

RESOURCES

From Edge fastening in special cases to troubleshooting your DRIVE tool and more, this resource section contains the information you need to tackle any install.

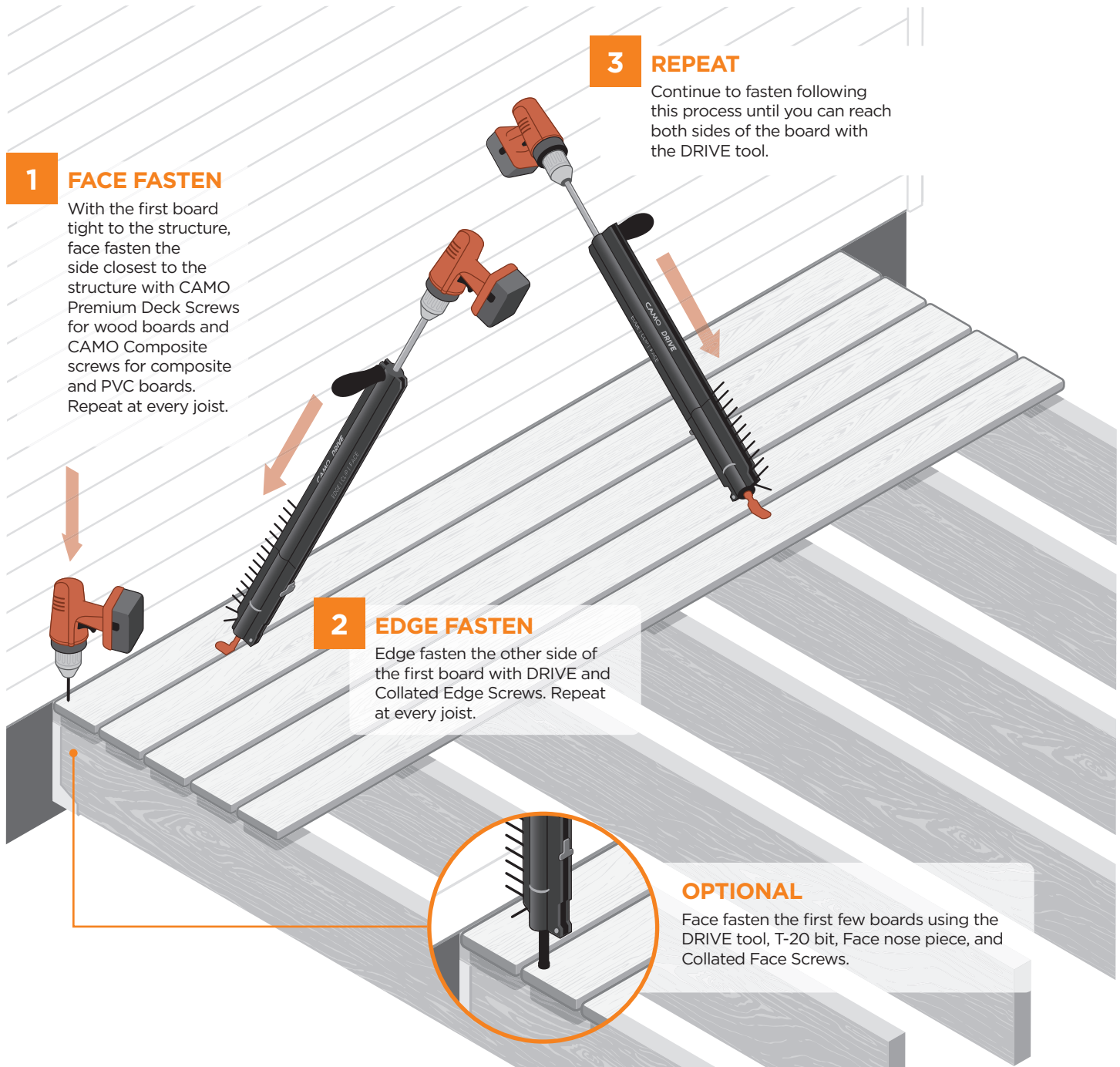
SPECIAL CASES - EDGE FASTENING	53
BEST PRACTICES FOR EDGE FASTENING	55
INSTALLATION RECOMMENDATIONS BY BOARD TYPE	56
SPECIAL CASES - CLIP FASTENING	60
TROUBLESHOOTING	62



Edge Fastening Against a Structure

BY HAND & WITH DRIVE

Given the length of the DRIVE tool and the angle required for installation, you will not be able to Edge fasten both sides of the first few rows of boards next to a structure. In these instances, use CAMO Premium Deck or Composite Screws following the instructions below.



