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Tip In Dock Instructions 2016 Design

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1. Dock Assembly and Set-Up

1.1 Quick Start

Your Bestmade Docks have been designed to be very simple and straight forward to assemble. Each dock has an aluminum frame, (2) cedar, Surestep, or PVC deck panels, and either 2 or 4 dock legs with foot pads. Use this Quick Start diagram to get set up very quickly.

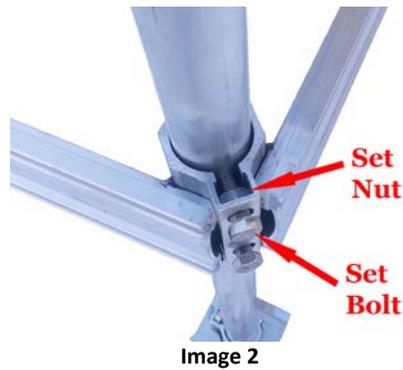


The following tools will be needed for dock installation...

- 4 ft level
- Combination wrench - 3/4"
- Combination wrench - 9/16"
- Combination wrench - 1/2"
- Utility gloves
- Fastener lube or grease (recommended for use on all fasteners)
- Needle Nose Pliers (can be helpful turning thumb screws)

1.2 Installing Dock Legs

The first step is to install the leg holder set bolts and nuts. As we can see in Image 2, the 1/2" hex nut slides into the leg holder channel and the 1/2" x 1-1/4" long hex bolt spins into the nut. There are a pair of set bolts and nuts used on each dock leg.



As we can see in Image 2, the dock leg slides through the leg holder and is secured with the set bolt. To adjust the dock leg up and down, simply loosen the pair of set bolts, raise or lower the dock, and then re-tighten. Using a 3/4" wrench, a good rule of thumb to ensure the set bolts are tightened properly is to spin 1 complete turn past hand tight when the leg has been pushed up against the back of the leg holder.

In most dock systems, the first dock section (closest to shore) is considered a free-standing section and uses 4 legs. All additional dock sections as the system goes from shore out into the water use 2 legs, as they essentially share the previous section's legs by close proximity. The exception to the 2-leg rule on subsequent dock sections is when dock orientation changes. For example, suppose a system was 4 dock sections long with the first 3 sections creating a straight dock of 4' wide by 24' long. If the 4th dock section of the system was turned 90 degrees and centered on the end of the 24' (creating a "T" layout), this 4th dock section would need 4 legs.

Hidden Leg Posts

For dock layouts that require a dock leg on an interior portion of a layout that would otherwise require a leg sticking up through the decking surface in the middle of a walking area, a Hidden Leg Post can be used. A Hidden Leg Post is an extension of the dock leg holders welded into each corner of the dock frames so that the adjustment range of a given dock leg can be moved underneath the dock frame.

A Hidden Leg Post will consist of an 8" long piece of attachment pipe that fastens into the dock frame leg holder with the top of the attachment pipe being flush with the top of the leg holder, resulting in 4" worth of attachment pipe sticking out on the bottom side of the dock leg holder. The Hidden Leg Posts are outfitted with drilled holes in each end that will accommodate the same 1/2"x 1-1/4" long hex bolts and nuts used in the

dock leg holders. As seen in Image 3, one side will fasten to the 4" of attachment pipe bolted into the dock frame leg holder. The other side will be used as the adjustment point for the dock leg that will support the dock at that location. ** If exact water depth measurements are not provided for the location the Hidden Leg Posts are to be used, the dock leg in that location may prove to be too long and need to be field cut. **

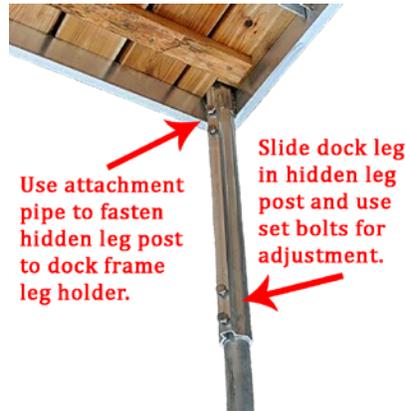


Image 3

1.3 Positioning Hinges

To connect one dock section to another without getting into the water we will use the tip in hinge system. The tip in hinge "hook and pin" system (Image 4) consists of (4) hinge plates per dock connection. There is (1) hook right plate, (1) hook left plate, and (2) pin plates.

