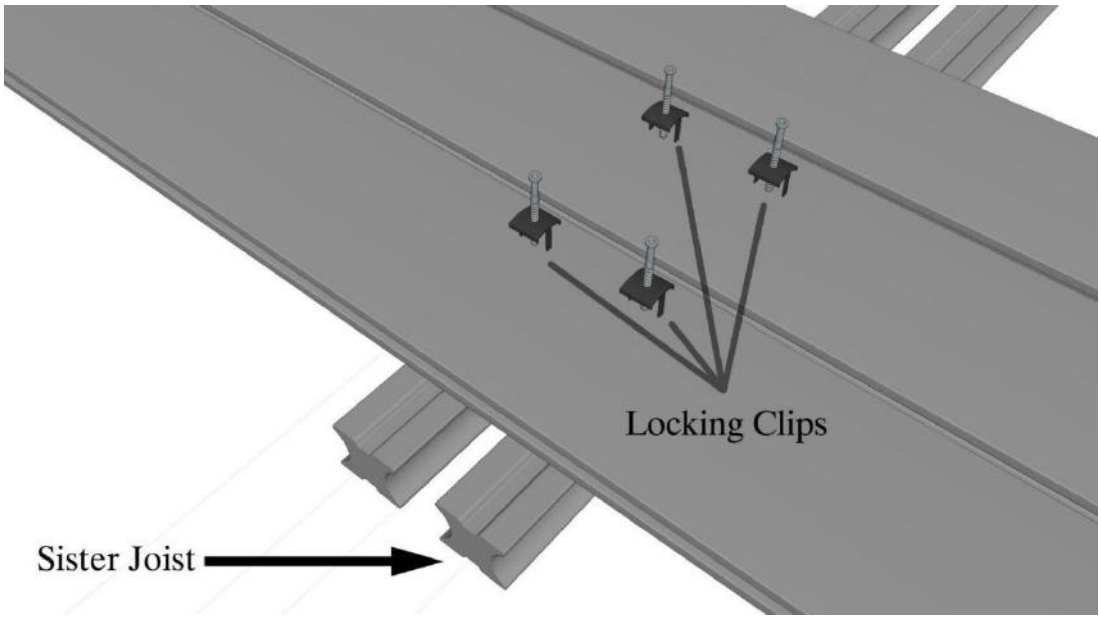


DIAGRAM 6

We recommend where there is a length of more than two boards needed to make the deck, a breaker board should be introduced as shown in Diagram 8.

Breaker Board Installation

Diagram 7 and 8 below show how framework and installation of the breaker board respectively.

Diagram 7 framework uses a ladder joist installation where the user is building a frame perpendicular for the board that will be running down it.

Note: The T-clips can be use as a breaker board clip by cutting it in half as shown in Diagram 9.

