

ARMADILLO[®]

COMPOSITE DECKING

Installation and Care Guide



ARMADILLODECK.COM

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STOP – Must Read Guidelines

Failure to install Armadillo Composite Decking products in accordance with local building codes and the following guidelines will void the product warranty.

Avon Plastics, Inc. Disclaimer: Armadillo deck boards must be supported by a code compliant substructure and CANNOT be installed on top of existing deck boards. All installations are unique and should be reviewed by a licensed architect, engineer or local building official before installation begins. Avon Plastics does not accept liability or responsibility for any improperly installed decks or docks.

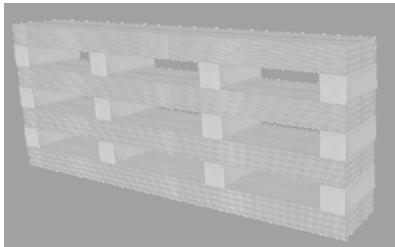
The Basics:

1. Do NOT use nails with Armadillo Composite Deck boards. Use only approved TurboClip Hidden Deck Fasteners and/or Starborn color matched screws.
2. Install Armadillo deck boards with the embossed side up.
3. As with all polymer decking products, limiting the amount of build up of dust, dirt, sand, etc. from products such as concrete, masonry products, paver blocks, etc. is essential to protecting the deck surface from unnecessary scratching. Immediate removal of such materials is necessary or risk the potential damage of the deck's surface. Scratching is not covered by the warranty.
4. If this is a new build, a good practice would be to install the deck boards after all other exterior construction activities (roofing, painting, siding etc.) are completed.
5. Do Not use the composite deck as a work surface.
6. Always check to make sure the factory end cuts are square before installing. There can be some variations.
7. Inspect your material before installation. In the unlikely event you receive defective materials, you will save time and money if discovered before installing.
8. All composite products will expand and contract with changes in temperature. It is a best practice to avoid butt joints and design and install transition boards for longer decks to reduce the appearance of gapping.
9. Low-emissivity (Low-E) glass reflects more sunlight. The extra reflectivity resulting from the concavity in the glass can act like a mirror, concentrating sunlight onto the decking. The result can be an extreme increase in the amount of heat concentrated on areas of the decking surface and potentially cause damage to the board.
10. We recommend, but it is NOT REQUIRED for warranty purposes, that all board ends, including ripped/exposed Armadillo board cores, be sealed using Extreme Moisture Repellant End Board Sealer. Sealer helps prevent moisture absorption and should be applied thick enough to exposed area to provide an even coat.
11. Variation or changes in board colors does occur. We recommend laying out your deck boards before installation begins.

Job Site Storage and Handling:

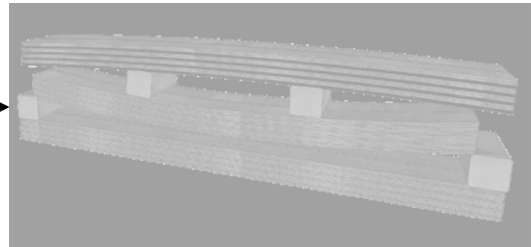
Armadillo must be stored flat and level. Adjust support blocks accordingly.

- When stacking Armadillo products, supports should start at each end and be spaced 2' (60.96 cm) on center. Supports should line up vertically.
- DO NOT stack Armadillo products higher than 6 bundles or 12' (3.66 m) high.
- Cover materials on site until ready for installation.



Correct Stacking

Support
Blocks



Incorrect Stacking

Tools Required:

SAWS:

Miter Saw



Recommend using a carbide-tipped blade with 60 teeth or more

Jig Saw



Recommend using a carbide-tipped blade for making cuts

DRILLS:

Install TurboClip Hidden Deck Fasteners with standard power drills, impact drivers or right-angle drills.



