

IMPORTANT:

## Read All Sections Before You Start

For the most up to date information, please visit our website @ [www.forestaroutdoor.com](http://www.forestaroutdoor.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 are not meant or implied to replace a licensed professional. Any construction or use of Forestar 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. Forestar recommends but is not limited to the following safety equipment when handling, cutting, and installing Forestar: 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 Forestar's products correctly. Please check with local building codes before ever installing any type of decking. If installation does not occur immediately, Forestar'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.

Pressure wash on a sample piece of material to make sure that it does not damage coating before using it on the actual installation.

### Construction

Forestar is NOT intended for use as columns, support posts, beams, joist stringers, support against a force, or other primary load-bearing members. Forestar must be supported by a code-compliant substructure. While Forestar products are great for retrofits, Forestar'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 Staticide on your deck or use anti-static mats before doorways. Forestar's products have been tested against EN 1815 - Assessment of Static Electrical Propensity and have received values under the maximum standard of 2kV.

## Ventilation

Forestar 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 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 4 inches, 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 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 Forestar 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 Forestar 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 Forestar products to melt, sag, warp, discolor, increase expansion/contraction, and accelerate weathering.

Current or potential Forestar 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 Forestar's products, all screws that are face fastened should always be driven in at a 90 degree angle to the decking surface. Toe 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.

Please Note: Face screwing with any kind of screw, will void the material warranty on )Hollow board Series of Decking.

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 COLORED CHALK. Colored chalk will permanently stain Forestar's products and are highly not recommended.

All screws that are face fixed should always be stainless steel. When face screwing, always go in at least from the ends and width of the board by 1"1/2 as shown in Diagram 3.

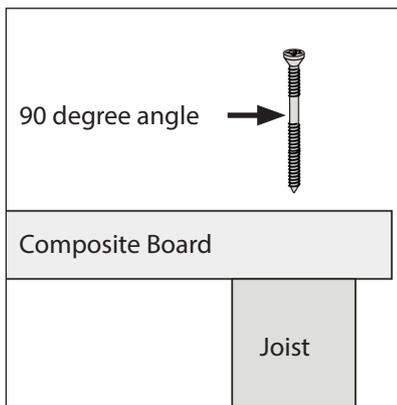


DIAGRAM 1

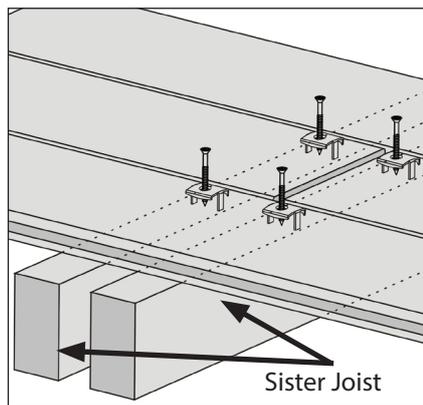


DIAGRAM 2

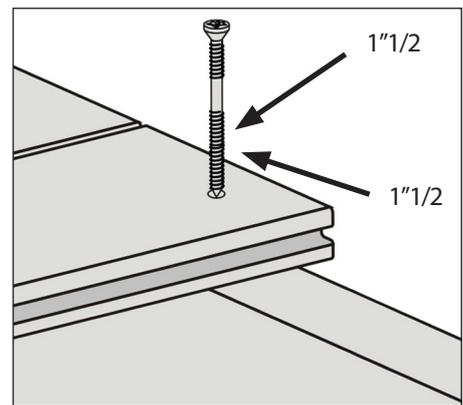


DIAGRAM 3

## 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 centers and hardware stores to see if they have screws that are engineered specifically for composite wood. These screws will always work and give Forestar's products the best looking outcome, using other screws that are not recommended for composite could potentially damage/harm the decking. If you are unsure which screw 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 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.

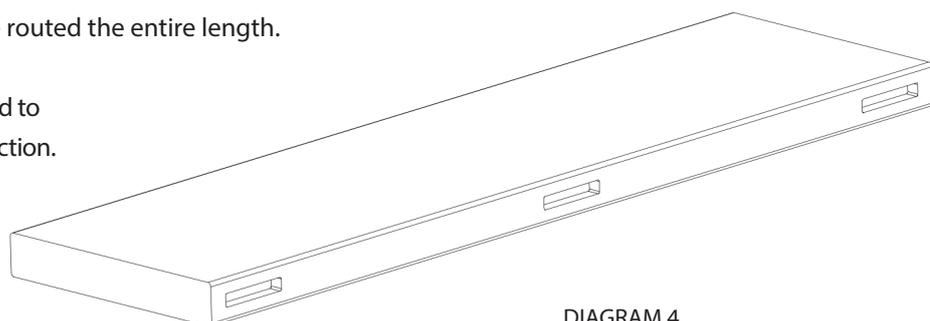
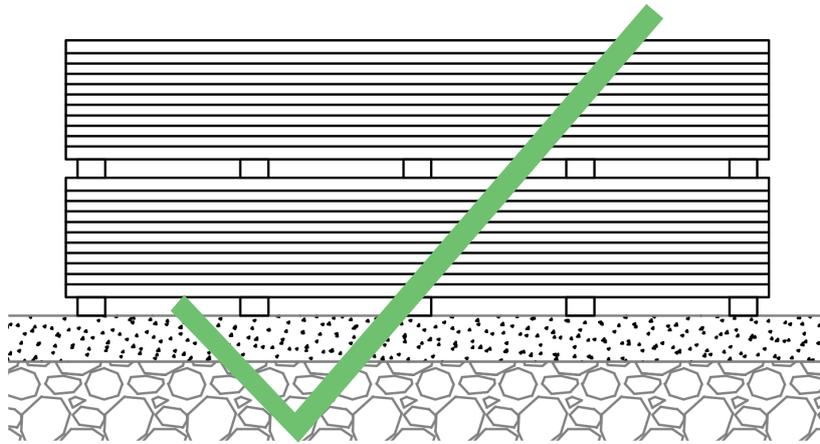


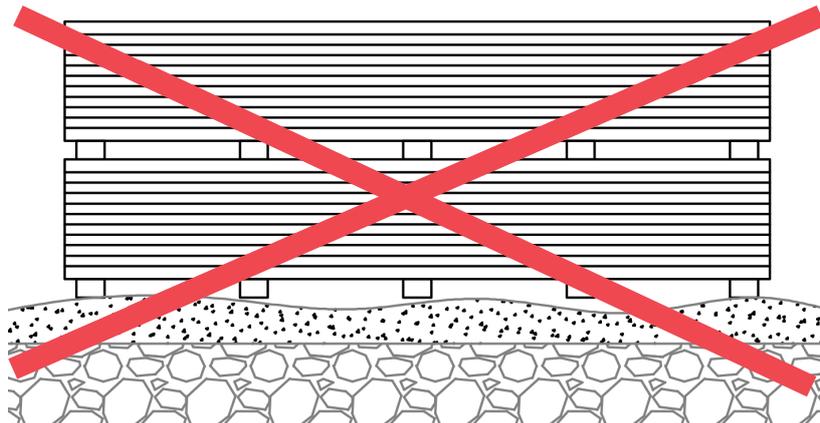
DIAGRAM 4

## Storage

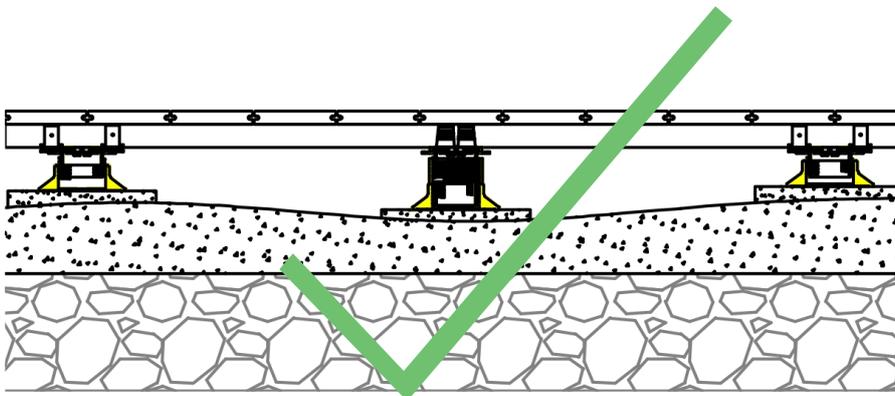
Forestar's products always need to be stored on flat solid surfaces. Surfaces such as dirt and grass are not sufficient as they can move over time.