Edge Fastening Against a Structure

MARKSMAN® TOOLS

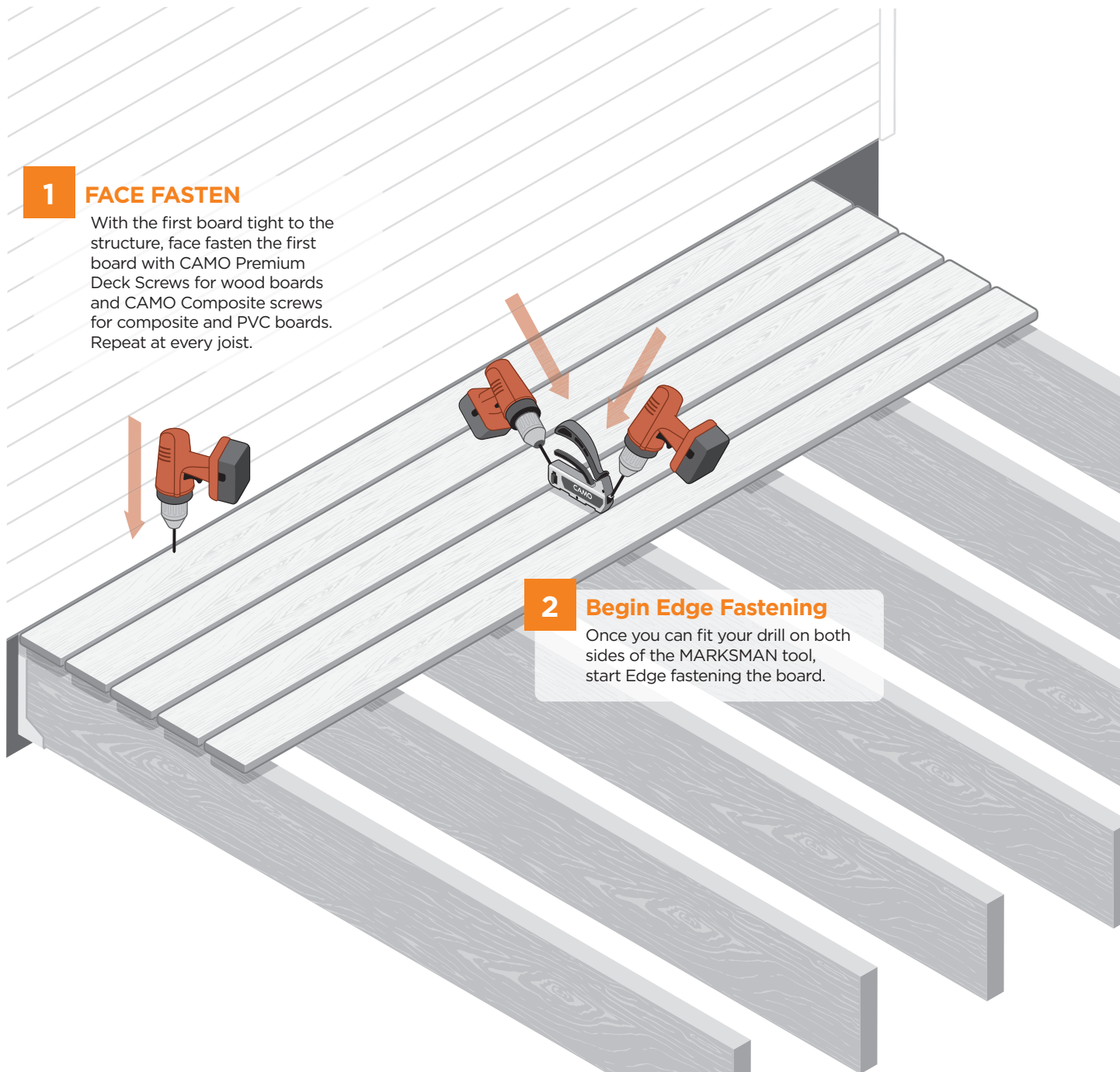
Given the drill angle required for installation with the MARKSMAN Pro® Tools, you will not be able to Edge fasten both sides of the first board next to a structure. In these instances, use CAMO Premium Deck or Composite screws, following the instructions below.