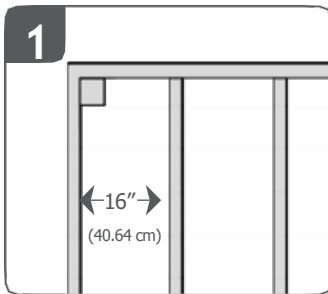
OTHER TOOLS: Chalk Line , Tape Measure, Carpenter Square, Level, Spacing Tools, Rubber Mallet

SAFETY ITEMS: Safety Glasses, Ear Protection, Gloves, Dust Mask, Protective Clothing

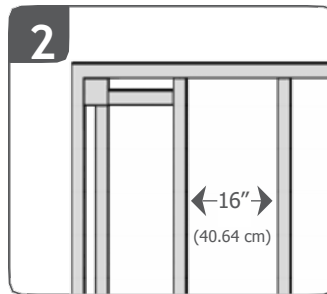
Deck Framing Guidelines:

Armadillo deck boards must be supported by a code compliant substructure.

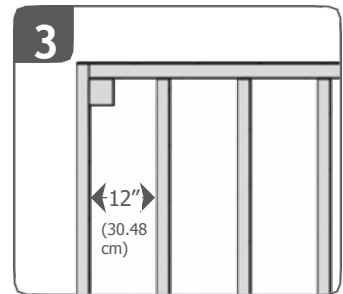
- As joists are installed, run string line frequently to ensure that the tops of the joists are in plane, as Armadillo Decking will conform to the contour of the joists to which it is attached. It may be necessary to shim or plane joists due to size variations in lumber. Be sure to sort and exclude any extremely crowned joists/lumber material.
- Install solid wood blocking between each joist, placed in rows at maximum every 4' - 6' (1.22-1.83 m) within the structure using exterior grade screws. Solid blocking will help reduce up or down movement and/or twisting of joists. Limiting joist movement can help reduce excessive gapping and also ensure a more uniform finished surface of the Armadillo Deck.
- Use of Armadillo Joist Covers can provide excellent protection to the joist substructure, extending its life.
- Prior to installation, check to make sure all joists are level, structurally sound, and there are no nails or screws protruding.
- Proper joist spacing is required for proper installation. Joist spacing should never exceed 16" (40.64 cm) on center. Or 12" (30.48 cm) on center for commercial and Canadian applications. For a more rigid feel, 12" (30.48 cm) may be preferred.



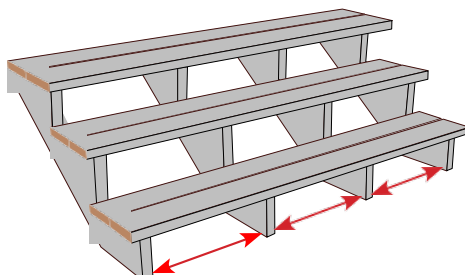
Perpendicular Installation Substructure 16" (40.64cm) on center maximum joists. Or 12" (30.48 cm) on center for commercial and Canadian applications.



Picture Frame-Perpendicular Installation Substructure 16" (40.64cm) on center maximum joists plus additional support for picture frame structure. Or 12" (30.48 cm) on center for commercial and Canadian applications.



Diagonal (45 degree) Installation Substructure 12" (30.48 cm) on center maximum joists. Different angles will require – 60 degrees 14" (35.56 cm) on center spacing, 30 degrees 6" (15.24 cm) on center. (Building codes may vary by location.)

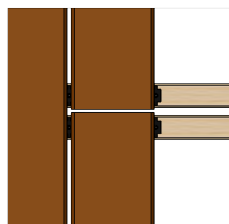


Perpendicular Stair Pattern
9" (230 mm) max on center.

Gapping (Expansion and Contraction):

When installing Armadillo composite decking, gapping guidelines must be followed to minimize expansion and contraction issues and allow for proper drainage and the shrinking of treated wood joists that can happen over time.

- Expansion/contraction is most significant where extreme temperature change may exist.
- We recommend a minimum temperature of 40° F (4.44° C) when installing.
- Best practice is to fasten the deck boards as soon after cutting as possible. Cutting in the heat of the afternoon and leaving them overnight in the cooler air will cause contraction.
- For better results keep decking as cool as possible during attachment. Direct full sun exposure will increase board temperature and length. If attaching during high heat, larger gapping can be expected. Be sure to keep butt joints, splices or miters tight.
- Be sure to fasten ends of boards, splices, or abutments to building or structure securely into framing using 2 screws. Position the screws at or within ½" (12.7 mm) of each board end or joint and ¾" (19.05 mm) from side of deck plank.
- For butt joints, be sure to trim cut factory ends to ensure squareness. Do not scarf cut butt joints. Use nailer boards on either side of joist to properly connect butt joints with two TurboClip fasteners. See diagrams below.