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



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



Forestar 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 Forestar's products.

### Maximum Decking Spans on Center-to-Center

Region	Profile	Dimensions	Residential Span	Commercial Span
North America South America	Solid Board	5.5 x 0.9 inches	16 inches	12 inches
South Africa Europe	Grooved Solid Board	5.5 x 0.9 inches	16 inches	12 inches
South Korea	Grooved Circle Hollow Board	5.5 x 0.9 inches	16 inches	12 inches

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

Degree of Angle	Dimensions	Spacing
90	5.5 x 0.9 inches	Refer to the above tables
60	5.5 x 0.9 inches	2 inches less than the stated above tables
45	5.5 x 0.9 inches	4 inches less than the stated above tables
30	5.5 x 0.9 inches	1/2 the distance stated in the above tables

### Maximum Decking Spans on Center-to-Center

Region	Profile	Dimensions	Residential Span	Commercial Span
Middle East Asia (excluding South Korea)	Solid Board	5.5 x 0.9 inches	16 inches	12 inches
	US53 Grooved Solid Board	5.5 x 0.9 inches	16 inches	12 inches
	Grooved Circle Hollow Board	5.5 x 0.9 inches	14 inches	10 inches

## Expansion and Contraction Values

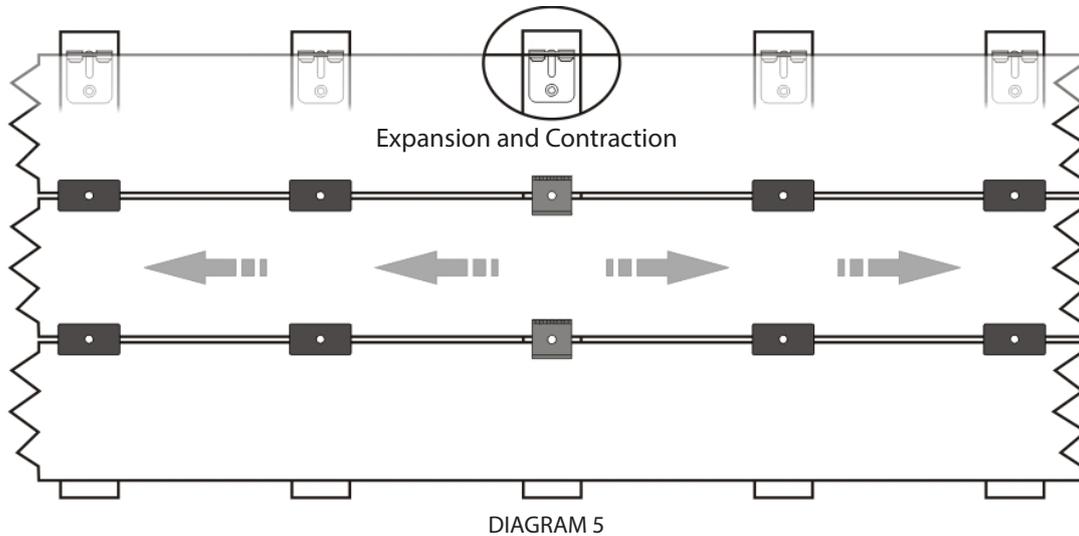
Forestar deck boards will experience expansion and contraction with changes in temperature. Expansion and contraction are most significant where extreme temperature changes occur. Fastening the deck planks according to the gapping requirements noted in the following table accommodates for this movement.

		Length (Feet)									
		3	8	9	10	12	13	13	16	18	
Installation Temperature (Farhenheit)	32	1/16	1/8	1/8	3/16	3/16	3/16	1/4	1/4	5/16	Gap (in)
	41	1/16	1/8	1/8	1/8	3/16	3/16	3/16	1/4	1/4	
	50	1/16	1/8	1/8	1/8	1/8	1/8	3/16	3/16	3/16	
	59	1/16	1/16	1/16	1/8	1/8	1/8	1/8	1/8	3/16	
	68	3/64	1/16	1/16	1/16	1/16	1/16	1/8	1/8	1/8	
	77	3/64	1/16	1/16	1/16	1/16	1/16	1/16	1/16	1/16	
	86	3/64	3/64	3/64	3/64	3/64	1/16	1/16	1/16	1/16	

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.

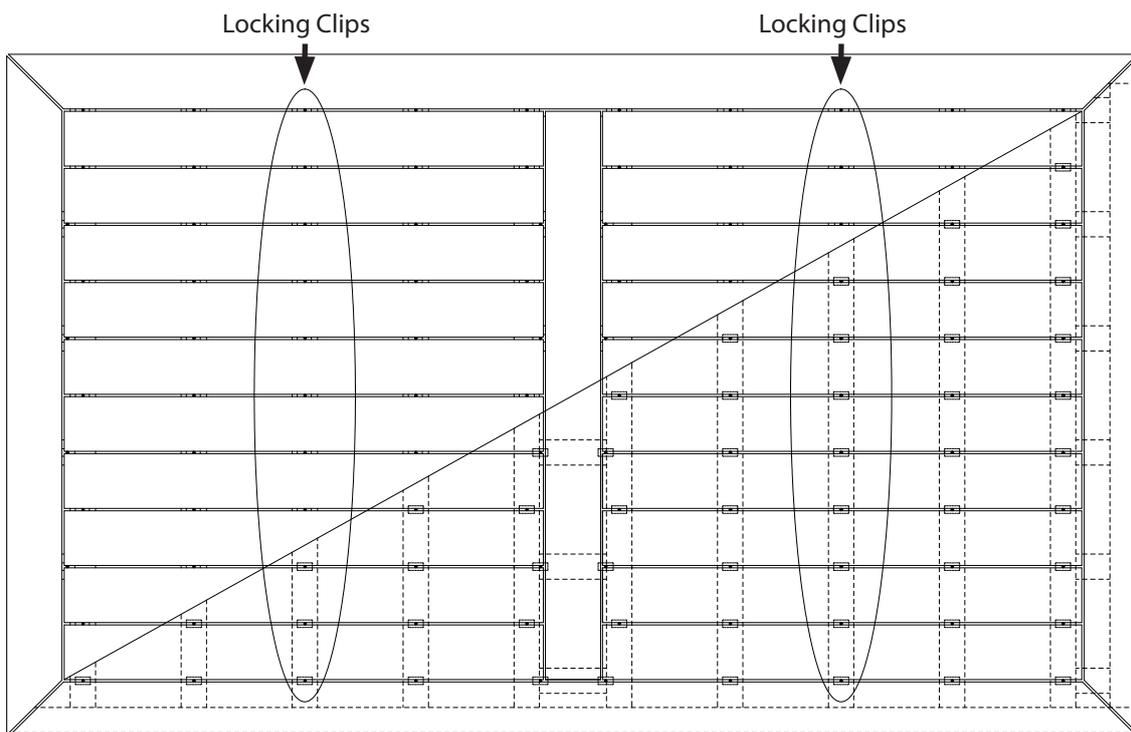
## Locking Clip Installation

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 as shown in Diagram 5.