1 FACE FASTEN

With the first board tight to the structure, face fasten the first board with CAMO Premium Deck Screws for wood boards and CAMO Composite screws for composite and PVC boards. Repeat at every joist.

2 Begin Edge Fastening

Once you can fit your drill on both sides of the MARKSMAN tool, start Edge fastening the board.



Best Practices for Edge Fastening



Failure to install CAMO Edge Screws in accordance with this installation guide may affect fastener performance and void product warranty.



CAMO Edge Screws are intended for attaching deck boards directly to deck substructure using CAMO tools. Any other use is not recommended or covered by warranty.

GUIDELINES FOR EVERY EDGE FASTENING INSTALLATION

Deck Slope:

Your deck surface should be sloped a minimum of 1/4 in per 12 feet of horizontal run to allow for moisture run-off.

Install Double (Sister) Joists:

A double joist is required at butt joints where two board ends meet on the deck surface.

Airflow/Drainage:

You must have unobstructed airflow under 50% of the deck to allow for sufficient cross-ventilation from one side to the other. This allows the underside of the deck structure to dry and prevents heat build-up. Never install a deck directly over any solid surface, such as concrete.

Frown Down:

When you look at the wood deck board ends, you will see the lumber's growth rings. Make sure those rings are facing downward—the direction of a frown—when laid flat on the joists for fastening. This will reduce the natural tendency for the board to cup upward when it dries.

Fastening:

- Do not fasten within 1 in of the deck board ends.
- Use two screws on every board at each joist location.
- Do not force the Edge screw. Allow the Edge screw to scrape and auger the surface with light pressure, which allows the Edge screw to enter the board without splitting.
- Never use CAMO Edge screws to attach decking to a floating substructure.

SELECTING THE RIGHT EDGE SCREW

Edge screws are available in two sizes:

- 1 $\frac{1}{8}$ in for boards 1 in thick or less
- 2 $\frac{3}{8}$ in for boards thicker than 1 in

Edge screws are available in PROTECH® Coating and 316 Stainless Steel.

PROTECH



STAINLESS STEEL



DECK BOARD MATERIAL	RECOMMENDED CAMO EDGE SCREW
Pressure Treated Lumber	Stainless Steel or PROTECH Coated
Composite	Stainless Steel or PROTECH Coated
Capped Composite	Stainless Steel or PROTECH Coated (with pre-drilling)
PVC	Stainless Steel or PROTECH Coated
Cedar	Stainless Steel Required
Redwood	Stainless Steel Required
Hardwood or Imported Hardwood	Stainless Steel Required (with pre-drilling)

Recommendations by Board



PRESSURE TREATED

Twisting, warping, cupping, and splitting are expected performance attributes with pressure treated decking in its wet/green state. Following the guidelines presented will reduce, but not eliminate, the normal behavior of pressure treated deck boards.

- **Board Spacing:** Typical pressure treated decking (moisture content above 19%) needs little to no spacing between boards at the time of installation. As the boards dry, they will shrink, creating a space naturally.
- **Installing on Sleeper Systems:** CAMO Edge Screws are not recommended for sleeper systems using treated lumber.
- **Recommended CAMO Tools:**
 - DRIVE (no gap)
 - MARKSMAN® EDGE (no gap)
 - MARKSMAN Pro®-X1 (1/16 in gap)



COMPOSITE DECKING

Air temperature variation results in the expansion and contraction of various boards, including composite. Following the guidelines presented will ensure the best installation and reduce problems associated with board movement.