- Note: It is recommended to avoid butt joints and expansion contractions issues and install a transition board in between lengthy spans.



- Provide a 1/8" (3.175 mm) to ¼" (6.35 mm) side to side gap between deck boards.
- End Gapping Chart on next page

Gapping (Expansion and Contraction) continued:

End Gapping Charts below:

END GAPPING CHART (EXACT DIMENSIONS)						
End Gap Distance for every 16' (4.88 m)						
Maximum Expected Temperature Fahrenheit (Celsius)						
Current Temp Fahrenheit (°C)	70°F (21.11°C)	80°F (26.67°C)	90°F (32.22°C)	100°F (37.78°C)	110°F (43.33°C)	120°F (48.89°C)
40°F (4.44°C)	0.099" (2.5146mm)	0.132" (3.3528mm)	0.165" (4.191mm)	0.198" (5.0292mm)	0.231" (5.8674mm)	0.264" (6.7056mm)
50°F (10.00°C)	0.066" (1.6764mm)	0.099" (2.5146mm)	0.132" (3.3528mm)	0.165" (4.191mm)	0.198" (5.0292mm)	0.231" (5.8674mm)
60°F (15.56°C)	0.033" (0.8382mm)	0.066" (1.6764mm)	0.099" (2.5146mm)	0.132" (3.3528mm)	0.165" (4.191mm)	0.198" (5.0292mm)
70°F (21.11°C)	-	0.033" (0.8382mm)	0.066" (1.6764mm)	0.099" (2.5146mm)	0.132" (3.3528mm)	0.165" (4.191mm)
80°F (26.67°C)	-	-	0.033" (0.8382mm)	0.066" (1.6764mm)	0.099" (2.5146mm)	0.132" (3.3528mm)
90°F (32.22°C)	-	-	-	0.033" (0.8382mm)	0.066" (1.6764mm)	0.099" (2.5146mm)
100°F (37.78°C)	-	-	-	-	0.033" (0.8382mm)	0.066" (1.6764mm)

END GAPPING CHART (NOMINAL FRACTIONS)						
End Gap Distance for every 16' (4.88 m)						
Maximum Expected Temperature Fahrenheit (Celsius)						
Current Temp Fahrenheit (°C)	70°F (21.11°C)	80°F (26.67°C)	90°F (32.22°C)	100°F (37.78°C)	110°F (43.33°C)	120°F (48.89°C)
40°F (4.44°C)	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"
50°F (10.00°C)	1/16"	3/32"	1/8"	5/32"	3/16"	7/32"
60°F (15.56°C)	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"
70°F (21.11°C)	-	1/32"	1/16"	3/32"	1/8"	5/32"
80°F (26.67°C)	-	-	1/32"	1/16"	3/32"	1/8"
90°F (32.22°C)	-	-	-	1/32"	1/16"	3/32"
100°F (37.78°C)	-	-	-	-	1/32"	1/16"

Flashing and Joist Cover Installation:

Flashing



- Plastic flashing is the perfect solution for directing water away from the house and over the ledger board. By preventing that moisture from seeping into the stud wall and rotting the house frames supporting your deck.
- Simply place the flashing on top of the ledger board with the long side against the house and attach with nails or staples every 16" (40.64 cm) to the structure.

Joist Cover



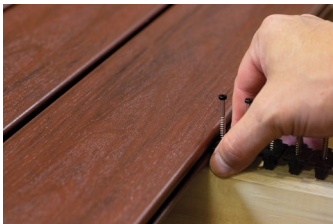
- Our low maintenance decking is a smart investment. Protect that investment by guarding its foundation. When leaves and debris get trapped between your deck boards and joists it causes deterioration. Armadillo Joist Covers protect the underlying lumber where moisture collects to prevent rotting. Protect the sub-structure of your deck.