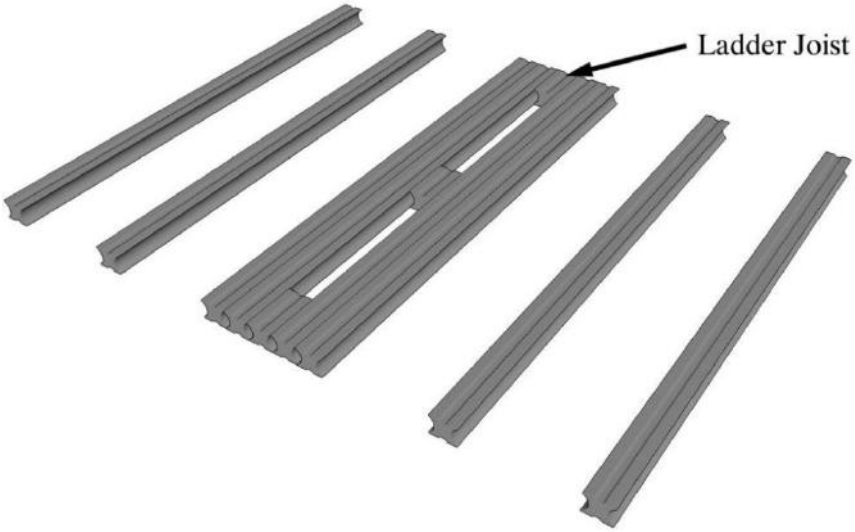


DIAGRAM 7

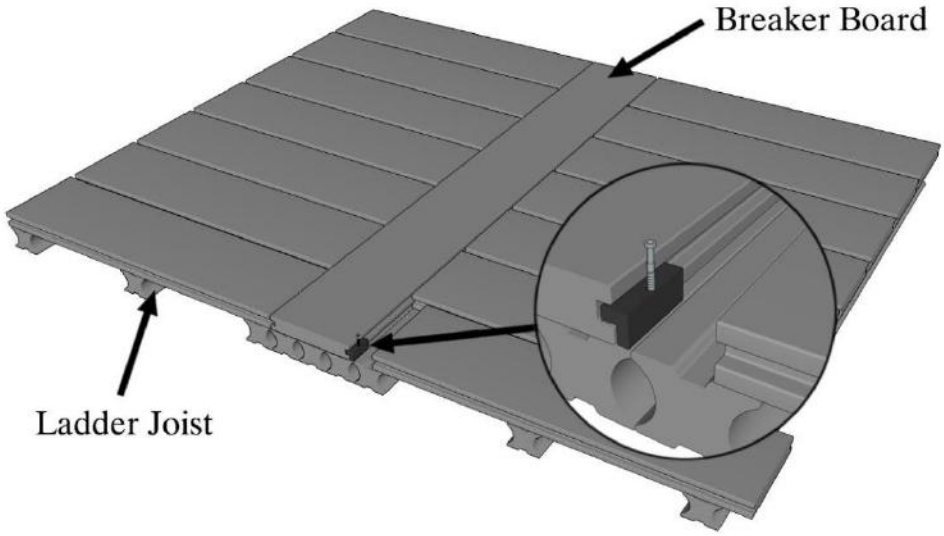


DIAGRAM 8

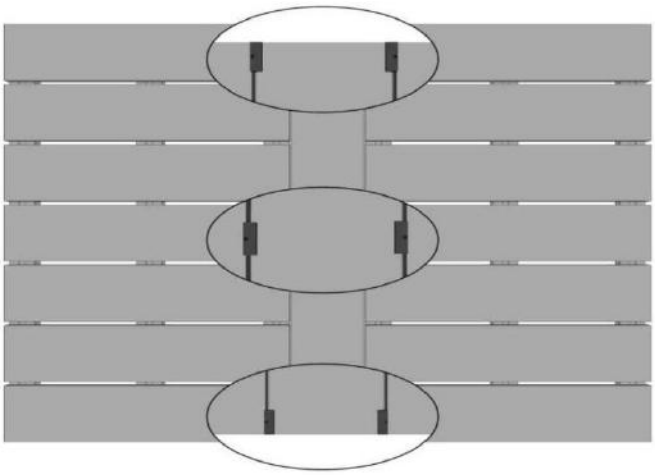


DIAGRAM 9 **Note: Above view of completed breaker board with T-clips cut in half.**

Review Diagram 10 and the table below with the maximum spacing from center to center for stair tread installation.

Stair treads build with Wallong® must meet requirements by the major national building codes. Consult your local municipality for specific requirements.

A minimum of four (4) stringers are required.

