

REVOLVE® ENGINEERED-COMPOSITE DECK BOARD

# INSTALLATION GUIDE

WEATHERED CEDAR



CALIFORNIA REDWOOD



COASTAL DRIFTWOOD



Congratulations! You've chosen the authentic appeal of REVOLVE® engineered-composite deck board. Using these instructions will help ensure a proper and painless installation.

When it comes to an attractive product and low maintenance solution, you no longer have to compromise. REVOLVE boasts a truly wood-like matte finish and nearly timeless durability for the greatest long-term value.

Before starting any construction project, please be sure to obtain a building permit, if one is required in your area. Also, be sure to use all proper safety equipment and ensure that all tools have their guards and safety devices in position. Plan and think through the entire process and familiarize yourself with the materials.

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# General Guidelines / Product Information

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## COMPOSITION

REVOLVE engineered-composite deck board is a co-extruded product. The outer layer is a blend of virgin high density polyethylene (HDPE), colorant with UV inhibitors. The inner core material is comprised of a proprietary blend of recycled pre-consumer/post-consumer HDPE and non-organic encapsulated resins to help make the board rigid.

Unlike wood-plastic composite (WPC), REVOLVE contains no wood fillers to rot, peel, weather or blister and is 100% recyclable. However, it may not be currently accepted by many municipal recycling centers and curbside programs. Please contact us at **1-800-666-5207** for recycling options.

\*Our REVOLVE material is a PVC-free formula with no known harsh chemicals to leech into the environment.

Ultra-Violet (UV) stabilized colorants are added during the manufacturing process. The UV stabilization ensures a long lasting, fade resistant product requiring no staining, painting or sealing of any kind.

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## PROFILE, COLOR & SURFACE FINISH

Revolve comes in three matte wood-like finishes: Weathered Cedar, California Redwood, and Coastal Driftwood. Standard decking profiles feature a wood grain finish on one side for a more natural look.

For a classic style with low maintenance, REVOLVE is your solution.

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## STORAGE AND HANDLING

Keep REVOLVE engineered-composite lumber in good shape with proper storage and handling:

1. Do not dump when unloading.
  2. Keep the product lying flat and straight at all times, as the product will take the shape of anything it is laying on or against.
  3. Cut and remove all banding materials and wrappings and, optimally, lay the decking materials loosely and flat on the joisting materials to allow the product to acclimate to the site for 48 hours before installation.
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## DECKING OPTIONS



### SQUARE EDGE

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Square edge boards create traditional, gapped-board installations. They can be installed with the screw-down method.



### GROOVE & GROOVE

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Groove and groove boards mimic the look of traditional gapped decking but float on deck clips for added stability without a visible fastener.



### CUSTOM COMPONENTS

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REVOLVE is available in 5/8" x 12-5/32" Square Edge for fascia and 1/2" x 8" Square Edge for stair risers.

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To learn more about REVOLVE, visit us at [renewplastics.com](https://renewplastics.com).

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## FASTENER OPTIONS

REVOLVE accommodates a variety of fastening methods. Your fastening method will depend on board choice and personal preference.

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### SCREWS

Screws are a traditional installation method used to secure boards firmly to the substructure. When installed properly, the screw-down method will allow adequate expansion and contraction of decking materials.

To complement REVOLVE, we recommend ceramic-coated composite wood screws in a color that most closely matches your chosen REVOLVE deck board. Available at most big box stores, the composite wood screws are size #10 x 2-3/4" at a minimum in length.



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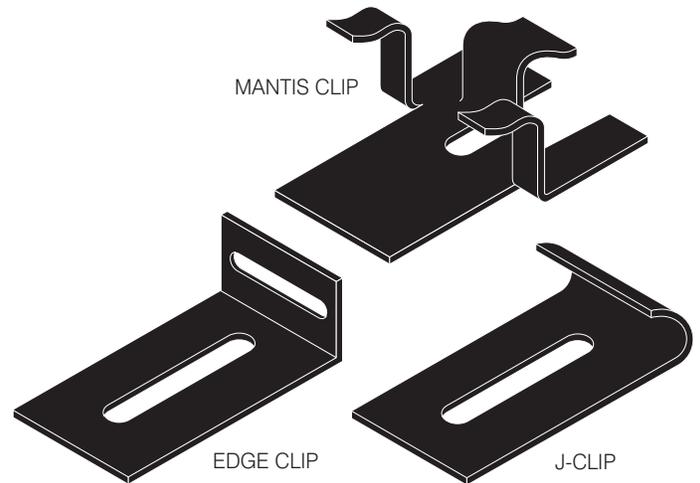
DECKING STYLE	SCREWS	GROOVED CLIPS
SQUARE EDGE	X	
GROOVE & GROOVE	X	X

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### GROOVE & GROOVE BOARD CLIPS

G&G clips are used for groove and groove installations only.



