

G&G Decking Installation

Using the steps described in this guide, you will learn the proper methods and construction options for building a deck or other structure with EVOLVE® Groove-and-Groove (G&G) high-density plastic decking.

Joist Spacing (Chart 1)

Chart 1 indicates the recommended joist spacing for residential and commercial applications for different decking thicknesses.

Deck Board	Residential Use (60 psf)	Commercial Use (100 psf)
1 1/2" x 5 1/2" Flat	20 inches	16 inches
1 1/2" x 5 1/2" T&G	20 inches	16 inches
1" x 6" T&G	16 inches	12 inches
1" x 5 1/2" Flat	16 inches	12 inches
1" x 5 1/2" G&G	16 inches	12 inches
1" x 3 1/2" T&G	16 inches	12 inches
3/4" x 6" T&G	12 inches	Not Recommended
3/4" x 5 1/2" Flat	12 inches	Not Recommended
3/4" x 3 1/2" T&G	12 inches	Not Recommended
3/4" x 3 1/2" Flat	12 inches	Not Recommended

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

Expansion/Contraction (Chart 2)

EVOLVE Groove-and-Groove decking will expand and contract along its length with temperature changes. See Chart 2 for expected movement and leave enough space between deck boards and fixed-in-place obstructions, based on temperature during installation and fluctuations in your region. (For example: If temperature is 70° during installation in a region that sees average temperatures between 10° and 95°, plan for a maximum 60° temperature change.)

Length of Board	Movement over entire length of board Per Temperature Change		
	40°F	60°F	80°F
96"	0.19"	0.29"	0.38"
120"	0.24"	0.36"	0.48"
12'	0.29"	0.43"	0.57"
14'	0.33"	0.50"	0.67"
16'	0.38"	0.58"	0.76"

Coefficient of Linear Thermal Expansion = 4.965×10^{-5} in./in./Δ°F

Decking Clips—How Many? (Chart 3)

Decking clips must be purchased separately. Chart 3 below 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 of the installation instructions for further information on deck clip options.

For 100 SF of Decking	Joist Spacing	Number of Clips
Residential	16" OC	About 200
Commercial	12" OC	About 250

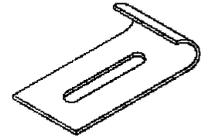
A. STANDARD INSTALLATION

Follow steps 1 through 5 for standard installations.

The standard method of installation will result in an overhang of about 1 1/2" beyond the outside edges of the deck once the deck boards are trimmed. Please use one of the trim methods explained later in this guide if this is not desired.

Step 1

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 1.



J Clip

Step 2

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 2A).
- For boards installed parallel to a home or structure: Use diagonal toe screws in the three centermost joists (See Diagram 2B).
- For boards on decks using a feature strip or Joint Cover: Use diagonal toe screws in the three joists on either side of the seam (See Diagram 2C).

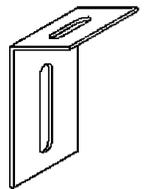
At least two to three diagonal toe screws should be inserted in each deck board using the guidelines above. By installing clips in this manner, the expansion / contraction will occur away from structures and joints—areas where buckling could occur if the boards moved. Use stainless steel trim head screws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

Step 3

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 at half the speed normally used for wood to trim the boards and leave a rounded edge.

Step 4

The last board (end board) on the deck can be ripped to size to result in a 1 1/2" overhang. Slide the groove edge of the end board onto the G&G Deck Clips. Connect Edge-Clips to the rim joist every 16" using two 1 1/2" bugle head stainless steel screws per clip. Fasten the Edge-Clips to the bottom of the end board using one 3/4" bugle head stainless steel screw. The positioning of the screw in the slotted hole will be dictated by the temperature at time of installation. Please refer to Chart 2 to plan for movement. Fully tighten the screw into the bottom of the end board, then back it off about a 1/4 turn to allow for the expansion / contraction. Refer to Diagram 1.



Edge Clip

Step 5

Install fascia to cover Edge-Clips and structure. Refer to Diagram 1 (on next page) for additional assistance.