Overhand on a stair tread should not exceed more than 15 mm (5/8 inch)

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

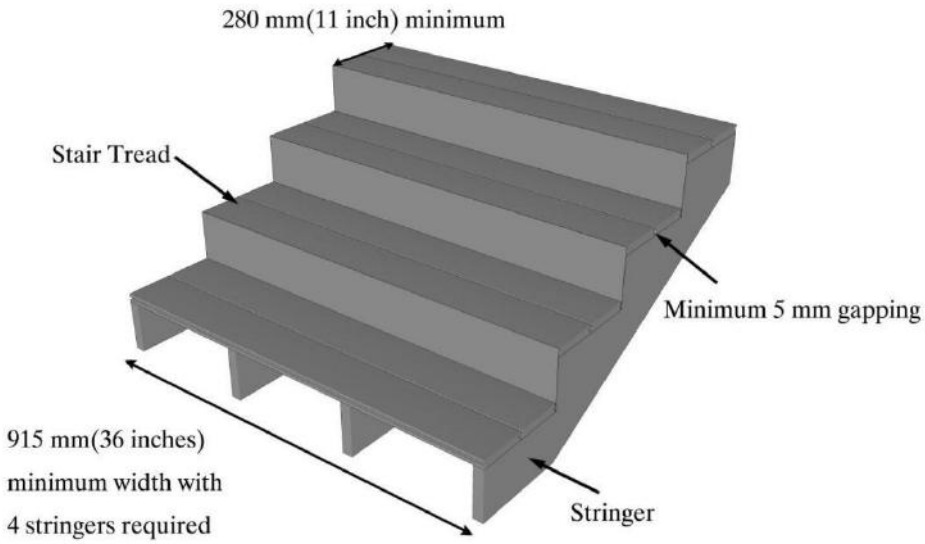


DIAGRAM 10

Maximum Spacing Center-to-Center on Stair Stringer and Bullnose

Profile	Dimension	Spacing
WL-SSDK14022	140 x 22 (5.52 x 0.87 inches)	305 mm (12inches)
WL-SDK14022	140 x 22 (5.52 x 0.87 inches)	305 mm (12inches)

Bullnose Installation

Use the table on the previous page to determine the center to center spacing for the bullnose profile.

A minimum of four (4) stringer are required when installing the bullnose profile.

Starting Accessory Installation:

First, determine how many boards your stair is going to take finish (with clips) and then you can start to measure where the SE starting clip will go. Use a white chalk line (NEVER USE COLORED CHALK) to ensure are lined up on each joist.

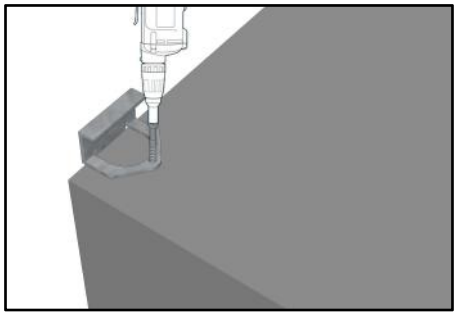


DIAGRAM 11

Bullnose Installation:

1. Now take the bullnose profile and place it right over all the SE starting clips and push down as shown in Diagram 12.

DIAGRAM 12

2. Now take the SE starting clips are inside the underside of the bullnose, the final step is to push forward to ensure that it secured into place as shown in Diagram 13.

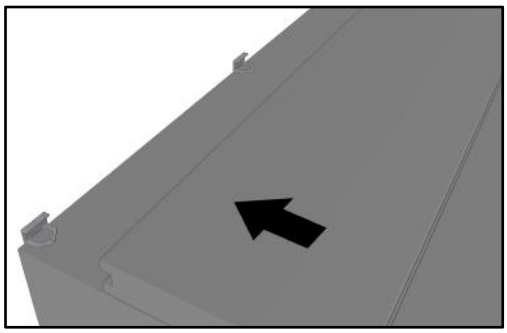


DIAGRAM 13

3. Now take the next board and have it situated behind the bullnose profile as shown in Diagram 14.

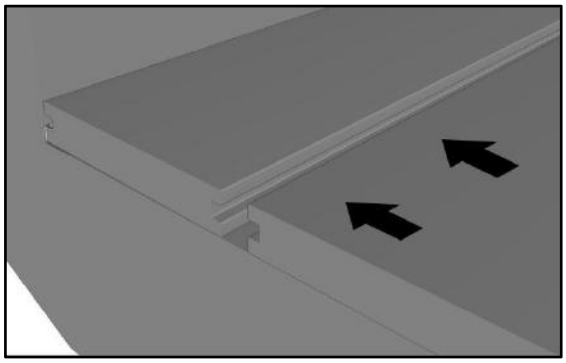


DIAGRAM 14

4. Slide in the clips into the two grooves and glide them along until they are on their respective joists and then screwing down onto the joists as shown in Diagram 15 and 16.