The below shows the recommended installation methods using breakers boards and picture framing the decking. Locking clips should be placed as close as possible to the middle joist of each board as shown in Diagram 6A and Diagram 6B.

If you plan to install without breaker boards or picture framing in a brick style fashion it is recommended that you contact your local distributor or the manufacturer for further instructions. Installing with a brick style could potentially give large gaps between butt ends due to the products expansion and contraction rates. It could also make the ends of the deck flare or swell if water is not properly drained on the joist specifically at a butt end where sister joists with a gap should be used.



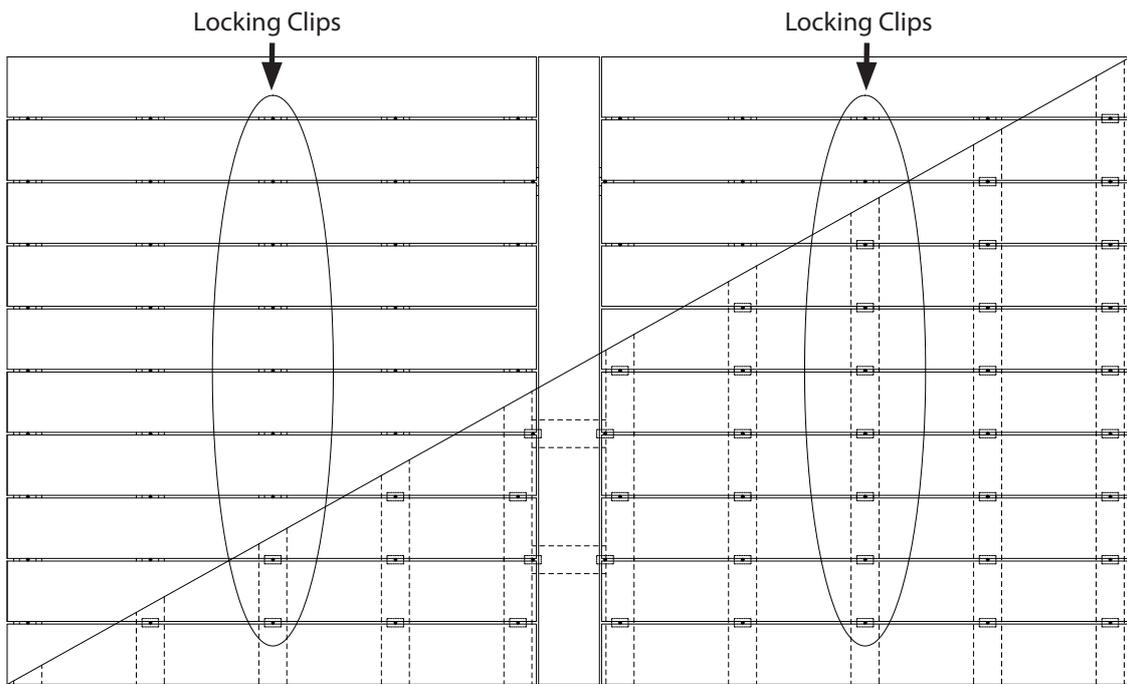


DIAGRAM 6B

## 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-Clip can be used as a breaker board clip by cutting it as shown in Diagram 9.