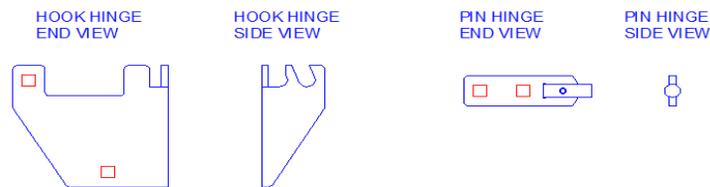


Image 4

All dock systems are installed by starting with the first dock section right at shore and working out into deeper water installing one dock section at a time using the previously installed sections as a walkway. If there is a dock connection to be made, there will be a hinge set to make the connection. Hence, there would typically not be a hinge placed at the very start where we first step onto the dock, or at the very end of the dock where no further sections are to be joined.

For a given dock connection, the hook hinge plates will always be placed on the end of the installed section closest to shore while the pin hinge plates will be placed on the beginning of the next section to be joined.

To position the hook and pin hinge plates on the frames we'll use the track system. Each hinge plate is connected to its frame by using (2) 5/16" x 5/8" long carriage bolts, washers, and hex nuts. (1) carriage bolt slides into the upper track, (1) slides into the lower track, and then the hinge plate is secured between the dock frame and the washers with hex nuts.

Start by ensuring that the dock frame is right side up. To do this, check to see that the recessed decking area is on the top side of the dock as shown in Image 5.

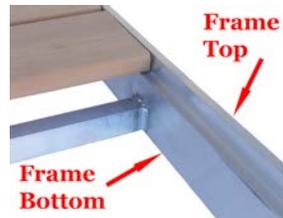


Image 5

Positioning Hinges on Straight Docks

**** Make certain leg set bolts and nuts are installed prior to installing hinge plates ****

When placing the hook right and hook left hinge plates, the hooks should always be pointing upward toward the sky (Image 4). Each hook plate is to be positioned as in Image 6 with the edge of the hook hinge plate aligning with the frame edge. By taking care to line up the designated edge of the hook hinge plate with the frame edge, we can be ensured that the hinge spacing will be correct.

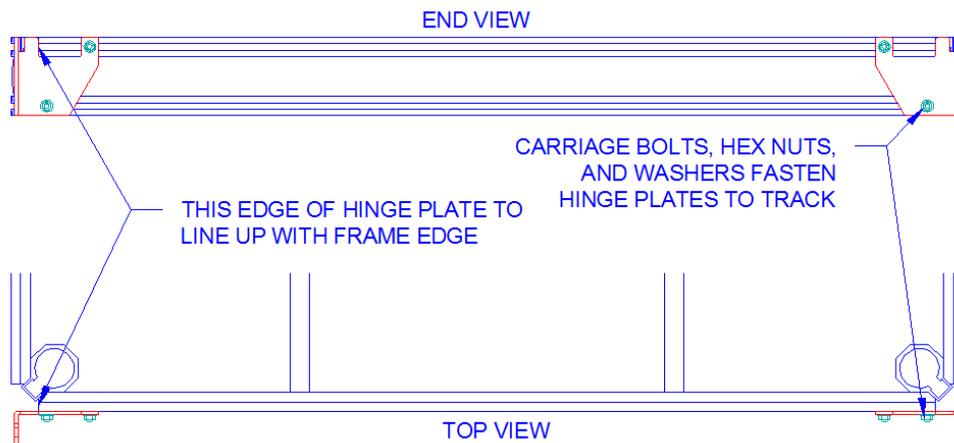


Image 6

Prior to installing the pin hinge plates, the thumb screws which will later be used when installing the dock must be placed as shown in Image 7. It is important that these thumb screws are placed prior to fastening the hinge pin plates to the dock frames. The end of the thumb screw should be flush with the diameter of the pin, but not protruding outward.