Diagram 1

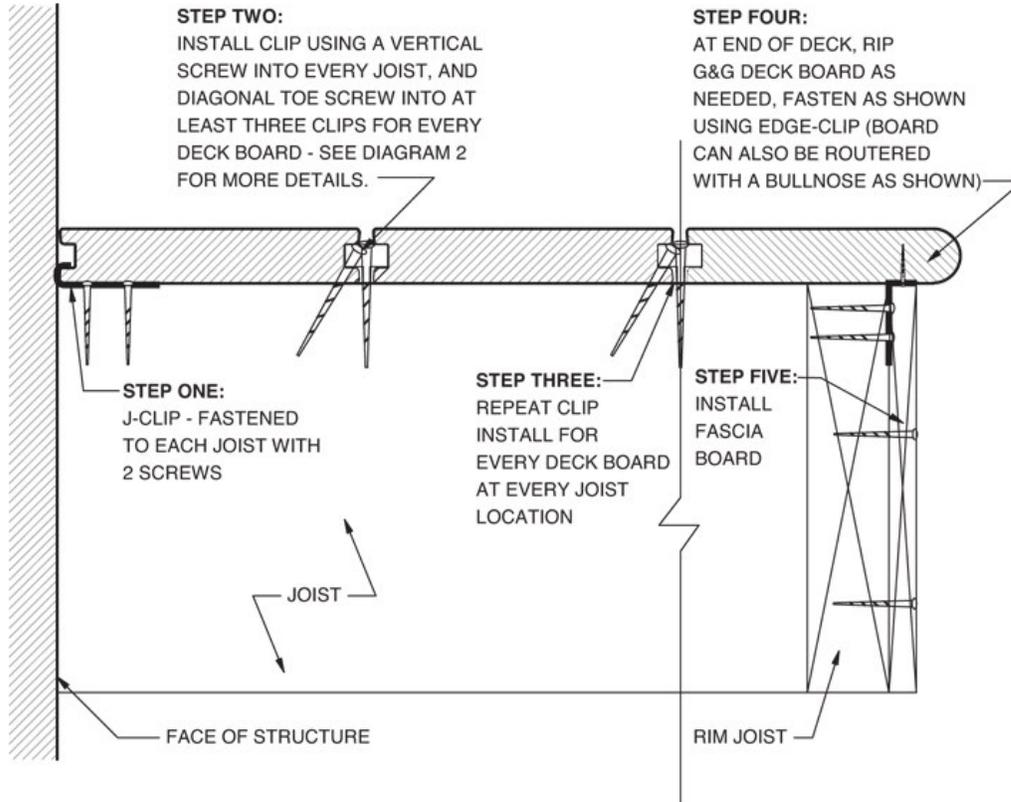
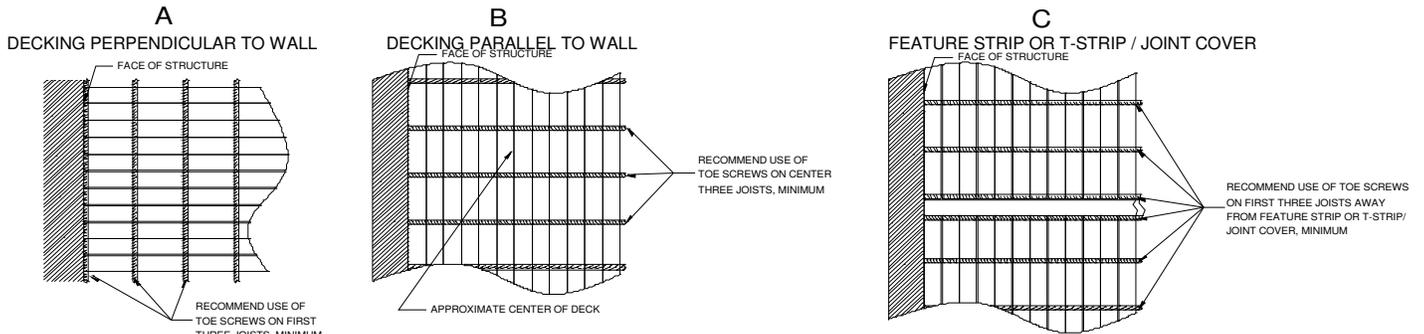


Diagram 2



B. END-TO-END JOINTS

Due to the expansion / contraction along the length of EVOLVE high-density plastic decking products, end-to-end butt joints are not recommended. The layout of the deck and the design of the substructure need to be planned in advance to avoid end-to-end butt joints. Run the deck boards in the shortest direction possible. Use of either a T-Strip/ Joint Cover or a Feature Strip should be used in situations where joint lines cannot be avoided. See below for more details.

T-Strip / Joint Cover

When using end-to-end butt joints with the T-Strip / Joint Cover option, the structure must be modified to support the T-Strip and the ends of the deck boards running under it. To do this, install a 2x4 nailer between two joists using #10 x 3" stainless steel screws. Make sure the nailer is flush with the joist tops. The deck boards can be installed first, leaving a 2" to 2 1/4" gap along the centerline of the 2x4 nailer. Then slide the T-Strip into place and screw along its centerline every 8 to 12 inches. Using trim head stainless steel screws and running the screw heads slightly below the surface of the T-Strip will allow you to lightly "tap" the material around the screw to hide the fasteners once the T-Strip is installed. 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 T-Strip when installing the deck boards. See Diagram 3.