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## TOOLS AND CUTTING

Using REVOLVE is much like working with traditional wood materials. REVOLVE can be sawed, drilled, routed and screwed with standard tools and won't split or warp like wood products.

1. Use carbide tipped bits and blades for high volume cutting and drilling.
2. Slower speeds work the best with routers and planers/jointers. A speed of roughly half that normally used with wood will result in a fine, finished edge.

3. When cutting notches into REVOLVE engineered-composite lumber, drill or router a rounded corner in the cut to prevent cracking at the corners, as you would with any other hard-surface material. This can be accomplished by drilling a 1/2" hole at the corners of the notch and then cutting up to the drilled holes.



ALWAYS USE TOOLS ACCORDING TO MANUFACTURER'S INSTRUCTIONS, AND WEAR PROTECTIVE CLOTHING AND SAFETY GLASSES FOR YOUR SAFETY.

# Material Characteristics

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Unlike wood or WFC decking which swells or shrinks with humidity, REVOLVE is unaffected by moisture. However, similar to plastic-based siding material, temperature changes will cause REVOLVE decking to expand and contract along its length. Utilizing the clip installation method allows the greatest freedom for expansion and contraction. For warranty purposes, it is important to follow structural guidelines on spacing for all install methods. When using the screw method of installation, particular care must be taken to eliminate contraction or expansion from moving structural components. Expansion and

contraction potential should be accounted for in all methods for proper spacing, dimensions and application of trim pieces. Shorter boards (16' or less) experience less movement than longer ones and are, thus, often preferred.



**REMEMBER: REVOLVE DECKING IS A PREMIUM FINISHING PRODUCT AND IS NOT DESIGNED FOR STRUCTURAL APPLICATIONS.**

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# Design Considerations

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## BOARD LENGTH

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We advise eliminating end-to-end butt joints and keeping board lengths to a minimum, as contraction movement may result in a larger than desired gap opening up, or the expansion movement may result in the boards running into each other causing the deck boards to ripple or warp, particularly when using thinner profiles. Once the board's contract due to colder temperatures, they do not fully return to the original length.

Here are a few design tips:

1. Apply deck boards across the shortest length of the deck whenever possible..
2. Use multiple deck levels to create transition zones.
3. Use board patterns such as herringbone, checkerboard or angles to increase the overall deck size while maintaining a minimum length on deck boards.
4. Use feature boards or joint covers to break up the deck into manageable sections of shorter lengths.
5. Avoid end-to-end butt joints whenever possible.

If your design calls for butt joints, we recommend the use of the G&G Deck Clip method. The substructure must be built up to accommodate the butt joint areas. The deck boards should be securely fastened along the joint lines while being allowed to move

along the rest of their length. See the instructions specific to this fastening method below.

Bump outs and angled sections help increase the stability of the railing system.

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## FEATURE BOARDS

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Use Feature Boards to break the deck into shorter lengths. Modify the substructure to support these design elements. This is covered in further detail in each fastening method section.

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## SLEEPER BOARDS

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To avoid having to run joists in the long direction, over-length decks can be installed using wood 2x4 sleepers laying flat on 12" centers across 2x joists on 16" centers. The sleepers are screwed into each joist. This allows the frame of the deck to be installed as usual while working with the shortest length of the deck. This idea is often useful when refurbishing an existing deck.

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## END GAPPING

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REVOLVE decking will expand and contract along its length with temperature changes making it necessary to leave gaps between board ends, building walls and posts.

**See chart 1 at right** for expected movement and leave enough gapping based on temperature during installation and fluctuations in your region. The ideal temperature is 60°F. Use this number as a baseline for adjusting gap sizes. Use less gapping when it's warmer and more gapping when it's colder. Generally, a 3/8" to 1/2" gap is sufficient, depending on the temperature of the boards at the time of installation and the length of boards being used.

**CHART 1**

LENGTH OF BOARD	MOVEMENT AT EITHER END OF BOARD PER TEMPERATURE CHANGE		
	40°F	60°F	80°F
8'	0.18"	0.27"	0.36"
10'	0.23"	0.34"	0.45"
12'	0.27"	0.41"	0.54"
14'	0.32"	0.48"	0.63"
16'	0.36"	0.54"	0.73"

Coefficient of Linear Thermal Expansion = 4.7212 E-05 in./in./°F

**Example:** If temperature is 70°F during installation in a region that sees average temperatures between 10°F and 95°F, plan for a maximum 60°F temperature change.