Fasteners:



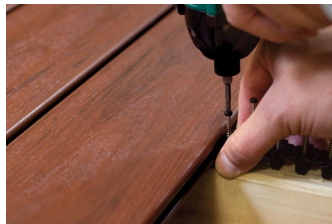
Hidden Deck Fasteners

- Use only approved, non-evasive, hidden deck fasteners. Armadillo recommends the use of TurboClip Hidden Deck Fasteners and Starter Clips for grooved board installation. Use of any alternative fastener does not void the Armadillo warranty; however, if a decking failure is caused by using one of these alternative fastening methods, any corresponding claims will be denied. See list at end of guide.
- Install two TurboClips to each board per joist.



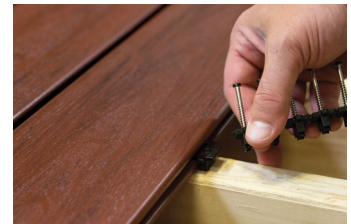
Insert

Insert the TurboClip Universal Hidden Deck Clip into the groove of the deck board. Unlike regular deck clips, TurboClip Universal Hidden Deck Clips come in "sticks" of 16, so you aren't continuously reaching for another clip at every joist.



Drive

Drive the preloaded screw through the Universal Hidden Deck Clip and into the deck support. TurboClip Universal Hidden Deck Clips come with preloaded, stainless steel screws.



Snap

Snap off the remaining stick of TurboClip Universal Hidden Deck Clips. To continue your decking install, simply snap off the clip that you previously screwed in and continue across the length of the board.

Fasteners: Face Screws

- Use reverse-threaded composite deck screws.
- For Evolution™ and Lifestyle™ decking screws must be 3/8" to 3/4" (9.525-19.05 mm) from side of board, and 3/8" to 1" (9.525-25.4 mm) from end of board.
- **IMPORTANT:** Armadillo Essential™ boards **MUST** only be installed from outer edges. Install fasteners 1/2" (12.7 mm) from the edge of each side of the board. Placement of plugs elsewhere will void warranty.
- Use Starborn Cap-Tor®xd Armadillo color-matched screws for best results. Always pre-drill 9/64" (3.571 mm) pilot hole.
- Use caution not to overdrive screw.

STARBORN[®]

STARBORN INDUSTRIES, INC.

IDEA DRIVEN PRODUCTS: Deck Screws, Drilling Tools, Construction Fasteners

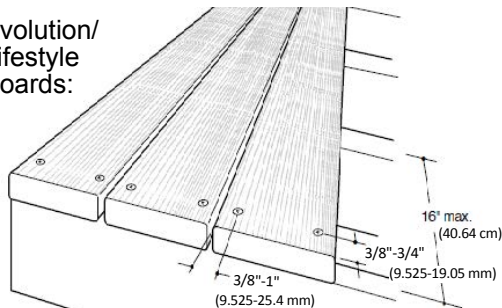
45 Mayfield Avenue, Edison, NJ 08837

tel (732) 381-9800

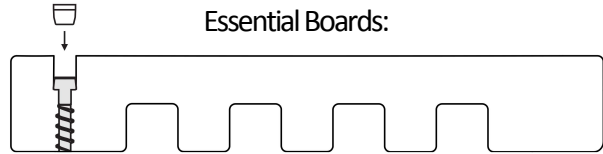
fax (732) 381-9830

web www.starbornindustries.com

Evolution/
Lifestyle
Boards:



Essential Boards:



Note: Placement of plugs other than shown here will void warranty.

- Use Starborn Pro Plug System with color matched Armadillo plugs for Deck boards. (Can Not be used for fascia and riser boards.)
- Make sure to pre-drill 7/32" (5.556 mm) pilot hole. Drill pilot hole only through the deck board. Do not drill pilot hole into framing.

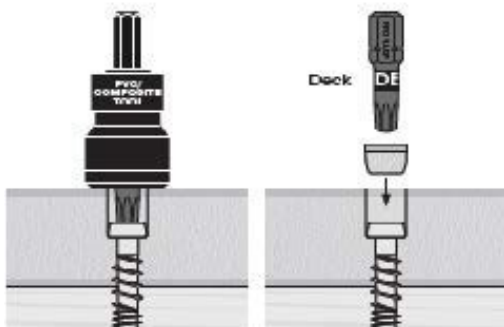
STARBORN[®]

PRO PLUG[®] SYSTEM

Deck

Hidden Fastening for PVC/Composite Decking.