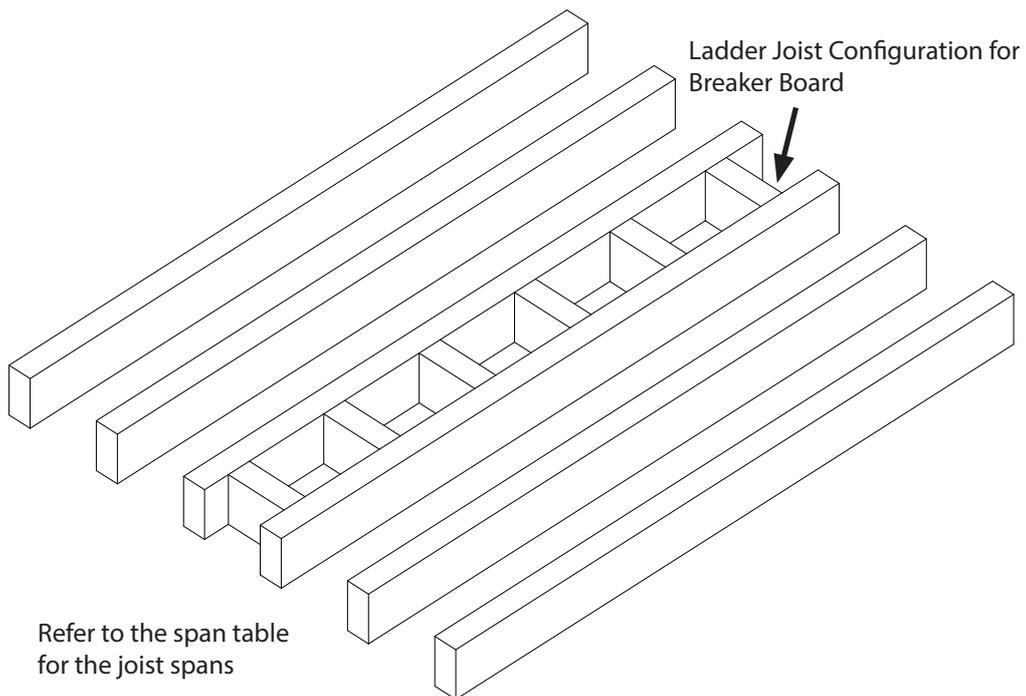
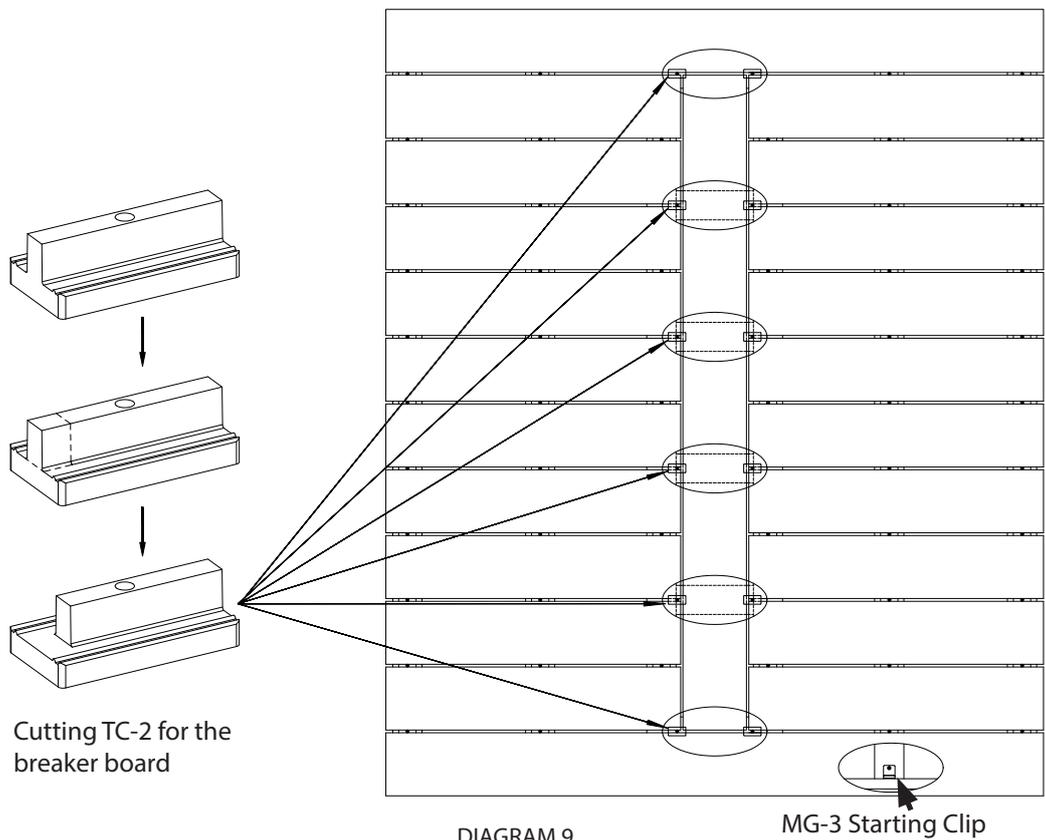
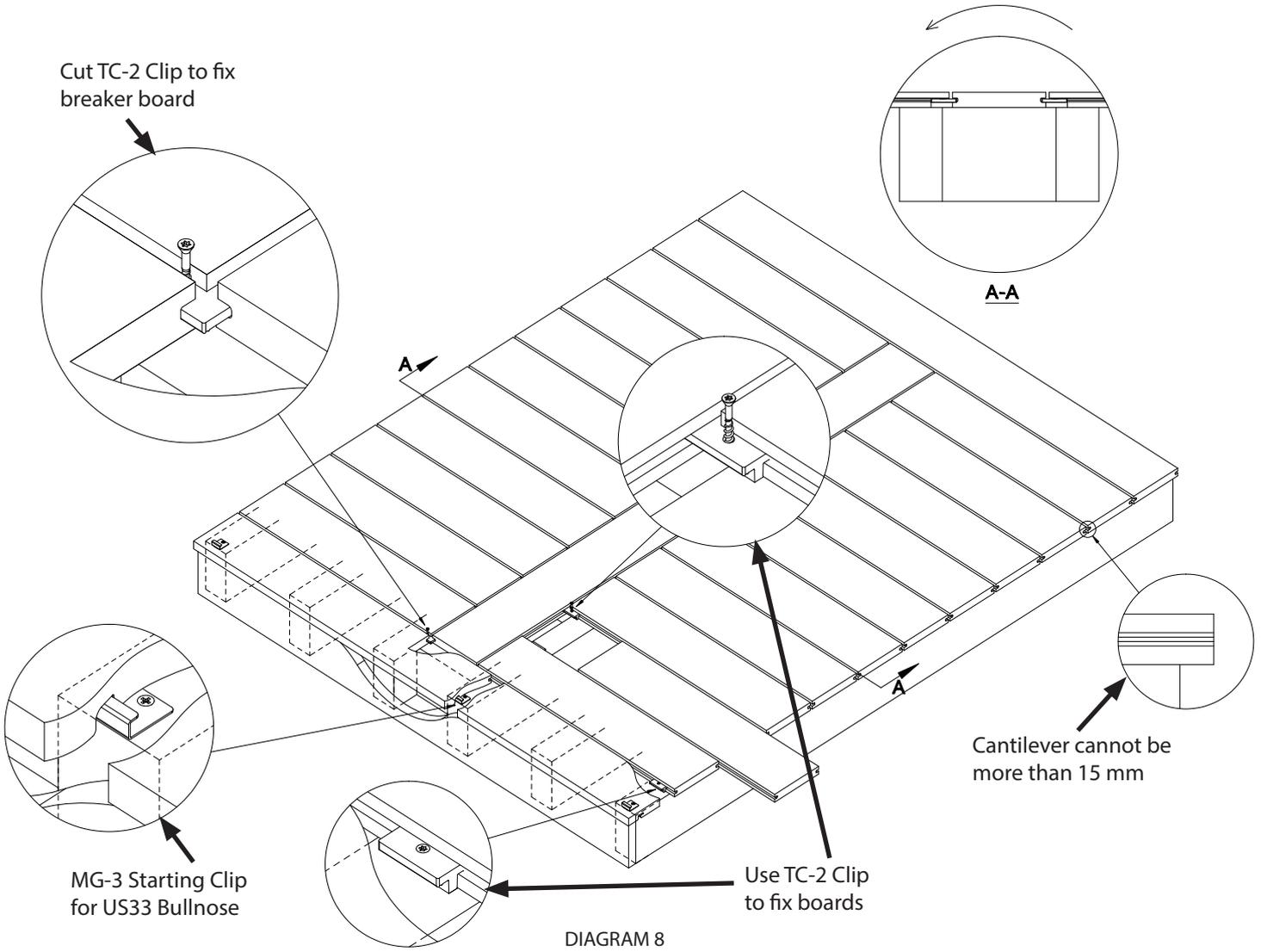


DIAGRAM 7



# Stair Tread Installation

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

Stair treads built with Forestar 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 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 warranted.

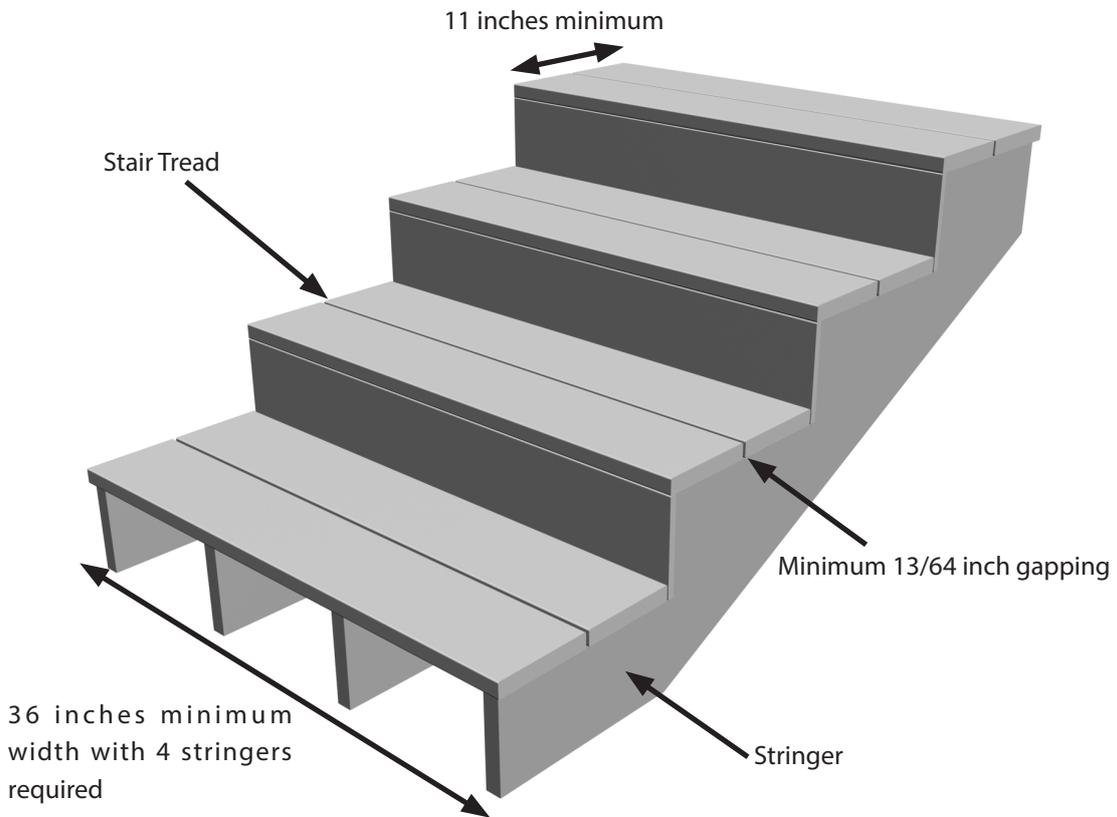


DIAGRAM 10

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

Profile	Dimensions	Spacing
Solid Board	5.5 x 0.9 inches	12 inches
Solid with Grooves	5.5 x 0.9 inches	12 inches
Bullnose	5.5 x 0.9 inches	12 inches

### Step 1: Starting Accessory Installation

First, use the table on the previous page to determine the center to center spacing for the bullnose profile. Then determine how many boards your stair is going to take to finish (with clips) and then you can start to measure where the TC-5/MG-3 (SC-25) starting clip will go. Use a white chalk line (NEVER USE COLORED CHALK) to ensure that all TC-5/MG-3 (SC-25) starting clips are lined up on each joist.