Feature Strip

When using a Feature Strip during installation, prepare joists by attaching a 2x6 nailer between two joists instead of a 2x4. 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. 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 4.

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 strip, expansion and contraction will not be a problem along the feature strip. 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 possible expansion of the deck boards in the future. See Chart 2 for expansion / contraction factors.

Diagram 3

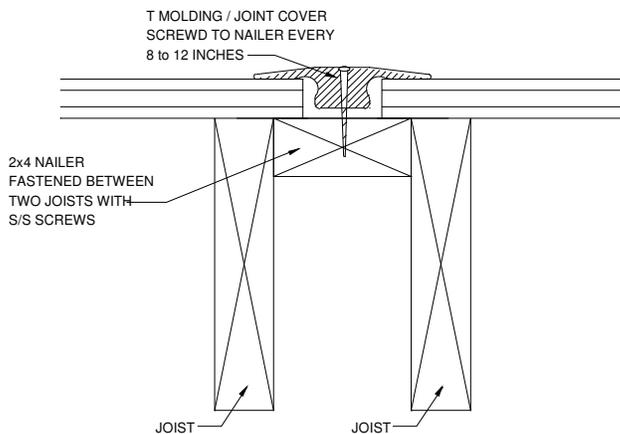
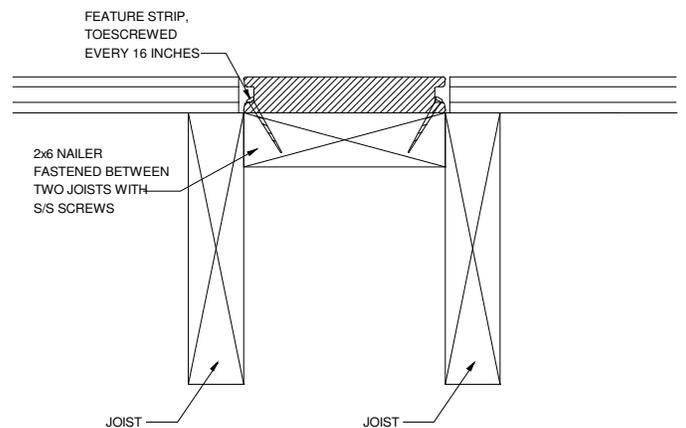


Diagram 4



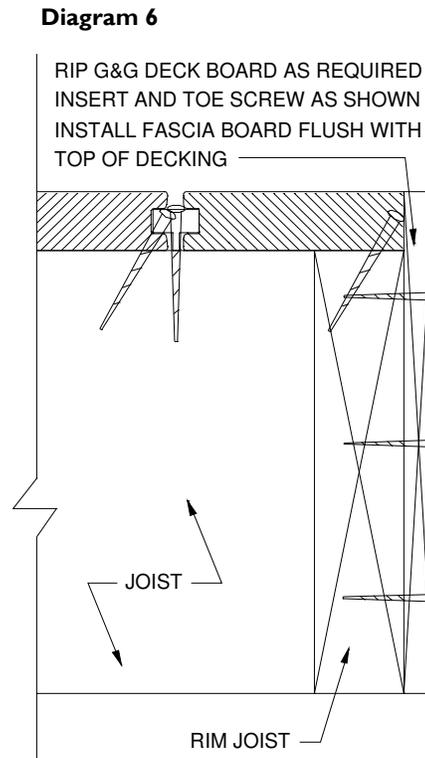
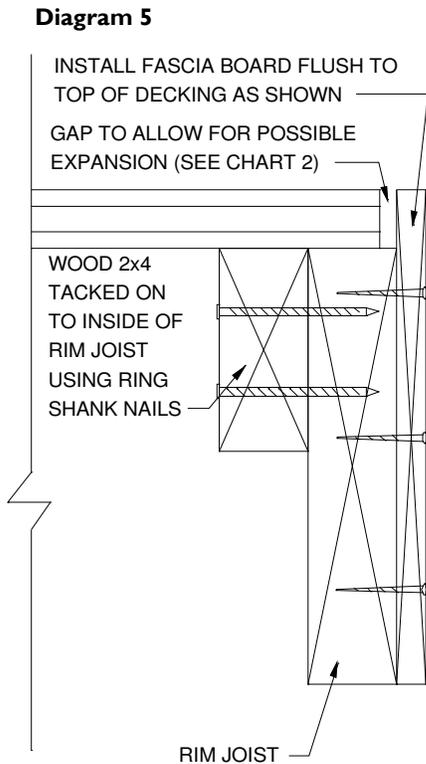
C. OVERHANG AND TRIM OPTIONS

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 2 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 the rim joist 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. Please refer to Diagram 5 for details.