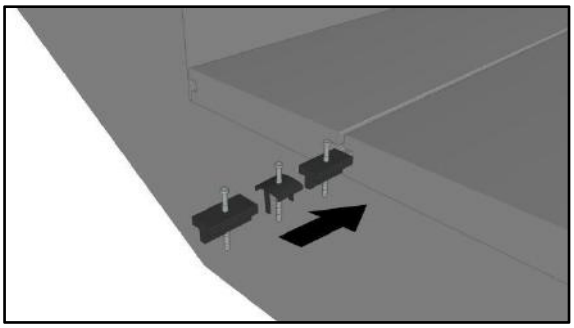


DIAGRAM 15

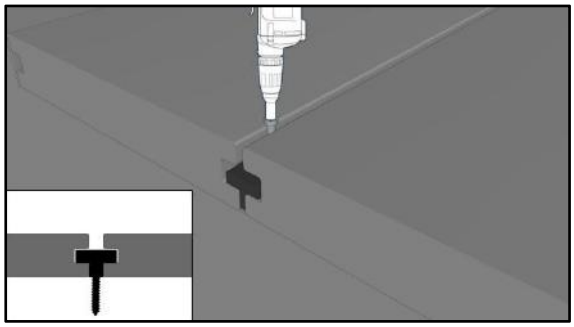


DIAGRAM 16

5. Finally, finish your last board by SE end clips as shown in Diagram 17.

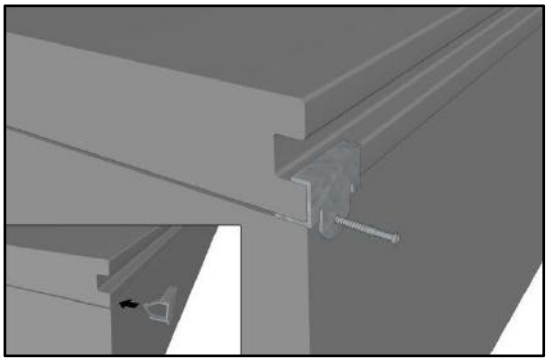


DIAGRAM 17

Diagram 18 below shows a completed staircase from the side to get a better idea of how the final installation will look.

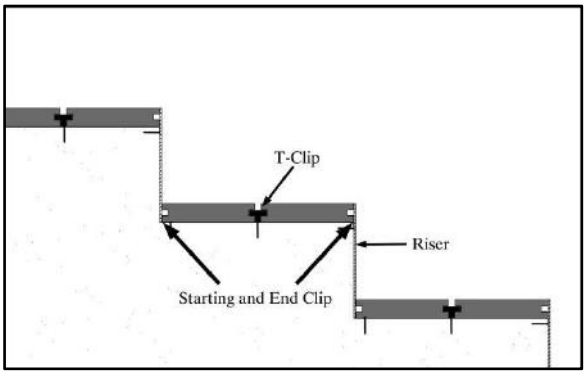


DIAGRAM 18

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 Installation:

1. First, slide the DKT and TL clips into the grooves of the boards with screws facing up as shown in Diagram 21.

2. Pre-drill into the joist, then fix the starting accessory into the joist as shown in Diagram 19.

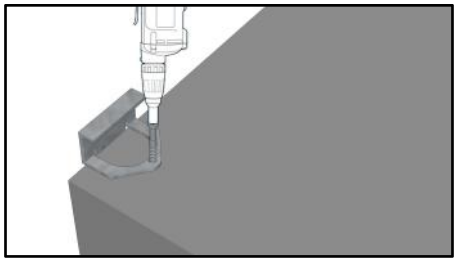


DIAGRAM 19

3. Then, take your first board and push it into the starting accessory as shown in Diagram 20.

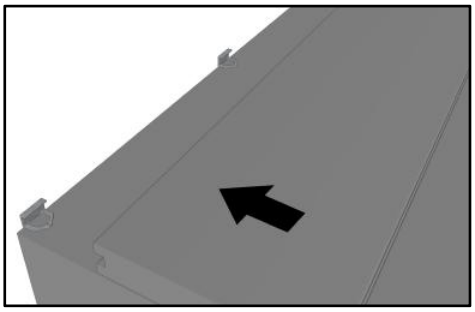


DIAGRAM 20

Wallong® recommends the choice of two (2) different gap spacing between the boards -5.5 mm or the Mni-gap 1 mm spacing.
The DKT Clip system provides a uniform 5.5 mm gap between boards, which is the standard for most decks.

The DKM mini gap clip system with only 1 mm gap is perfect for commercial installations where public safety may be an issue. The smaller gap protects against high heels becoming lodged in the gap, and also prevents leaves or tree nuts from getting stuck between the boards.

Option 1:
DKT and TL Locking Clip Installation

1. After calculating the decking span and making the frame of your deck, the first board is ready to be installed.

Locking Clip (TL) T-Clip (DKT)

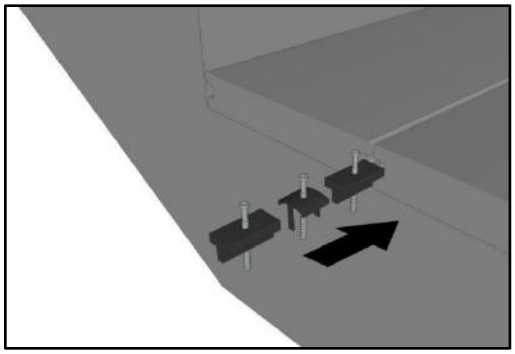


DIAGRAM 21

2. After getting all the DKT and TL clips into position above each respective joist, begin to fasten them from above as shown in Diagram 22 and 23.

Note: The fastest way of installation is by pushing all the boards together and then coming back and sliding the clips into the grooves from the side and then fixing from above.

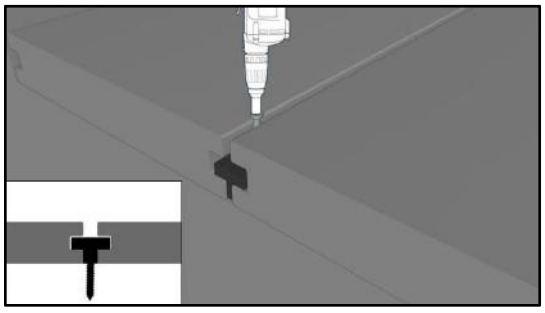


DIAGRAM 22

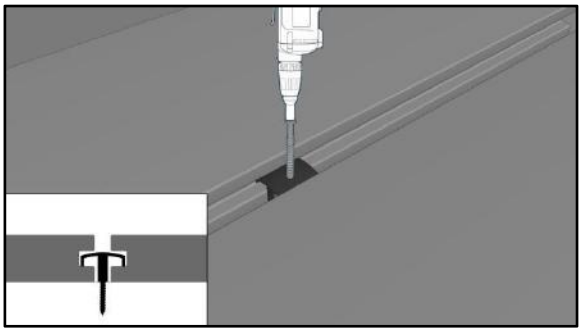


DIAGRAM 23

3. Repeat step 1-2 until the deck is complete.

4. The final installed clips should look like Diagram 24.

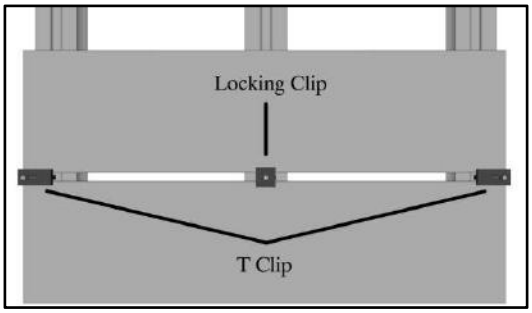


DIAGRAM 24

Note: The locking clips is in the middle of Diagram 23 to show the expansion and contraction is happening in both directions. For more information on how to install the locking clips and their placement, check Page 8 of this installation guide.