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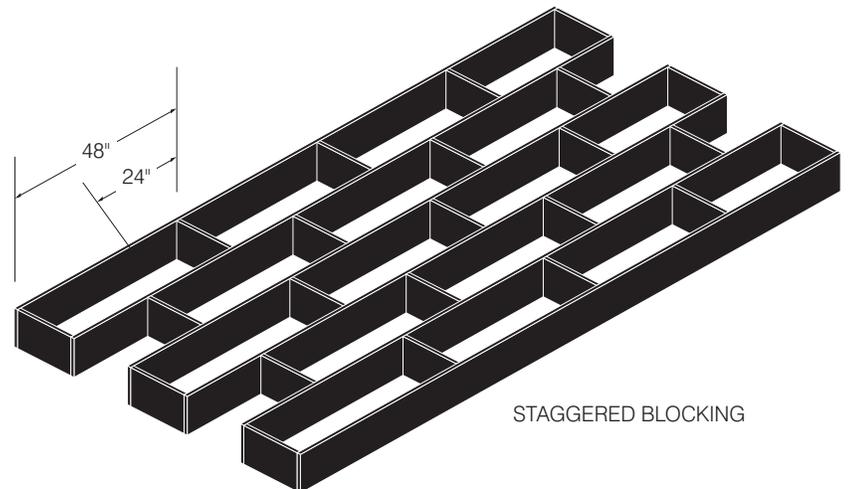
# Substructure

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REVOLVE engineered-composite lumber is a quality finishing product and is not suited for structural purposes. We recommend a high-quality, kiln-dried treated wood product or other suitable high-quality structural component for your substructure. No matter which decking method you choose, substructure construction remains basically the same. Some extra time spent in the consideration and design of your substructure will payoff in a better end result for the entire project.

1. All joists should be even and should not warp or bow.
2. The joist system must be properly square.
3. For drainage purposes, add a slight pitch away from the house or adjacent structure.
4. Traditional blocking should be installed at 4' to 6' intervals, especially on larger decks.  
**(See Diagram 1).**
5. Plan railing layout to allow for framing of pockets into the substructure for the rail posts.

**DIAGRAM 1**



# Substructure Continued

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## JOIST SPACING

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Joist spacing is dependant upon the angle of the deck boards. If decking is to be laid diagonally, the joists must be placed even closer. See our guidelines in Chart 2 and check with local and state building authorities for exact construction codes for your area.

### CHART 2

DECK BOARD	RESIDENTIAL USE (60 PSF)	COMMERCIAL USE (100 PSF)
1 1/4" x 5 1/2" Square Edge	16"	16"
1 1/4" x 5 1/2" G & G	16"	16"

For decking on a 45° angle to joist, subtract 4" from joist spacing.

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## FEATURE STRIP

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When using a Feature Strip, the structure must be modified to support the Feature Strip and the ends of the deck boards running beside it. See specific instructions under the Groove and Groove method.

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# Fastening Methods

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## SQUARE EDGE SCREW-DOWN METHOD

REVOLVE Square Edge decking may be installed using a traditional screw method. Stainless steel deck screws are recommended.

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### STEP 1

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Face screw straight down at a 90-degree angle, using two screws per joist. Firmly secure decking starting nearest to the house, working away from the house, down the entire length of the board. Completely secure the entire board before moving on to the next.

The “mushrooming” effect around the screw head may be avoided by pre-drilling and countersinking the screw holes if using a bugle head style screw. Or, if you don't wish to pre-drill, using trim head screws and tapping down the little mushrooms that form around the screw heads will cause the screw heads to virtually disappear. Using a trim head reverse thread screw eliminates both the need for pre-drilling and the mushroom effect, but does leave an exposed screw head.

All cut ends of the deck should be face-screwed down with two screws per board.

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### STEP 2

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Repeat **Step 1** for the next boards until the end of the deck. Use longer deck boards than needed, leaving excess hanging over outside edge. Cut excess from all boards at the same time to ensure every board is even and square.

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### STEP 3

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The edge board should be screwed through the face into the rim joist and at every support joist. This prevents the rim joist from being pulled off the joists by deck board expansion/contraction.

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### STEP 4

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Install fascia to cover structure.



# Fastening Methods Continued

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## **SQUARE EDGE SCREW-DOWN METHOD (CONTINUED)**

**Working with deck sections larger than 16' with REVOLVE Square Edge using screw-down installation method.**

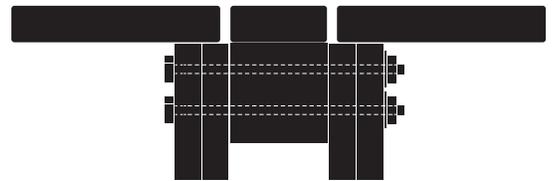
Installation of lengths longer than 16' should be avoided due to the expansion and contraction of plastic decking. This can be accomplished by using any of the following techniques. Be sure to fasten wood 2x4s onto the inside of the rim joists for an extra measure of support with either option.