Note: The bullnose profile can only cantilever 5/8 inch. If the bullnose profile cantilevers more than this, the warranty will be voided.

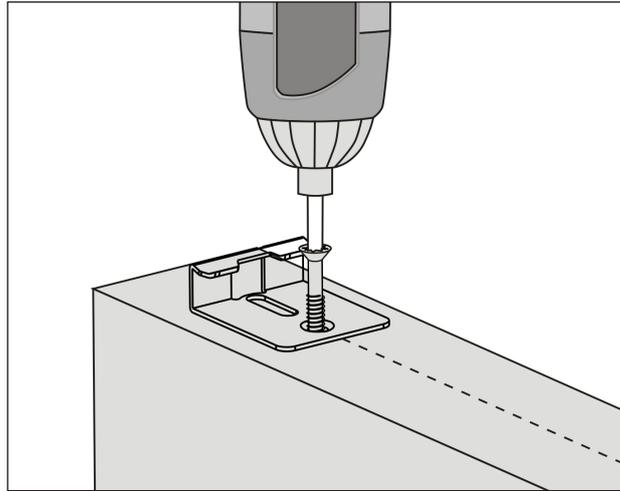


DIAGRAM 11

### Step 2: Bullnose Installation

- 1 Now take the bullnose profile and place it right over all the TC-5/MG-3 (SC-25) starting clips and push down as show in Diagram 12.

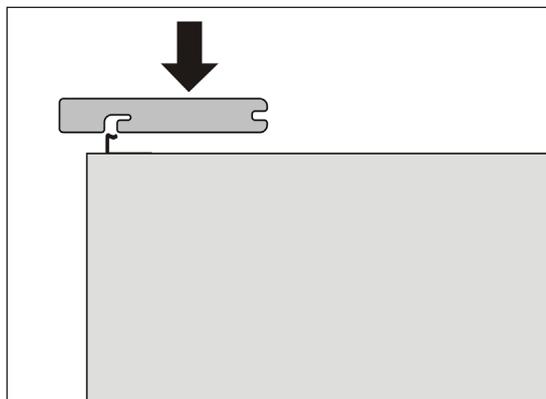


DIAGRAM 12

- 2 Now that the TC-5/MG-3 (SC-25) starting clips are inside the underside of the bullnose, the final step is to push forward to ensure that it is secured into place as shown in Diagram 13.

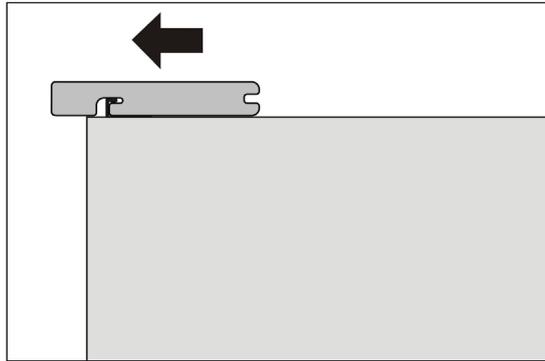


DIAGRAM 13

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

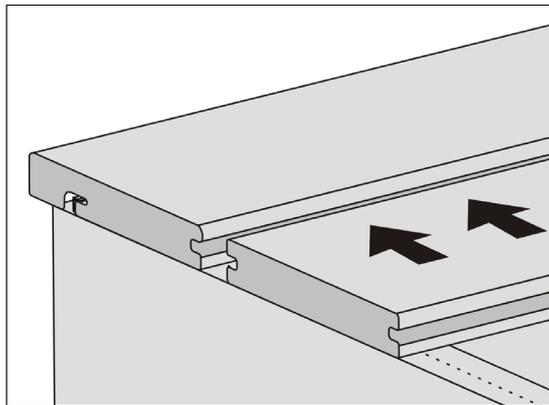


DIAGRAM 14

- 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.

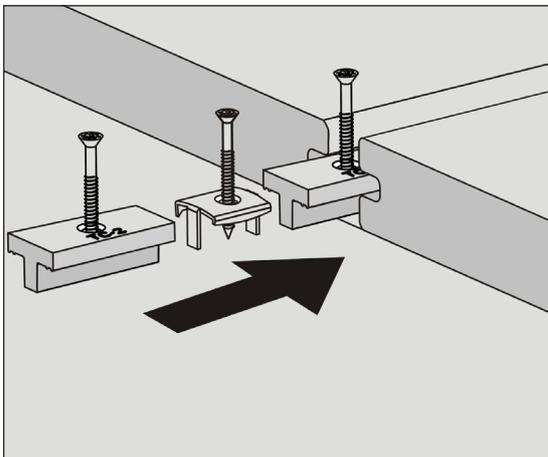


DIAGRAM 15

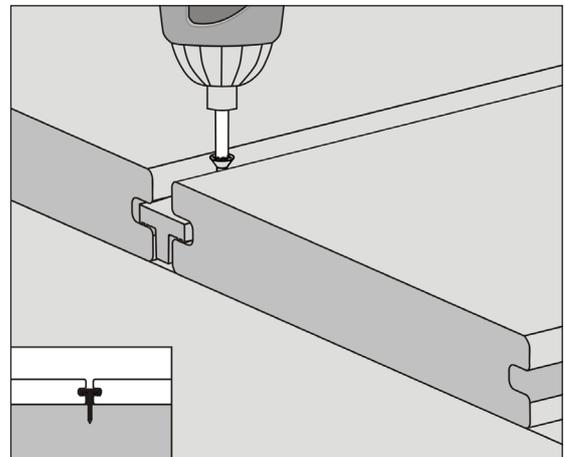


DIAGRAM 16

- 5 Finally, finish your last board by face fixing into the board at every joist as shown in Diagram 17.

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 1" 1/2 by 1" 1/2 from the ends and the width of the board.