- **Board Spacing:** Always review and follow your deck manufacturer's gap and spacing requirements for deck board installation. These requirements can vary by manufacturer and installation temperature and environment.
- **Installing on Sleeper Systems:** You must allow a 1-½ in minimum of unobstructed airflow beneath the deck on both ends in the direction that the joist runs and have at least 3/16 in board spacing.
- **Recommended CAMO Tools:**
 - MARKSMAN Pro® (3/16 in gap)
 - CLIPDRIVE™ with clips on grooved boards
 - DRIVE (with secondary 3/16 in spacer)



KDAT (KILN DRIED AFTER TREATING)

Twisting, warping, cupping, and splitting are expected performance attributes with KDAT decking. Following the guidelines presented will reduce, but not eliminate, the normal behavior of pressure treated deck boards.

- **KDAT weatherization treatment:** KDAT must always be sealed with a water repellent with UV protection before or immediately after installation.
 - Stain: Use a penetrating stain with water repellent and UV stabilizer.
 - Paint: Use an oil-based primer followed by two coats of latex (acrylic) paint.
- **Board Spacing:** Install KDAT decking with a minimum of 3/16 in spacing between boards. KDAT boards are installed in a thirsty state and will expand slightly as they are exposed to moisture.
- **Installing on Sleeper Systems:** You must allow a 1-½ in minimum of unobstructed airflow beneath the deck on both ends in the direction that the joist runs.
- **Recommended CAMO Tools:**
 - MARKSMAN Pro® (3/16 in gap)
 - DRIVE (with secondary 3/16 in spacer)

When you require the use of secondary spacers, use a couple of MARKSMAN tools to properly space your boards before fastening with DRIVE. They also come in handy in tight fastening situations.

Recommendations by Board



PVC DECKING

Air temperature variation results in the expansion and contraction of various boards, including PVC. Following the guidelines presented will ensure the best installation and reduce problems associated with board movement.

- **Acclimating:** Boards should be kept at ambient temperature and shaded from direct sun prior to cutting and immediate fastening.
- **Board Spacing:** Always review and follow your deck manufacturer's gap and spacing requirements for deck board installation. These requirements can vary by manufacturer and installation temperature and environment.
- **Board Size:** Because of the potential for linear expansion and contraction from temperature variance, use shorter board lengths where possible.
 - Use a breaker board design to shorten board runs.
 - End-To-Side board spacing (Where deck board end meets fixed breaker or picture frame board) see chart below
 - For board runs 16' and longer, face fasten at the midpoint and at both ends of the boards with color matched stainless steel composite screws. (Plug systems are acceptable)
- **Installing on Sleeper Systems::** You must allow a 1-1/2 in minimum of unobstructed airflow beneath the deck on both ends in the direction that the joist runs and have at least 3/16 in board spacing
- **Recommended CAMO Tools:**
 - MARKSMAN Pro. (3/16 in gap)
 - DRIVE (with secondary 3/16 in spacer)
 - CLIPDRIVE™ with clips for grooved boards
 - AZEK SIDELOC Guide (1/8 in gap)

END-TO-SIDE BOARD SPACING BY INSTALLATION TEMPERATURE

70 Degrees and below	71 Degrees and above
3/16" (5mm)	1/8" (3.2mm)

Recommendations by Board



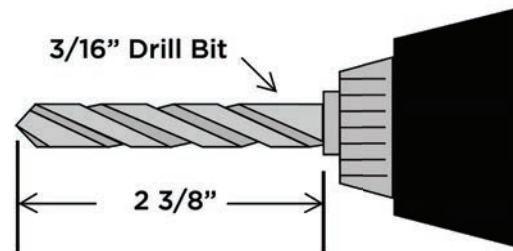
CAPPED COMPOSITE

Air temperature variation results in the expansion and contraction of various boards, including capped composite. Following the guidelines presented will ensure the best installation and reduce problems associated with board movement.