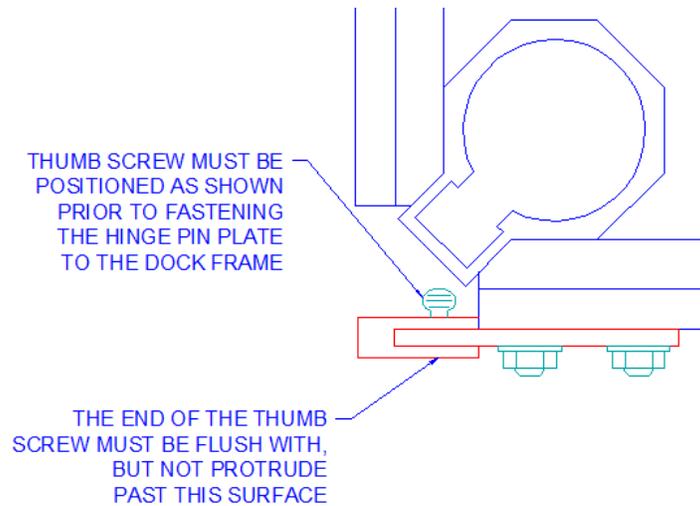


Image 7

When installing the pin hinge plates, the end of the pin will bottom out on the frame of the upper track. Hence, by taking care to ensure the pin end is lined up with the frame edge as shown in Image 8, the pin spacing will always be correct. Because the pin hinge plates are symmetrical, there is no designated right and left version like with the hook plates, so orientation is not important.

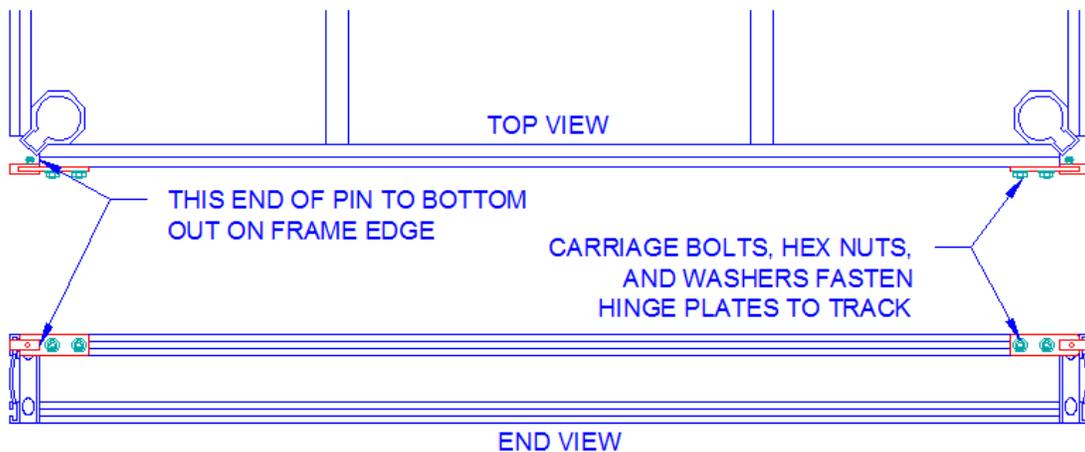


Image 8

Positioning Hinges When Changing Dock Orientation - Wider to Narrower

The methods in Images 6 and 8 of positioning the hinge plates works well for all straight dock connections (for example a straight 3 section dock where all sections are connected end-to-end) and for when a dock connection does not change width

(example: 4ft dock connected to 4ft dock, 8ft dock connected to 8ft dock, etc.) Working from shore outward into the water, if the dock system A) goes from a wider dock to a narrower dock (example a 6ft wide dock to a 4ft wide dock) or B) changes direction (example a "finger dock" that comes off the side of a dock section) we must manually measure the placement of the hook hinge plates.

Looking at scenario A first, let's suppose that we had a straight dock system that was 6ft wide. If for the last section we wanted to add a section that was narrower at 4ft wide, the distance between the hook hinge plates would have to be set up for use with the pin hinge plates on the last dock section of 4ft wide dock. When outfitting the end of the 6ft wide dock with the hook hinge plates, we would need to measure the distance between hook hinge plates to fasten them in the correct position (Image 9).