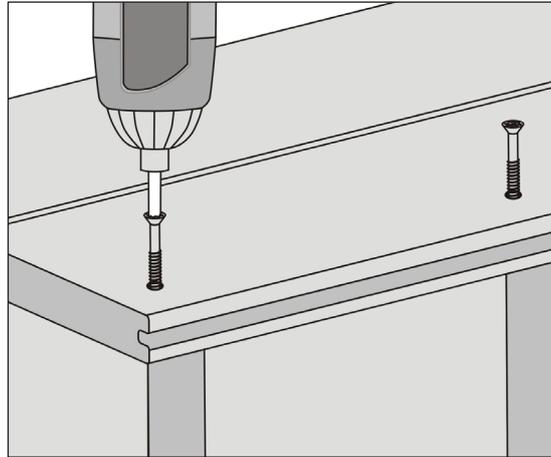


DIAGRAM 17

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

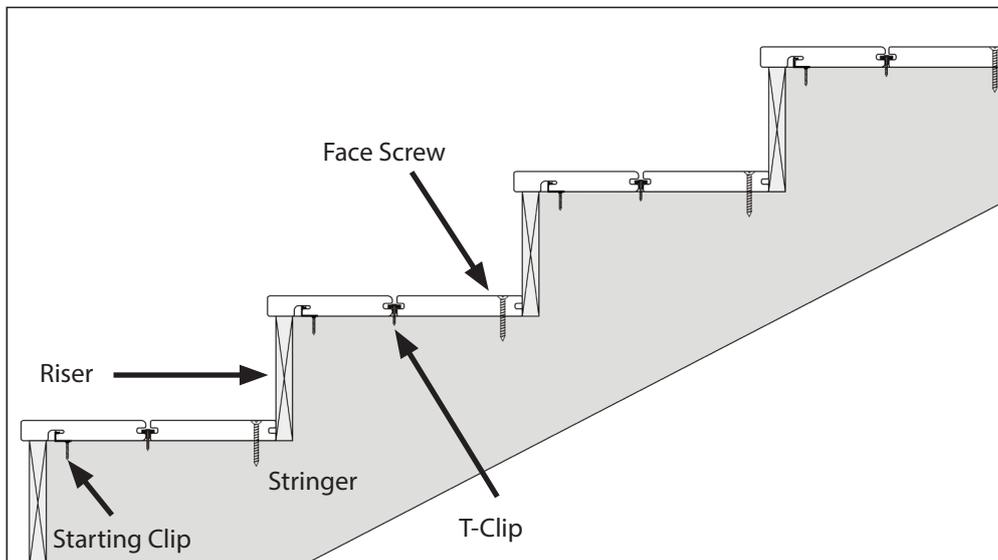


DIAGRAM 18

# Decking Installation

## Step 1: 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 6-7 of this installation guide to see what spacing is required for your profile.

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.

## Step 2: Starting Accessory Installation

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

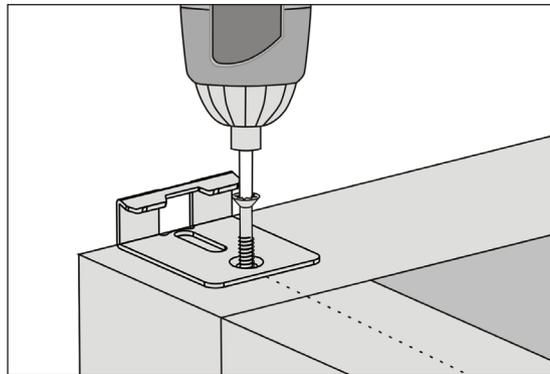


DIAGRAM 19

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

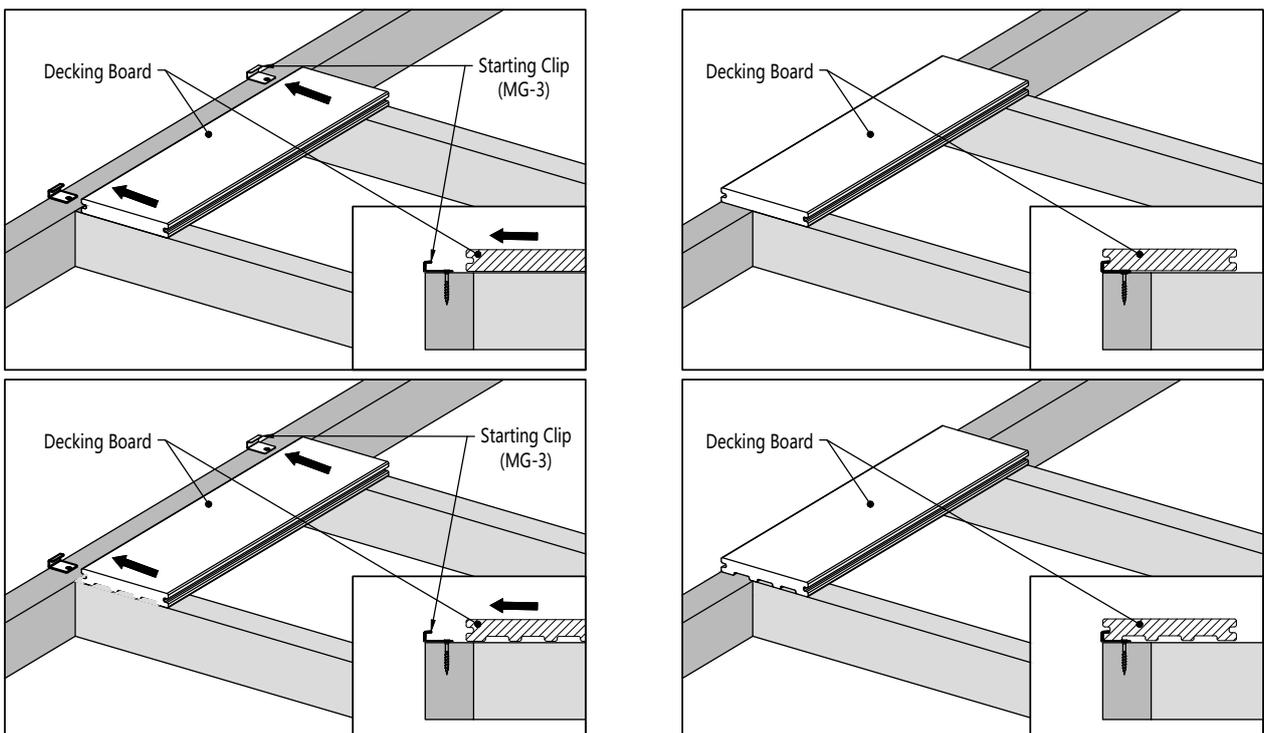
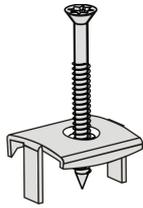


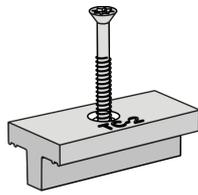
DIAGRAM 20

### Step 3: Secure the decking boards with Locking Clip (TC-1) and T-Clip (TC-2)

- 1 First, slide the TC-1 and TC-2 clips into the grooves of the boards with screws facing up as shown in Diagram 21.



Locking Clip (TC-1)



T-Clip (TC-2)