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### OPTION 1

Use feature boards to break up the deck into “manageable” sections of shorter lengths. The structure must be modified to support the feature board while also supporting the ends of the deck boards running up to it. To do this, a wood 6x6 is installed directly below the feature board and two joists are installed on either side of the 6x6. These are all joined together using bolts with nuts and washers

**(See end-view illustration).**

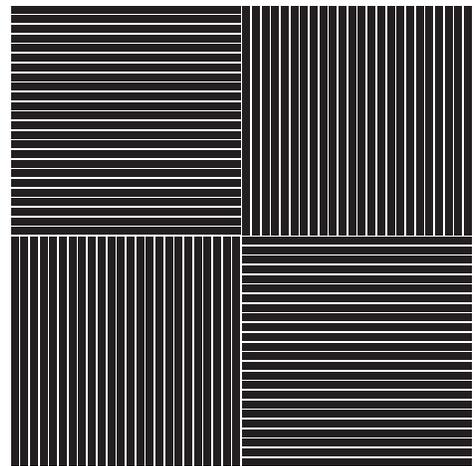


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### OPTION 2

The layout of the deck can be designed in a way to break a very large (i.e. 24' x 24') deck into quadrants of alternating board directions

**(See top-view illustration).**



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## GROOVE & GROOVE—CLIPS

Our G&G style decking gives those who wish to have a traditional gapped-look deck the option of having this look without the screw lines on the surface resulting in a clean looking deck when finished. The use of the specially designed G&G Clip allows for this.

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### DECKING CLIPS—HOW MANY?

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Decking clips must be purchased separately. Chart 3 indicates the approximate number of clips required per 100 square feet of decking. The general rule of thumb to find the number of G&G deck clips required for a project is to take the length of the deck boards in inches divided by the joist spacing, add 1, then multiply that number by the number of deck boards required. **(See Step 2 below for further information on deck clip options).**

#### CHART 3

FOR 100 SF OF DECKING	JOIST SPACING	NUMBER OF CLIPS
Residential	16" OC	About 200
Commercial	16" OC	About 250

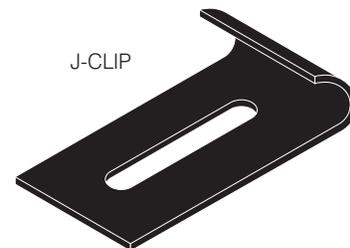
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### STEP 1

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When installing boards parallel to a home, or other structure, J-Clips should be used to hold down the lead edge of the deck boards to eliminate the need to screw through the top of the boards. Install J-clips using two screws per clip at every joist against the home. Slide first deck board fully into the J-Clips.

**(See Diagram 2 – Page 11).**



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### STEP 2

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The G&G Deck Clips are designed with slots for both diagonal and vertical screw placement. Insert a vertical screw through every clip into each joist. The insertion points for diagonal toe screws will vary, depending on deck board location and installer preference. A diagonal toe screw may be installed into every deck clip. This will reduce expansion and contraction and minimize flexing between joists on longer deck boards. Use fewer toe screws to allow the deck boards to float or expand and contract naturally with temperature fluctuations. Follow these guidelines when using the float method:

- **For boards installed perpendicular to a home or structure:** Use diagonal toe screws in first three joists away from the wall. **(See Diagram 4A – Page 12).**

- **For boards installed parallel to a home or structure:** Use diagonal toe screws in the three centermost joists. **(See Diagram 4B – Page 12).**
- **For boards on decks using a feature strip:** Use diagonal toe screws in the three joists on either side of the seam. **(See Diagram 4C – Page 13).**

At least two to three diagonal toe screws should be inserted in each deck board using the guidelines above. By installing clips in this manner, the expansion/contraction will occur away from structures and joints—areas where buckling could occur if the boards moved. Use stainless steel trim head screws as supplied by the manufacturer.

# Fastening Methods Continued

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## GROOVE & GROOVE—CLIPS (CONTINUED)

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### STEP 3

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Repeat **Step 2** for the next boards until the end of the deck. Use longer deck boards than needed, leaving excess hanging over outside edge. Cut excess from all boards at the same time to ensure every board is even and square. If possible, use a variable speed router with a round-over bit at half the speed normally used for wood to trim the boards and leave a rounded edge.

After the first three or four deck boards are in place, face screw a treated wood 2x4 to the bottom of the deck boards at the outside edges of the deck between the last two joists. This will prevent the deck boards from curling up and allows for even expansion and contraction. Continue to do the same with each board until deck floor is complete.