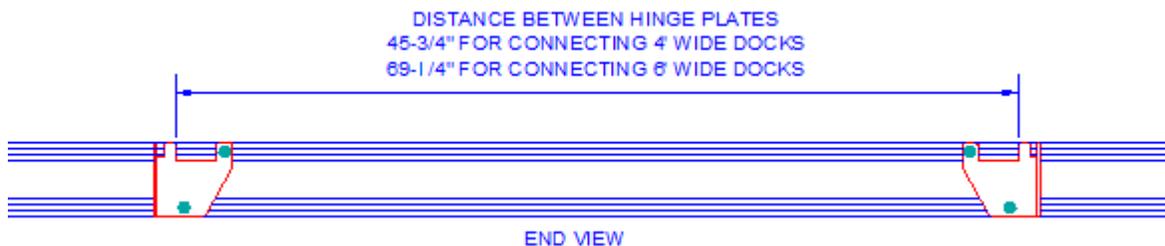


Image 9

* When connecting from an 8ft or 6ft wide dock to a 4ft wide dock the distance between hook plates should be 45-3/4".

*When connecting an 8ft wide dock to a 6ft wide dock the distance between hook plates should be 69-1/4".

Looking at scenario B, the same rules apply. Let's suppose we had a straight dock system consisting of 3 dock sections 8ft long each (24ft total) with dock1 being closest to shore, dock2 in the middle, and dock3 at the end. If we wanted to run a 4ft wide "finger dock" off the side of dock2, we'd need to mount a hook hinge set to the side of dock2. The distance between the hook hinge plates mounted to dock2 (Image 9) would need to be set to match the pin hinge plates on the 4ft wide "finger dock".

Positioning Hinges When Changing Dock Orientation - Narrower to Wider

Working from shore outward into the water, whenever dock width goes from narrower to wider a Tip Adapter must be used.

Let's suppose we were creating a "T" dock layout using 2 sections of dock, with dock2 being turned 90 degrees and centered on the end of dock1 (Image 10).