Scan code to visit
starbornindustries.com

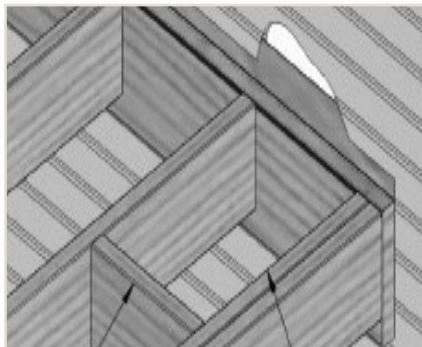


STARBORN COLOR	ARMADILLO COLOR
Brown (#34)	Firewood, Campfire
Chocolate (#71)	Bourbon, Saloon, Walnut
Dark Gray (#53)	Steel Wool, Dovetail, Thunder, Smoke
Sand (#64)	Saw Grass
Gray (#37)	Coyote
Java (#73)	Bronco, Tortoise
Mahogany (#82)	Mesa, Sunset
Tan-Gray (#31)	Twilight, Foothills
White (#39)	Linen, White Sand

- For proper installation, refer to www.starbornindustries.com for all installation instructions for deck screws and the Pro Plug system.

General Installation Guidelines:

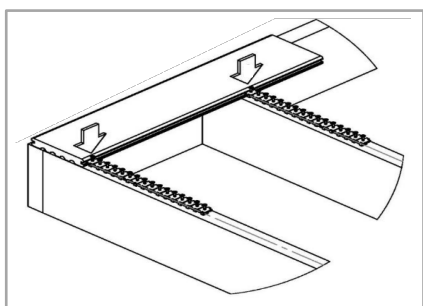
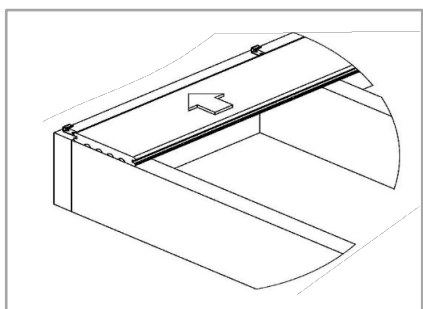
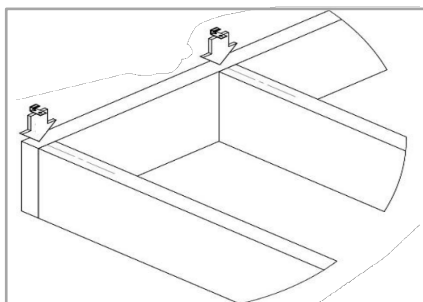
SOLID AND GROOVED



BLOCKING

SUPPORT JOIST

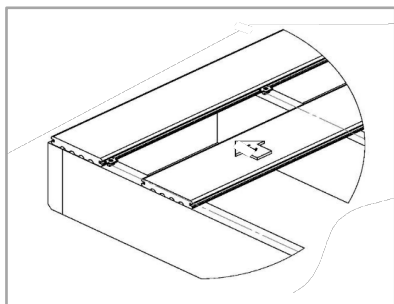
- Add a support joist to the outside or inside of the outer joists. Insert the Armadillo flashing so the shorter edge rests over the house ledger wood board and the longer plastic edge is inserted behind the house siding. Add notches in the Armadillo flashing to clear wood joists as needed. Add an additional support joist to the outer edge (prevents stringer movement). For longer spans/runs of decking please add additional support blocks throughout substructure, preventing twisting and adding rigidity.