Option 2:
DKM Mini Gap Clip Installation

Note: The following show how to install the mini gap clip system. A starting accessory SE still needs to be used to install the first board.

1. First, slide the DKM and ML clips into the grooves of the boards as shown in Diagram 25.

DKM

Locking Clip (ML)

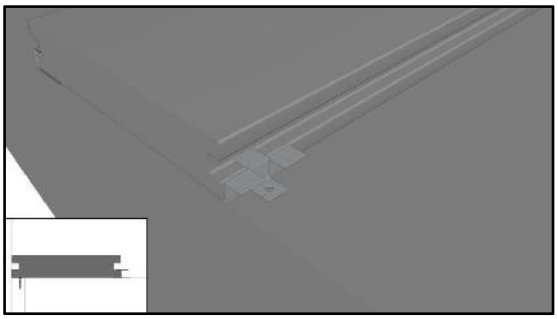


DIAGRAM 25

2. Place a screw in the outside hold of the DKM and ML as shown in Diagram 26.

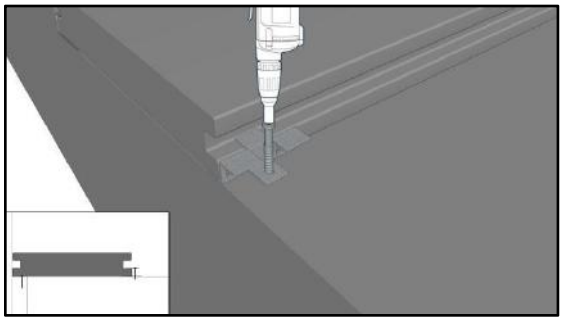


DIAGRAM 26

3. Next, fix the screw down into the joist as shown in Diagram 27.

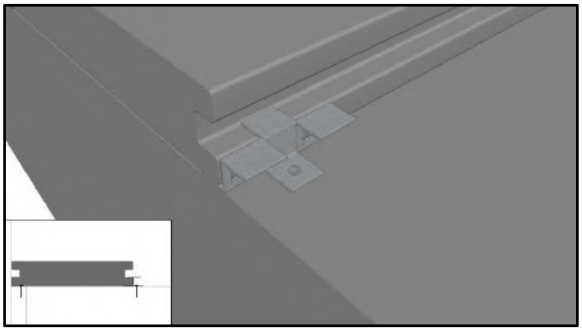


DIAGRAM 27

4. After fixing all clips, push the next board into the clips as shown in Diagram 28 and 29.

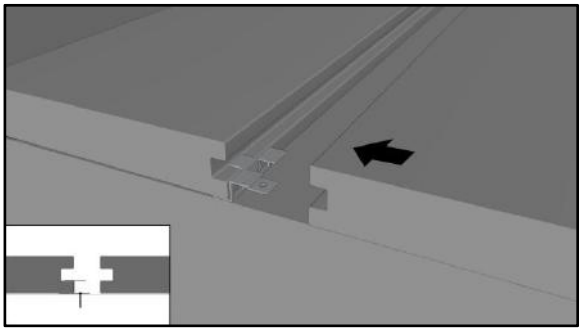


DIAGRAM 28

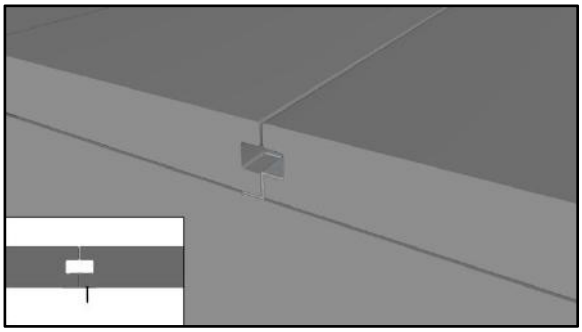


DIAGRAM 29

5. Repeat steps 1-4 until complete.

6. The final look should be like the below Diagram 29.

Note: The locking clip is in the middle of Diagram 30 to show the expansion and contraction is happening in both directions. For more information on how to install the locking clips and their placement, check page 8 of this installation guide.

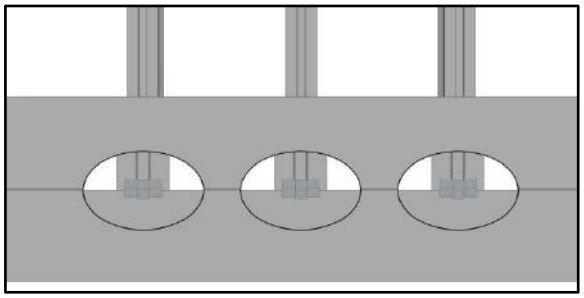


DIAGRAM 30