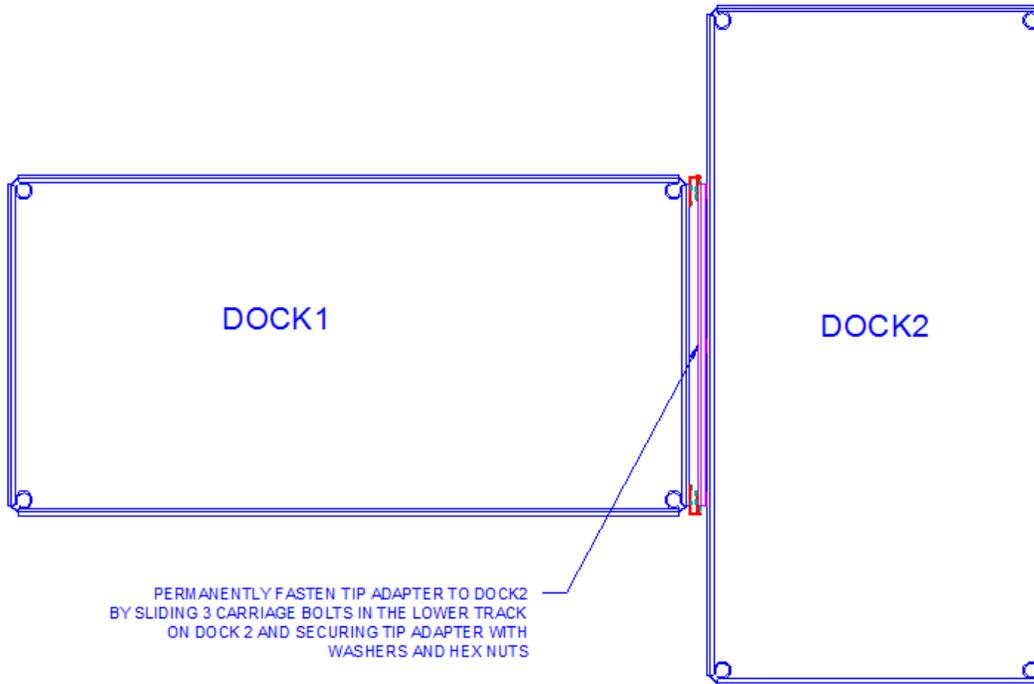


Image 10

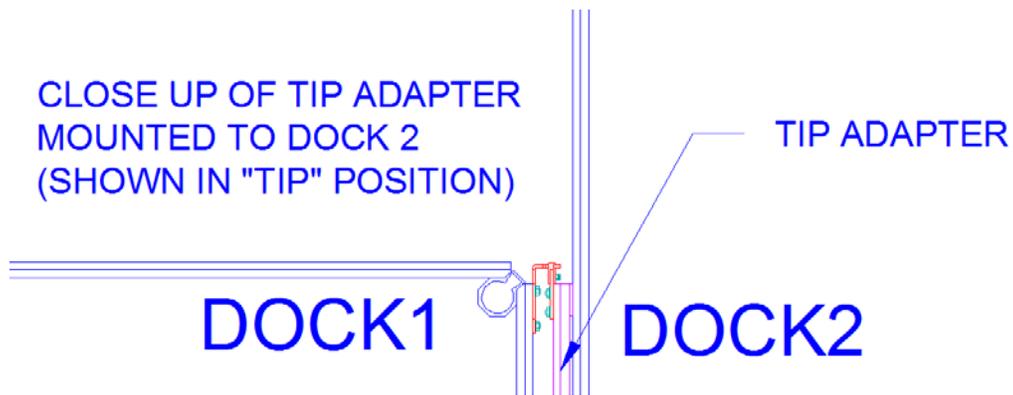
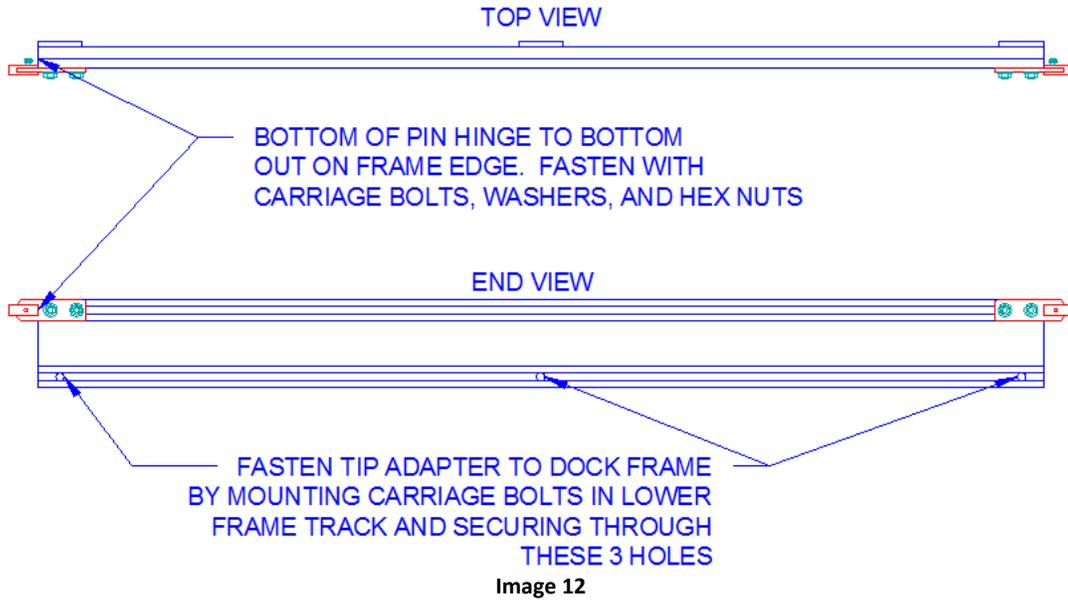
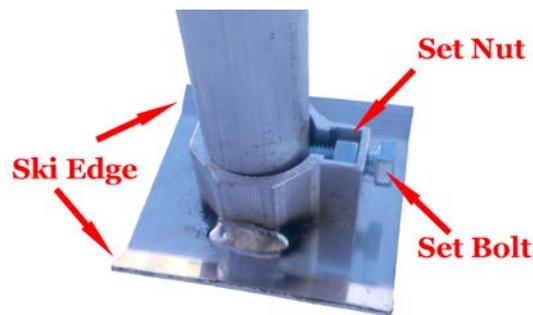