- Start at the end of the deck away from the house. First, place the TurboClip® Starter Clip on the joist 1/4" (6.35 mm) from the outside edge of the deck frame. Align the screw with the center of the perpendicular joist and secure. Continue across the length of the deck frame using one (1) Starter clip at every cross joist. Be sure to align the starter clips so that the deck boards are installed level across the lineal path.
- Push the first deck board into the starter clip.
- Insert TurboClip® Hidden Deck Clip into the side groove of the board. The arrow on each clip indicates which side to insert. Align the screw with the center of the joist. Drive the screw so that the head is flush with the clip. **DO NOT OVERDRIVE SCREW.** Overdriving screws will cause clip failure. Pull up, twist and snap off the remaining TurboClip® stick.
- Slide the next deck board into place. Continue across the length of the deck board. Continue to measure the distance to home and adjust accordingly so the last board doesn't have to be trimmed lengthwise at an angle.

General Installation Guidelines:

SOLID AND GROOVED



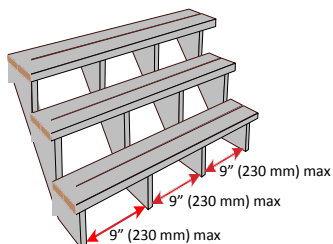
- When sliding the next deck board into place, slightly raise the outer edge of the board being installed and slide it onto the fastener until the board contacts the spacer tab. A rubber mallet can be used to tap the board into place against the spacer tab.



PICTURE FRAMING

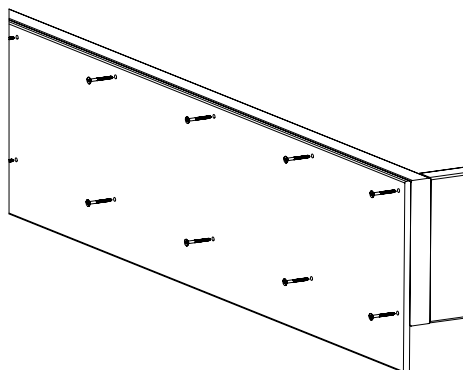
- When butt joints are used be sure to follow gapping guidelines shown on pg 6. *We recommend picture framing and using a transition board to avoid butt joints.* When butt joints are used with lack of picture frame, perimeter screws are required. When installing fascia to cover the ends of the boards, screws are not required around the outside deck perimeter.

STAIR INSTALLATION



- Stair stringers should be placed no more than 9" (230 mm) on center. Face screw boards on stair stringers. Use solid boards only. A 1/16" (1.59 mm) minimum edge gap is required between stair treads.

FASCIA/RISER INSTALLATION



- Pre-drill pilot holes starting 1 1/4" (3.175 cm) in from board end and 3/4" (19.05 mm) from outer edge of fascia/riser board, every 12" (30.48 cm) on center using a drill bit. Pre-drilled holes should be larger than screw to allow for board movement during expansion and contraction. Screw down the fascia board using the pre-drilled holes with a composite fascia deck screw. **DO NOT FULLY TIGHTEN SCREW.** We recommend Starborn's Fascia screw system.
- Drill screws in perpendicular, not at an angle. Do not overdrive, splitting may occur.
- Gapping: A 1/16" (1.587 mm) minimum gap is required. Failure to use proper gapping will void all warranties and liabilities.
- Fascia/riser may be installed to cover the ends of boards or under the cantilevered deck surface.
- Armadillo fascia/riser boards are not made to be used as deck boards.

CARE AND CLEANING

Armadillo is the ultimate choice for a low maintenance product that requires cleaning at least 2 times a year. These periodic cleanings will help to maintain the appearance of the deck boards. Please visit www.armadillodeck.com for additional information.

Problems and Recommended Solutions

DIRT AND DEBRIS

Spray the affected area with a water hose to remove dirt from surface. Use warm soapy water made with mild dish washing detergent and a soft sponge/rag to remove any dirt buildup. Thoroughly rinse off with garden hose when complete.

STICKER ADHESIVE

Apply citrus based cleaning product (such as Zep, Goof Off, Goo Gone, etc.) to the affected area. Use a soft sponge or rag to gently remove the buildup. Be sure to thoroughly rinse off the decking surface.

OIL AND GREASE

All oil and grease spills should be cleaned up as quickly as possible. Use warm, soapy water made with mild dish washing detergent and soft sponge or rag to remove the spill. Thoroughly rinse off with a garden hose when complete. **The deck surface must be cleaned within one week to maintain the stain portion of the warranty.**

MOLD AND MILDEW

Mold and mildew are commonly found on outdoor building materials. To prevent pollen and debris buildup, periodic cleaning is best. If mold or mildew is present, use warm soapy water made with mild dish washing detergent and soft sponge or rag to remove it. Thoroughly rinse off with a garden hose when complete.