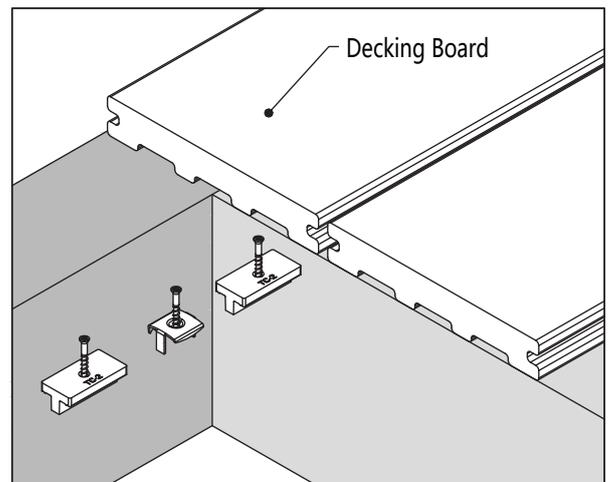
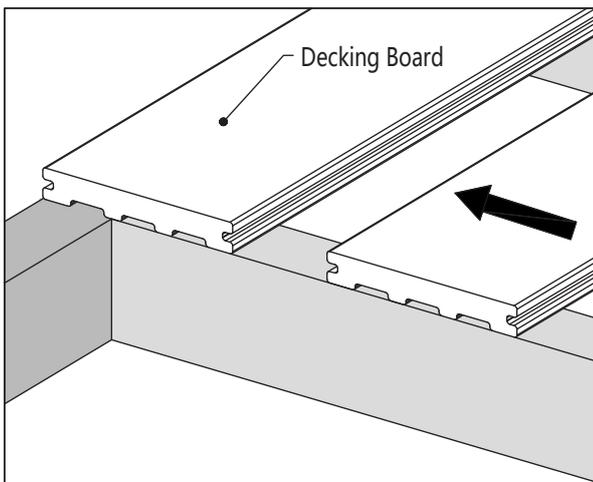
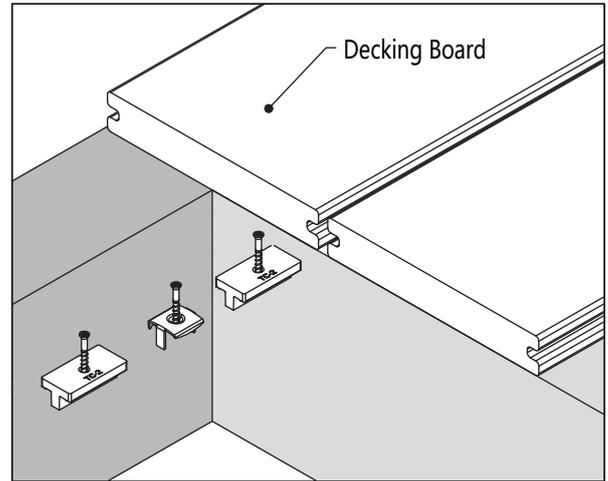
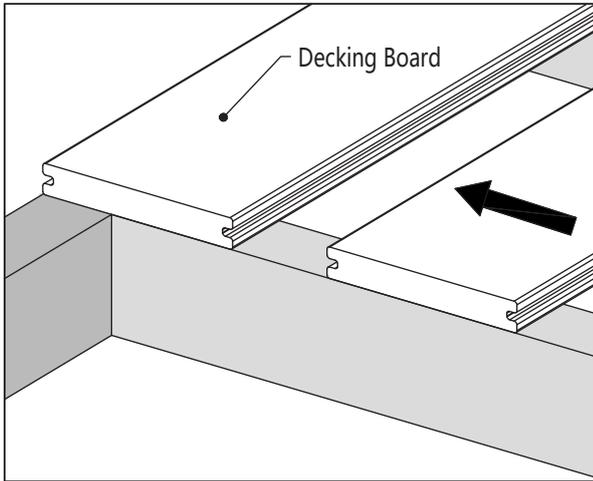
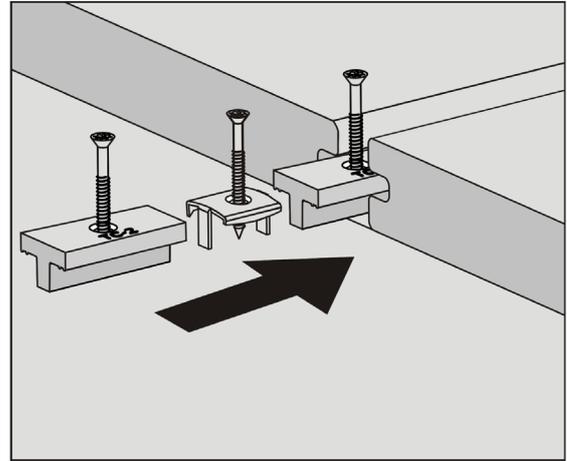


DIAGRAM 21

- 2 After getting all the TC-1 and TC-2 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.

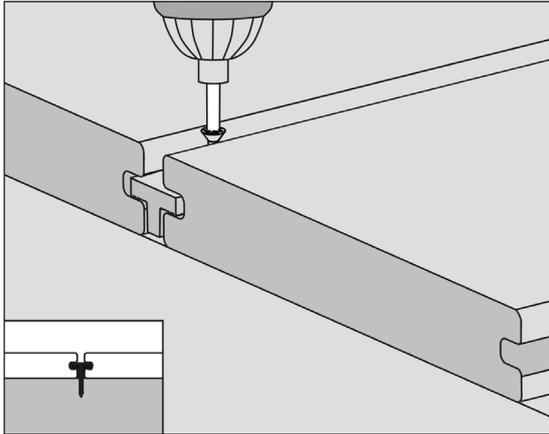


DIAGRAM 22

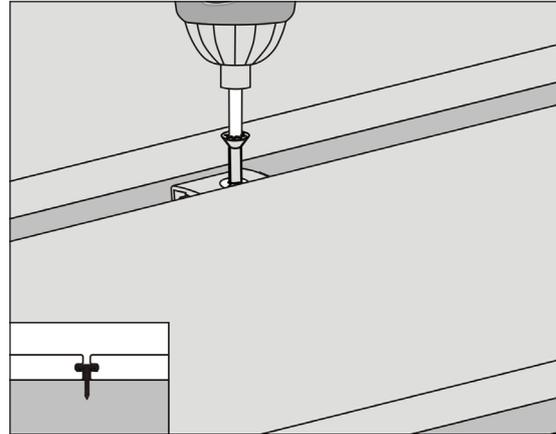


DIAGRAM 23

- 3 Repeat steps 1-2 until the deck is complete.
- 4 The final installed clips should look like Diagram 24.

Note:

The locking clip is in the middle of Diagram 24 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 8-9 of this installation guide.

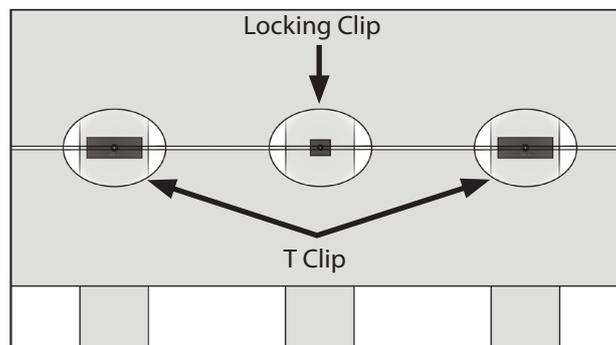


DIAGRAM 24

# Fascia Board Installation

Installing against the width and length of decking

- 1 Fascia boards with a thickness of less than or equal to 25/64 inch need to be installed on 12 inches on centers to prevent warping or buckling. Fascia boards with a thickness greater than 10 mm can be installed on 16 inches on centers. All fascias need to use two screws 1" 1/2 away from the ends as shown in Diagram 31 regardless of the thickness.

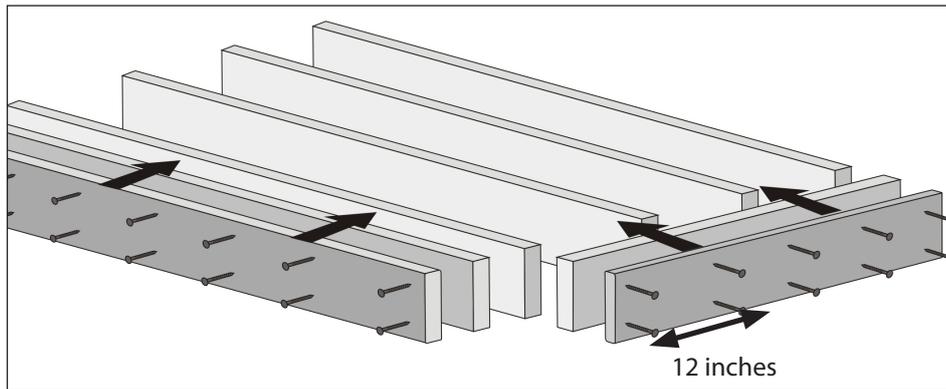


DIAGRAM 31

- 2 First, pre-drill the holes for the fascia board with Tool. Tool must be used in order to ensure the correct finish for the fascia boards. The fascia boards must then be fixed using our composite fascia color head screws which are #9 1-7/8".
- 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 32.