When installing the fascia board parallel to the decking, if the final board must be ripped down to fit the deck, it is OK to rip a G&G 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 as shown and then install the fascia board in the manner described above. Please refer to Diagram 6 for details.



“Picture Frame” Method – Option 2

If a full fascia board is not desired, another option to cover the edge of the deck boards is to use a 5/8” x 2 3/8” beveled trim board around the outside of your deck. These are installed using the same methods as the full fascia board, except only one screw is used to fasten the trim board to the rim joist. Please see Diagram 7.

Using a “Gap Cap”

The gap that is left at the end of a deck between the deck boards and the fascia or trim board may be covered by utilizing the 5/8” x 2 3/8” beveled trim board as a “Gap Cap.” This is accomplished by fastening the squared edge of a 5/8” x 2 3/8” beveled trim board to the top edge of the fascia or beveled trim board that is installed to the rim joist. Use #7 x 1 1/4” stainless steel trim head screws every 8 inches along the length of the trim board, with the screws about 1 inch from either end. Only fasten plastic to plastic. Pre-drilling the holes may be helpful. Running the heads of the screws slightly below the surface and “tapping” the material down helps hide the fasteners from view. Please see Diagram 8.

Diagram 7

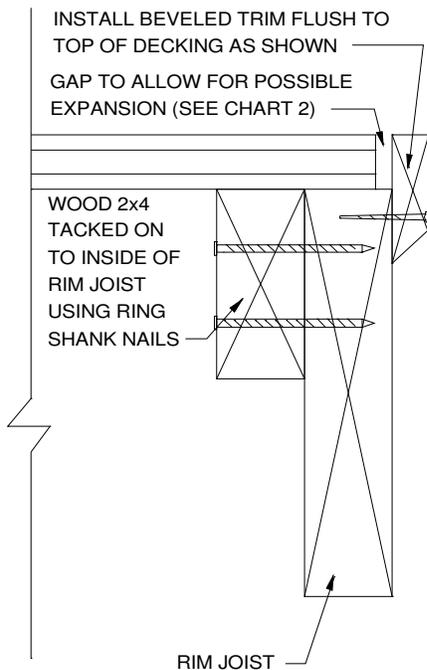
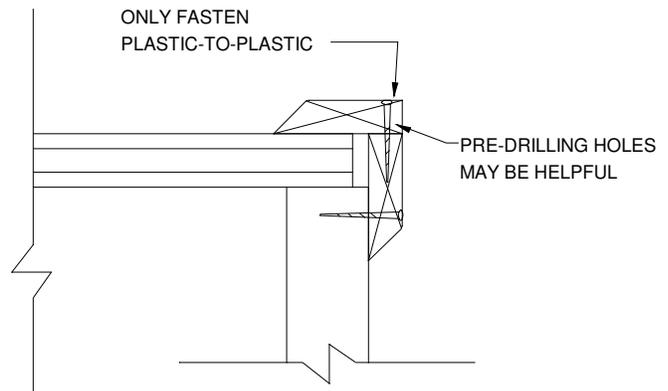


Diagram 8



D. IMPORTANT NOTES

Safety

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

Expansion / Contraction

- 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 2 for expansion / contraction guidelines.
- The product is at its natural length at 70°F. For best results follow the installation guidelines.
- Use of T Molding and “Gap Cap” will help hide any undesired spacing.

Stairs

- When using decking profiles in stair applications, make certain that stringer spacing is a maximum of 12”. The 1” x 11 1/4” Bullnose Stairtread is recommended for this application. J-Clips and Edge-Clips can be used to fasten stairtreads to the stringers for a fastener-less surface.

Building Codes

- Always consult local building codes. Local building codes govern when a discrepancy arises. Please refer to ICC-ES Legacy Report NER-702.

Storage and Handling

- 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.
- Store on a flat surface, supporting product adequately.
- 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.

Layout Considerations

- Two deck boards from center of clip to center of clip, when installed properly, will cover approximately 11”. Each deck board is 5 7/16” wide by 1” high.
- 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 T Moldings or Feature Strips on the structure of the deck before beginning construction to allow for efficient implementation of the horizontal nailer as shown in Diagram 3 and Diagram 4.
- Install blocking 4’ on center between joists for all decks with joists 8’ in length, or longer. Blocking should be staggered by 24” for best results. See Diagram 9.