ICE AND SNOW

Apply calcium chloride or rock salt if needed. Be sure to thoroughly rinse off deck surface later on to avoid residue buildup. A plastic shovel may be used to clear snow. Never use a metal shovel or sharp edged tools to remove snow and ice.

PRESSURE WASHER

We do not recommend the use of a pressure washer as it could damage the deck surface.

Armadillo Fastener Quick Reference Guide						
Hidden Fasteners for Deck Boards						
Manufacture	Brand name	Fastener Size	Do Not Recommend	Recommended Good	Best	
Avon Plastics	TurboClip Universal Standard Gap Deck Clip	#8 X 1-3/4"			X	
Avon Plastics	TurboClip Universal Narrow Gap Deck Clip	#8 X 1-3/4"			X	
Standard Fasteners for Deck Boards						
Manufacture	Brand name	Fastener Size	Do Not Recommend	Recommended Good	Best	Pilot Hole Size
Starborn	Cap-Tor xd Headcote 316	#10 X 2-1/2"			X	9/64"
Starborn	Cap-Tor xd Headcote 316	#10 X 2-3/4"			X	9/64"
Starborn	Cap-Tor xd Headcote 305	#10 X 2-1/2"			X	9/64"
Starborn	Cap-Tor xd Headcote 305	#10 X 2-3/4"			X	9/64"
Starborn	Cap-Tor xd Epoxy Coated Carbon Steel	#10 X 2-3/4"			X	9/64"
GRK Fasteners	RT Composite Trim Head Screw	#8 X 2-1/2"		X		1/8"
Grip Fast	Composite Cladding Screw	#9 X 2"		X		5/32"
DeckMate	Star Drive Composite Screws	#9 X 2-1/2"		X		5/32"
Grip Rite	Composite Deck Screw II	#9 X 2-1/2"		X		5/32"
Grip Rite	Composite Deck Screw II	#9 X 3		X		5/32"
Grip Fast	Composite Decking Screws	#10 X 2-3/4"		X		9/64"
Camo	Edge Deck Screws	#7 X 1-7/8"	X			1/8"
Camo	Edge Deck Screws	#7 X 1-7/8"	X			1/8"
DeckMate	Star Drive Coated Screw	#8 X 2"	X			1/8"
Grip Fast	Stainless Steel Deck Screw	#8 X 2"	X			1/8"
DeckMate	Star Drive Coated Screw	#9 X 2"	X			5/32"
DeckMate	Star Drive Coated Screw	#9 X 2-1/2"	X			5/32"
Grip Fast	Triple Coated Deck Screws	#9 X 2-1/2"	X			5/32"
Note: A pilot hole must be drilled prior to installing any fastener in the Armadillo boards whether or not the fastener company recommends pre-drilling.						
Standard Fasteners for Fascia Boards						
Manufacture	Brand name	Fastener Size	Do Not Recommend	Recommended Good	Best	Pilot Hole Size
Starborn	Deckfast Fascia Epoxy Coated Carbon Steel	#10 X 1-7/8"			X	5/32"
Starborn	Deckfast Fascia Stainless	#9 X 1-7/8"			X	5/32"
Grip Fast	Ultra Clip Hidden Fastener System Decking Screw	#6 X 1-1/2"		X		3/32"
Grip Rite	Trim Screws	#7 X 1-5/8"		X		1/8"
DeckMate	Star Drive Composite Screws	#8 X 1-5/8"		X		1/8"
Grip Rite	Composite Deck Screw II	#8 X 1-5/8"		X		1/8"
DeckMate	Star Drive Coated Screw	#8 X 1-5/8"		X		1/8"
Grip Fast	Stainless Steel Deck Screw	#8 X 1-5/8"		X		1/8"
Note: A "pilot" hole must be drilled prior to installing any fastener in the Armadillo fascia whether or not the fastener company recommends pre-drilling.						