Image 11

On the end of dock1, the hook hinges would be placed normally as shown in Image 5. Because the pin hinges would not be able to properly mount to dock2, we need to use the Tip Adapter. The shore side of the Tip Adapter will get the pin hinges by fastening the plates via the track system with the back end of the pin being flush with the Tip Adapter (Image 11), while the water side of the Tip Adapter will fasten permanently to dock2 via (3) 5/16 x 1-3/4" long carriage bolts, washers, and nuts. The (3) carriage bolts will slide in the lower track of dock2 and connect through the 3 holes in the Tip Adapter (Image 12).



1.4 Installing Foot Pads



In Image 13, we see the foot pads. On soft lake bottoms, dock legs will begin to sink under the weight of the dock. To minimize this effect, you will be provided with foot pads as required. To install the foot pad, simply slide it over the bottom of the dock leg and tighten the set-bolt. The foot pad has a "ski edge" on each end. This is to allow the dock to more easily exit the soft material on the lake bottom. When removing the dock at season's end, the docks are removed one at a time in the reverse order in which they were installed. To remove a section, the dock hinge is unlocked, the frame is lifted slightly, and the dock is dragged backward so it can be carried back to shore via the remaining dock sections. The "ski edge" should be lined up with the direction in which the dock was installed so it can easily ride up out of the silt or mud lake bottom. For example, on a straight dock that runs north/south, the "ski edge" should also be lined up north/south.

1.5 Installing Cross Braces

As water depths get deeper, dock sections can become a bit wobbly. To mitigate wobble, Bestmade Products provides cross braces as required.

A cross brace consists of (1) aluminum cross bar, (2) tie clamps, and (2) carriage bolts and nuts (Image 14). The cross brace is designed to go across a section from low to high at an angle (Image 15). When installing a cross brace on shore for the first time, tighten the tie clamp on the low side but leave the tie clamp on the top side installed but loose until the dock has been leveled in the water. The reason for this is that lake bottoms are often uneven. Legs cannot be adjusted independently if both tie clamps are tight. Once the dock is leveled the tie clamp on the top side can be tightened.



Image 14

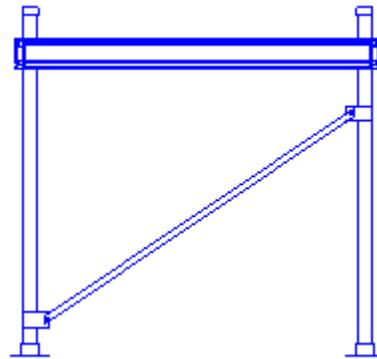


Image 15

It's good practice to alternate orientation of cross braces from section-to-section. For example, if a dock system consisting of 4 dock sections had cross braces on dock sections 3 and 4, dock section 3 might have the low side tie clamp on the left side while dock section 4 would have the low side tie clamp on the right side.

Deeper water depths will get progressively longer cross braces with a steeper angle. For example, 5 to 7ft long legs on 4ft wide docks typically get a 4ft brace, where as longer legs might get a 6 or 7ft long brace. Also, braces are typically contained within a section of dock meaning a given dock section is not braced to another. For example, patio dock sections with legs on a given 8ft side will get an 8ft brace.

1.6 Installing Docks into the Water

Before installing your Bestmade docks, the annual inspection procedure should be followed per section 4.2 of this text. This includes checking for rotted, cracked, split, or broken members, along with a thorough inspection of all fasteners to check for excessive corrosion or stripped or jammed threads. The deck panels should also be

inspected for defects of any kind, including broken, split, or unsecured boards, and fasteners should be checked for proper and sufficient lubrication.

1. Once sections 1.2 through 1.5 have been completed, dock sections may be installed into the water. For first time installation, all leg heights and cross braces should be positioned by best estimates based on where they will be on the water. This can be done on shore. Dock frames should be high enough out of the water as to avoid waves hitting them with regularity. For example, if a lake has 1ft maximum wave heights, the dock frame should be more than 1ft out of the water.