- **Board Spacing:** Always review and follow your deck manufacturer's gap and spacing requirements for deck board installation. These requirements vary depending on the specific board material.
- **Installing on Sleeper Systems:** You must allow a 1-½ in minimum of unobstructed airflow beneath the deck on both ends in the direction that the joist runs and have at least 3/16 in board spacing.
- **Recommended CAMO Tools:**
 - MARKSMAN Pro® (3/16 in gap)
 - CLIPDRIVE™ with clips on grooved boards
- **Pre-drilling is Required:** Use the pre-drill process when installing capped composite boards to eliminate mushrooming and splitting.
 - Use CAMO 3/16 in pre-drill bit (item #345035) with your MARKSMAN Pro Tool in place on the deck board.



You can also use your own 3/16 in drill bit chucked at 2-¾ in from the nose of the drill



CEDAR AND REDWOOD

Cedar and Redwood are stable deck boards. They naturally resist moisture which causes splitting, twisting, and cupping. Following the guidelines presented will ensure the best performance.

- **Board Spacing:** We recommend 1/8 in to 1/4 in spacing between boards at the time of installation.
- **Installing on Sleeper Systems:** You must allow a 1-½ in minimum of unobstructed airflow beneath the deck on both ends in the direction that the joist runs and have at least 3/16 in board spacing.
- **Recommended CAMO Tools:**
 - MARKSMAN Pro® (3/16 in gap)
 - DRIVE (with secondary 3/16 in spacer)

Recommendations by Board



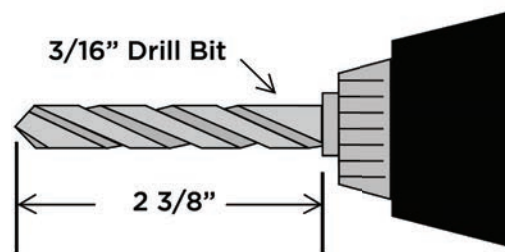
TROPICAL HARDWOOD

Twisting, warping, and cupping are common performance attributes with hardwood decking. Following the guidelines presented will reduce, but not eliminate, the normal behavior of hardwood deck boards.

- **Acclimating:** Tropical hardwood decking needs to be acclimated to the environment prior to installation.
 - We recommend that the boards be on-site at least 7 days prior to installation.
 - Do not store directly on the ground or on top of concrete. Decking should be elevated at least 12 in off the ground.
 - Cover the material with a sheet of plywood to keep it dry until installation. Do not use a tarp or plastic as a cover as both can trap moisture.
 - Place 1 in x shims/stickers between the rows of boards to allow for airflow.
- **Board Spacing:** A minimum of 1/16 in spacing is required to allow for expansion and contraction. Expect 1/8 in-1/4 in of side-to-side board shrinkage.
- **Installing on Sleeper Systems:** Typical sleeper systems will not meet the minimum airflow requirements for hardwood installation, so they are not recommended.
- **Cutting:** Board ends should be sealed with end grain sealant within 24 hours of cutting.
- **Recommended CAMO Tools:**
 - MARKSMAN Pro® (3/16 in gap) for the best experience
 - MARKSMAN Pro®-X1 (1/16 in gap) for minimal spacing
 - CLIPDRIVE™ with clips on grooved boards
- **Pre-drilling is Required:** Use the pre-drill process when installing hardwood boards to eliminate pushout and splitting.
 - Use CAMO 3/16 in pre-drill bit (item #345035) with your CAMO MARKSMAN Pro or Pro-X1 Tool in place on the deck board.



You can also use your own 3/16 in drill bit chucked at 2-3/8 in from the nose of the drill



Installing at Butt Joints



ALWAYS INSTALL A DOUBLE JOIST AT THE BUTT JOINTS

Use a separate clip to secure each board end. Please follow your deck board manufacturer's instructions for end-to-end board gapping distance to allow for expansion and contraction at this joint.