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### STEP 4

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The last board (end board) on the deck can be ripped to desired width. On ripped edge, route out hidden fastener groove. Route groove in entire length of the board or at every intersection where board is over support joists. **(See Diagram 2 – Page 11).**

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### STEP 5

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Install fascia to cover core of deck board and structure. **(Refer to Diagram 2 – Page 11 for additional assistance).**

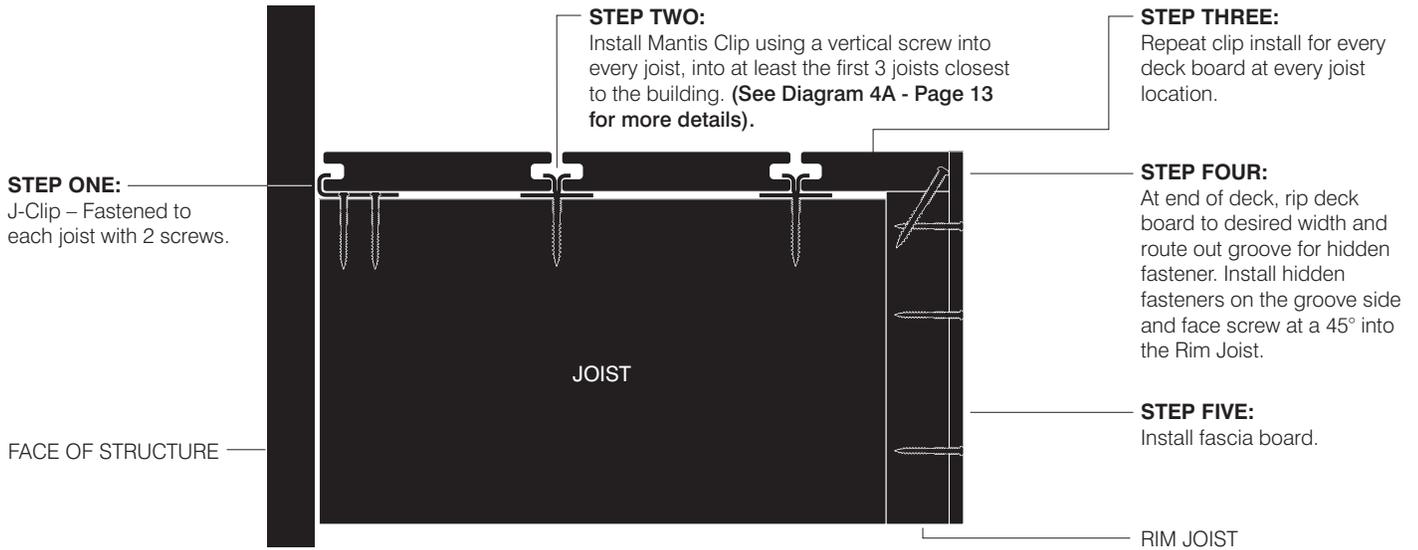
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## DIAGRAM 2



### Working with deck sections larger than 16' with REVOLVE G&G Decking using Mantis Clip installation method.

Again we recommend eliminating butt joints due to the expansion and contraction gapping complexity of plastic decking. This can be accomplished by using any of the following techniques. Be sure to fasten wood 2x4s onto the inside of the rim joists for an extra measure of support with either option.

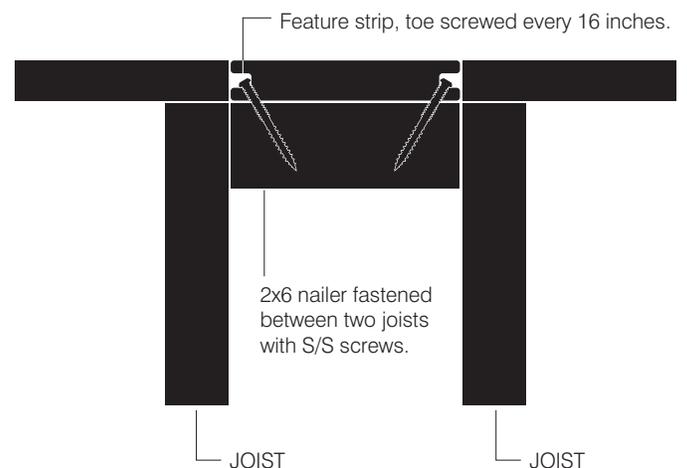
#### OPTION 1

Use feature boards to break up the deck into “manageable” sections of shorter lengths. The structure must be modified to support the feature board while also supporting the ends of the deck boards running up to it. To do this when using the G&G Clip installation method, install a 2x6 nailer between two joists. The nailer should be secured between the joists using #10 x 3" stainless steel screws. Make sure the nailer is flush with the joist tops. The feature strip board is placed into position first and toe screwed to the nailer using #7 x 1 5/8" stainless steel screws every 12 to 16 inches. Insert screws directly opposite each other. The deck boards are then installed.