Ending tarting Accessory Installation:
DKT and DKM hidden fasteners are part of a deck fastening system designed specially for grooved last deck boards as shown in Diagram 31.

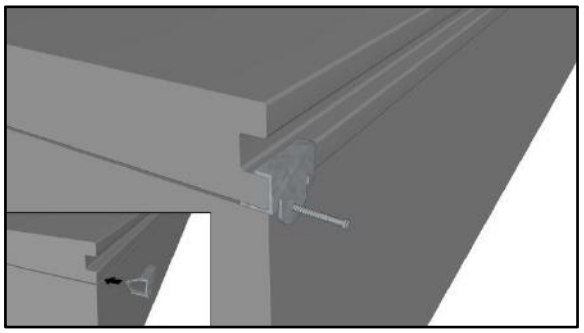


DIAGRAM 31

These fasteners provide a fast and simple way to create a smooth deck surface, uninterpreted by visible screws or nails.

Fascia Board Installation
Installing against the width and length of decking

1. Fascia boards with a thickness of less than or equal to 10 mm need to be installed on 300 mm on centers to prevent warping or buckling. Fascia boards with a thickness greater than 10 mm can be installed on 400 mm on centers. All fascias need to use two screw 1" 1/2 (38.1 mm) away from the ends as shown in Diagram 32 regardless of the thickness.

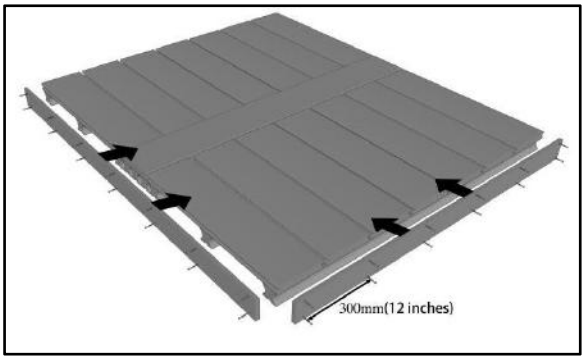


DIAGRAM 32

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 show in Diagram 33. 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 33.

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

2. The first finish should look like Diagram 34 below.

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

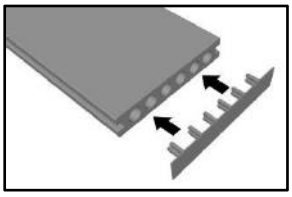


DIAGRAM 33

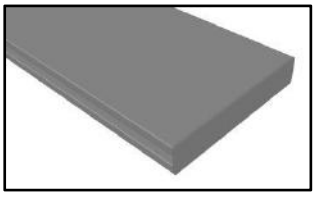


DIAGRAM 34