EDGE CLIPS

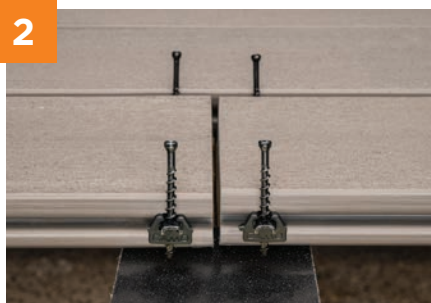
1



REMOVE LEGS ON EDGE CLIP

You will need 4 clips for each butt joint. Remove the legs of the Clip so that they can sit side-by-side on the double joists.

2



FASTEN SCREWS

With boards positioned correctly, place the clips in the groove, centered on joists on both sides of the boards. Partially fasten the screws to hold them in place until next board is set, then fully fasten the screws.

WEDGE & WEDGEMETAL CLIPS

1



PLACE 4 CLIPS

Place 4 Clips centered on joists on both sides of the boards.

2



FASTEN SCREWS

Place the next board up against the clips, then fasten the screws.

Replacing Boards If Needed

1



BACK OUT SCREWS

Back out all of the screws from the joist on both sides of the board.

2



PULL UP BOARD

Pull up on the board to easily remove it.

3



LAY NEW DECK BOARD

Clean away any clips remaining on the joists and lay the new deck board in position without any clips in place.

4



REMOVE LEGS

Count the number of clips needed and snap off the legs on each EDGE Clip, if using.

5



SLIDE CLIPS DOWN GROOVE

Slide the clips (screws and gussets) down the groove positioning one over each joist on both sides of the board.

6



FASTEN AT EACH JOIST

Fasten clips securely in place using the NEVER-MISS® Guide.

Troubleshooting

REMOVING COLLATED SCREWS FROM DRIVE

1



SLIDE PICKER

Slide the picker up to the nose piece to release tension.

2



REMOVE STRIP

The strip should easily pop free, or you can pull it out.

UNJAMMING COLLATED STRIPS

1



RELEASE STRIP

Slide picker up to release the strip from the picker.

2



BACK OUT OR TEAR STRIP

If possible, back out the strip from the nose piece. If you can't back it out, tear the strip away from the jammed fastener.

3



REMOVE NOSE PIECE

Remove the nose piece to ensure it's clear of fasteners.

4



REATTACH

Insert the nose piece again

5



RELOAD

Load a new strip of screws.

WHEN TO CHANGE THE BIT



Driver bits and the bit holder will wear over time.

If you hear a grinding sound while driving, the bit may be slipping in the bit holder

- Check the bit tip for wear and replace it if it's worn.
- If the bit tip is fine, check the bit at the top where it locks into the bit holder.
- If there is a wear line at the top of the bit, it's time to change the bit holder.



If you're experiencing screws not driving fully flush:

- Check the depth dial—it's possible it was bumped.
- Make sure you're using the correct bit.
- Check the bit tip for wear and replace it if it's worn.
- If there is a wear line at the top of the bit, it's time to change the bit holder.



We do not recommend the use of impact drivers as they will cause driver bits to wear quickly and even crack.

BOARDS ARE CRACKING WHEN FASTENED



Edge Fastening

- If you are applying too much pressure on the drill it prevents the screw from boring the material. This can cause screw slipping and mushrooming with PVC and composite boards, or cracking and splitting of wood boards.
- Solution: let the rake tip on the screw auger the material out—do not force it.

Composite Face Fastening

- If you are applying too much pressure, the composite boards can mushroom and crack.
- Solution: let the sharp point of the screw do the work of biting into the board—do not force it. Additionally, the trilobular shank will reduce torque and prevent mushrooming.

CLIP SCREWS ARE STRIPPING

Excessive torque can cause over-driving, resulting in screw spin-out or stripping. Be sure your drill (not impact driver) is set to 30% of maximum torque. Also, be sure to check the tip on your bit for wear if screws continue to strip and replace it if it's worn.



CAMO[®]

The Better Way to Build a Deck

For more information, visit camofasteners.com or
contact us at 800-968-6245 or info@camofasteners.com.

ITEM #0345989