**(See Diagram 3).** To ensure the joists and nailer do not get pulled apart by expansion/contraction in the deck boards, use the diagonal toe screws only on the first two or three joists away from the Feature Strip when installing the deck boards.

**(See Diagram 4C – Page 13).**

#### DIAGRAM 3



# Fastening Methods Continued

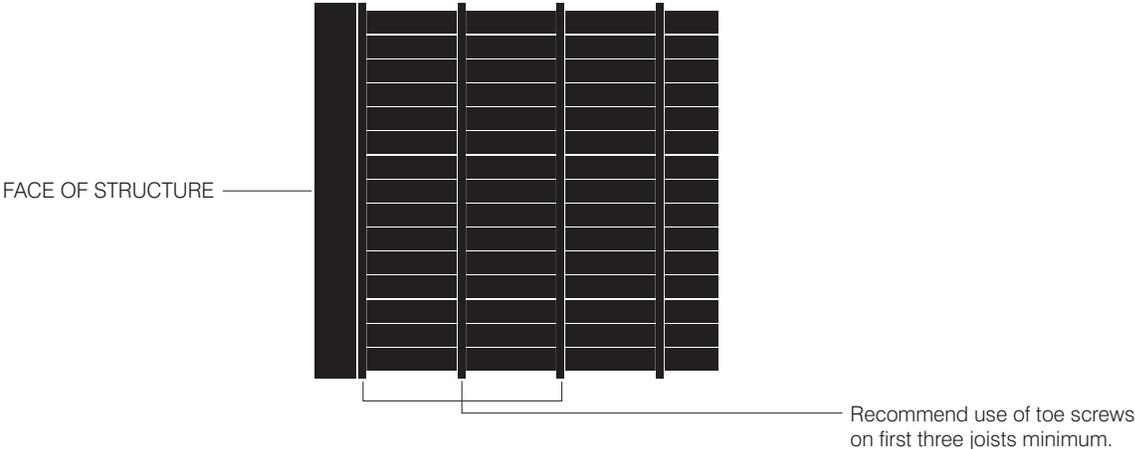
**(CONTINUED)**

**Working with deck sections larger than 16' with REVOLVE G&G Decking using Mantis Clip installation method.**

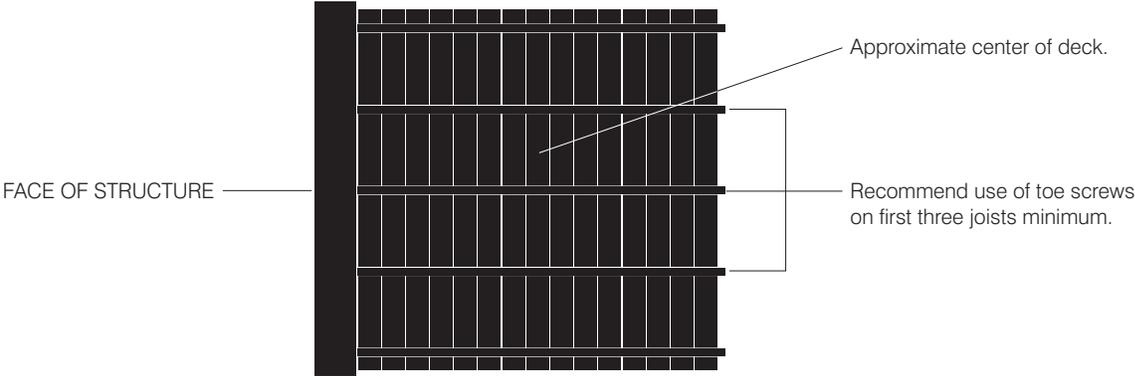
NOTE

If the deck boards are allowed to “float” by not using more than two or three diagonal toe screws on the joists on either side of the feature board, expansion and contraction will not be a problem. However, if diagonal toe screws are used on all of the joists to install the deck boards, the temperature at time of installation needs to be considered when placing the deck boards. Be sure to leave an adequate gap to allow for expansion and contraction of the deck boards in the future. **(See Chart 1 – Page 5 for expansion/contraction factors).**