Note:

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

- 2 The final finish should look like Diagram 33 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.

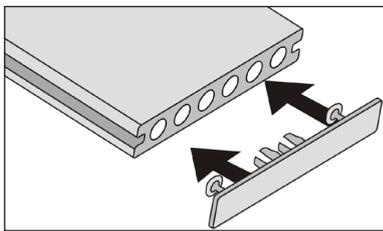


DIAGRAM 32

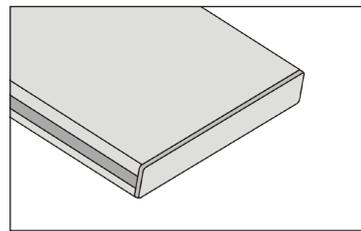


DIAGRAM 33

# Removing a Board

- 1 Start by unfastening all the clips from the joist on both sides of the board as shown below in Diagram 34.

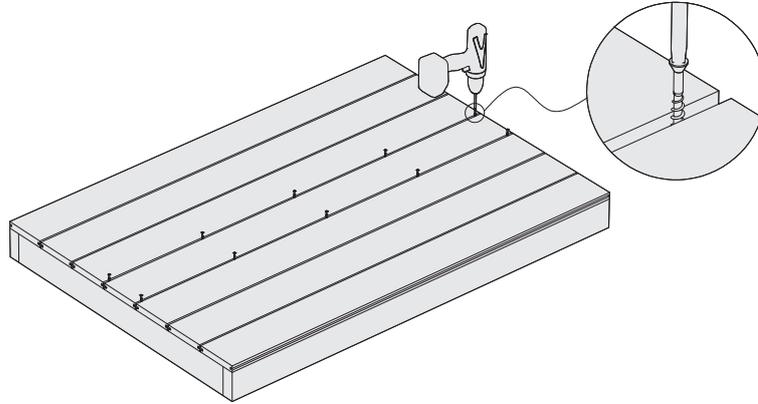


DIAGRAM 34

- 2 Next slide all clips out of the board as shown below in Diagram 35.

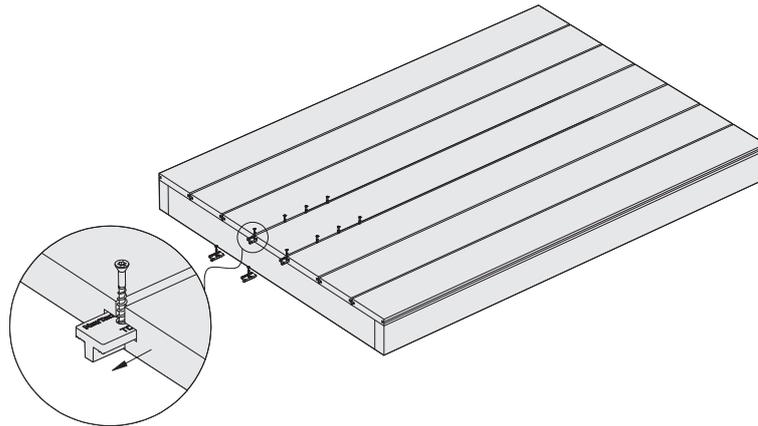


DIAGRAM 35

- 3 Next slide out the board as shown below in Diagram 36.

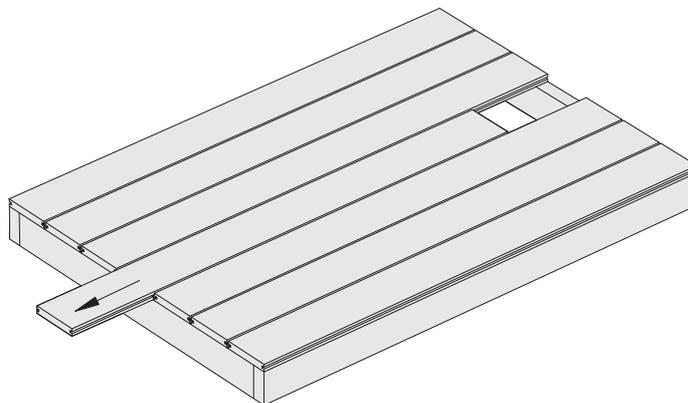


DIAGRAM 36

- 4 After the board is removed the new board can be inserted as shown below in Diagram 37 and 38.

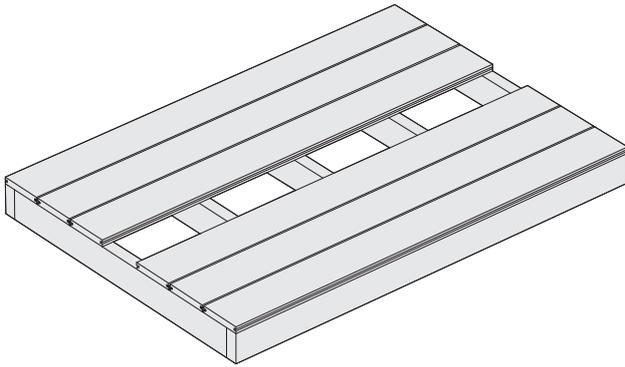


DIAGRAM 37

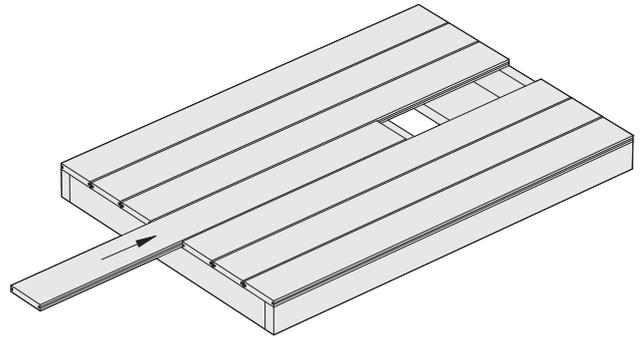


DIAGRAM 38

- 5 After the new board is in position insert the clips through the groove and into the correct position as shown in Diagram 39.

The clips should then be installed as shown in Diagram 40.

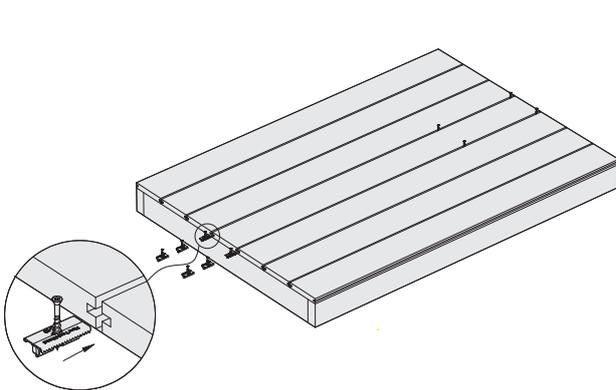


DIAGRAM 39

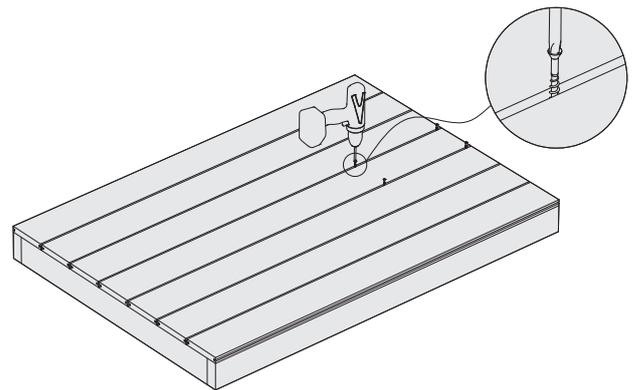


DIAGRAM 40