**DIAGRAM 4A – DECKING PERPENDICULAR TO WALL**



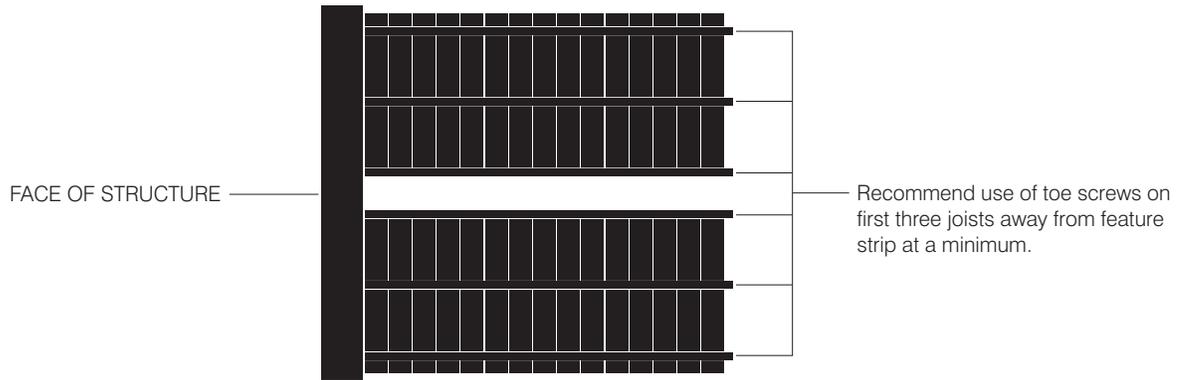
**DIAGRAM 4B – DECKING PARALLEL TO WALL**



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**DIAGRAM 4C – FEATURE STRIP OR T-STRIP/JOINT COVER**

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To learn more about REVOLVE, visit us at [renewplastics.com](https://renewplastics.com).

# Trim, Fascia & Finishing

Unlike major brands of composite decking, REVOLVE's premium plastic decking system includes many finishing components for a truly professional appearance. Exposed wood joists, posts and the area between your deck and the ground can be covered to complete the deck.

When using REVOLVE boards for fascia or trim parts, keep expansion and contraction in mind. We recommend fascia boards be installed vertically or diagonally to allow for shorter board lengths.

Horizontal fascia installation is acceptable with the use of appropriate blocking, expansion gaps and caps covering the expansion areas.

Screw the top and bottom of the panels every 8" on center. Due to the expansion and contraction gapping complexity of plastic fascia, we recommend lengths no longer than 6'. Gap locations should be positioned according to post locations and overall aesthetic appeal.

Support posts can be wrapped with REVOLVE materials. This will enhance the overall look of your deck and reduce maintenance. After trimming off the manufactured edge of the board, the material can be ripped down to the widths necessary to cover the post. Don't fasten the material to the post, except at one point at the top to hold it in place. This will allow for expansion and contraction movement.

## CORNER



## STRAIGHT



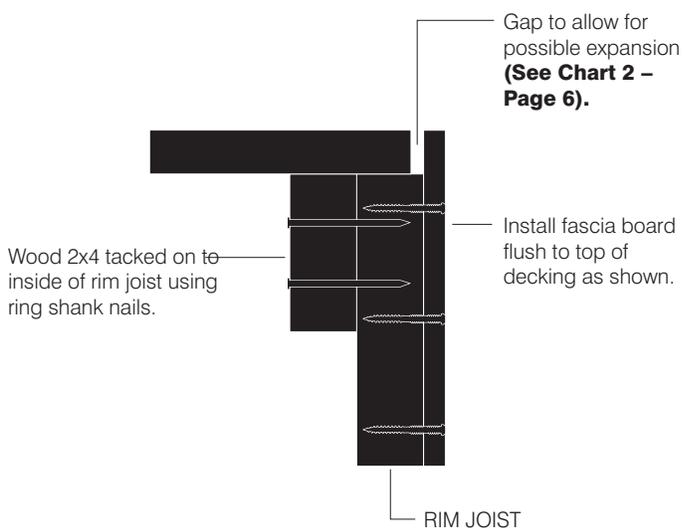
## OVERHANG AND TRIM OPTIONS

Allowing an overhang around the edge of the deck is the preferred method of installation. However, if you do not prefer this look, one of the following trim options may be used:

### “Picture Frame” Method – Option 1

When installing the product in this fashion, be particularly aware of expansion and contraction. Knowing the temperature at the time of installation, and the maximum temperature the deck may normally see, please refer to **Chart 1** to determine proper gapping to be used between the end of the deck boards and the fascia board. A smaller gap will be required at higher installation temperatures, as normal contraction will occur. It is also recommended that a wood 2x4 be nailed onto the inside of each of the rim joists to account for possible contraction that could result in the end of the deck board shrinking off the rim joist. Install the fascia board using no less than two #7 x 1 5/8" trim head screws, every 8 inches on center, or an appropriate equivalent fastening technique. **(See Diagram 6).**

## DIAGRAM 6



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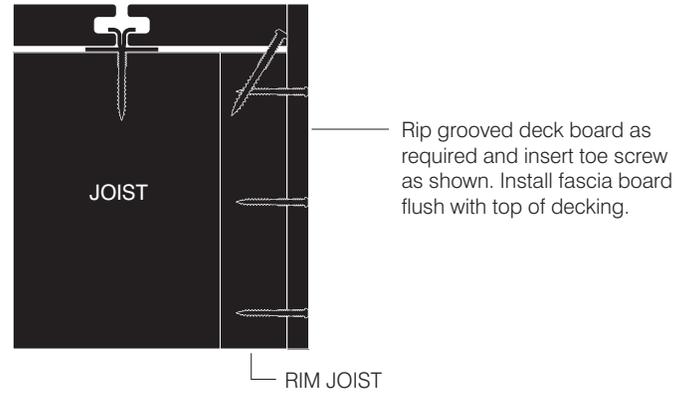
## OVERHANG AND TRIM OPTIONS – CONTINUED

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When installing the fascia board parallel to the decking, the final deck board may need to be ripped down to fit the deck. It is OK to rip a REVOLVE deck board to fit the required dimensions. Slight warping of the board is normal but can be taken out while fastening it down to the deck. Pre-drill and toe screw the front edge of the final board and then install the fascia board in the manner described above.

**(See Diagram 7).**

**DIAGRAM 7**



To learn more about REVOLVE, visit us at [renewplastics.com](https://renewplastics.com).

# Cleaning & Care

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Your REVOLVE project will endure decades of use before any real maintenance will be required, making it virtually maintenance free. No painting, staining or sealing is ever required! Periodic cleaning will help your structure look its best.

Unlike wood or composite decking material, mold or fungi cannot penetrate and permanently stain the REVOLVE surface.

1. Hose or sweep off periodically.
2. High humidity or low circulation installations may require a periodic low dose bleach wash. A mixture of 1 part bleach to 10 parts water can be used without harming the product. After all, bleach and acids are normally sold in HDPE plastic bottles.
3. Cleaning of light surface marks can be accomplished with a solution of Trisodium Phosphate (TSP) and water as directed on the package.
4. Stubborn stains, such as rust spots from furniture, can be removed using products such as IRON OUT<sup>®</sup>, without causing any damage to your deck.
5. Sweep snow off of the deck with a stiff-bristled broom. If heavier snows occur, a plastic shovel should be used to prevent scratching and gouging.

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## Conclusion/ Important Notes

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### SAFETY

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Always wear proper eye and hand protection. Use all power tools with proper guarding in place.

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### EXPANSION/CONTRACTION

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Expansion and contraction occurs in all building products but is more noticeable in products manufactured with plastic resin. Proper installation of this product is extremely important. Please reference **Chart 1** for expansion/contraction guidelines. The product is at its natural length at 70°F. For best results follow the installation guidelines.

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### STAIRS

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When using decking profiles in stair applications, make certain that stringer spacing is a maximum of 12". J-Clips and Edge-Clips can be used to fasten stair treads to the stringers for a fastener-less surface.

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### BUILDING CODES

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Always consult local building codes. Local building codes govern when a discrepancy arises.

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## STORAGE AND HANDLING

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Cut and remove all banding materials and wrappings and lay the decking materials loosely and flat on the joisting materials to allow the product to acclimate for a minimum of 48 hours before installation. Do not dump when unloading. Always store material on a flat surface, supporting product adequately along its length. It is important to keep the product lying flat and straight at all times as the product will take the shape of anything it is laying on or against.

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## SUBSTRUCTURE

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- Be sure deck structure is square.
- When using a wood structure, be sure joists are of similar material and installed at the same height to avoid visual variations.
- Deck slope should be approximately 1/2" for every 8' away from house to aid in water run-off.

- Layout the location of Feature Strips on the structure of the deck before beginning construction to allow for efficient installation the proper substructure details as dictated by the fastening method being used.
- Be sure to sufficiently block the joists when necessary.

The installer and purchaser are ultimately responsible for the determination of the suitability of this product for the intended job. Please consult with your local building code officials prior to starting the building process.

Information included in this guide is subject to change without notice.

The latest REVOLVE Deck Design and Installation Guide is always available at **renewplastics.com**.

When properly installed for the correct application, RENEW Plastics will ensure the product benefits stated in this guide.

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# Glossary of Terms

**Fascia** – Horizontal boards placed to cover the rim joist and end joists.

**Joist** – The wood, composite, or metal boards that support the visible planks of a deck.

**Rim Joist** – The vertical member that caps the ends of the floor joists completing the box that comprises the sub flooring.

**Sleeper Boards** – Wood “2x4” boards laying flat across the deck substructure.



To learn more about REVOLVE, visit us at **renewplastics.com**.



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