2. Place the first dock section, without the decking installed, into the water. On most shorelines, the first dock section is a 4-leg section and does not tip from any previous sections. These sections can usually be "pushed" into place by sliding the dock section along the lake bottom. Place it in its desired location, level, and tighten all set bolts (as well as the top side of any cross braces).

3. Once the frame is leveled and the dock legs have been tightened, place the deck panels into the frame and secure to the frame with the provided decking clips. Deck clips are installed by sliding in the upper track from the end of the frame.

Most standard dock sizes have (2) deck panels per section of dock. Deck panels can be made from cedar, poly panels (Surestep), or PVC. Each deck panel is secured to the frame via a pair of deck clips. Deck clips should be used on the center of the 2nd boards on opposite corners for cedar and PVC panels (Image 16). For Surestep panels, deck clips should be placed roughly 10" from the panel ends on opposite corners. Image 17 shows a deck clip installed in a track from a cut-away profile. Image 18 shows a deck clip in use on a cedar deck panel.

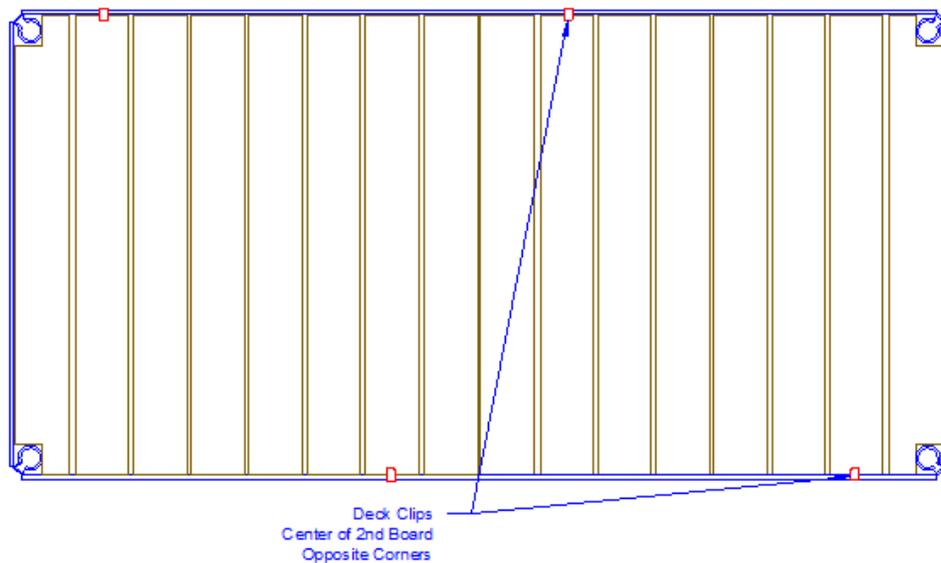


Image 16

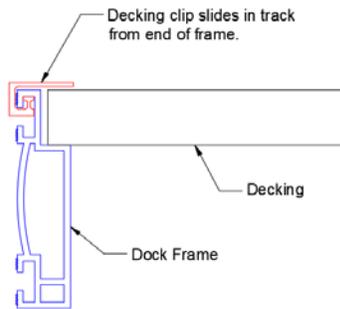


Image 17



Image 18

For dock sections that have hook hinges on an 8ft side (example on patio sections), the decking clips must be staged within the track prior to fastening the hook hinges on to the frame (Image 19). If the hook hinges were assembled first, the decking clips would not have a location to enter the track as it would be blocked on each end. Once staged, the decking clips can be moved out of the way to place a panel, then slid over the panel into position.

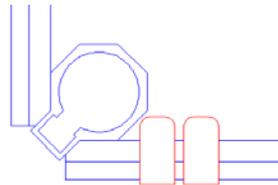


Image 19

For 6ft wide dock sections using the Surestep deck panels, there are (4) panels used of 3ft wide each as opposed to the typical (2) at 6ft wide each for docks decked with cedar. Therefore, there is a need to also secure the deck panels in the center of the frame.

As seen in Image 20, the Surestep deck panels are also to be secured at 2 locations in the center of the dock as shown via the center rail decking clip assemblies. These assemblies will be used between the panels and through the pre-drilled holes on the center rail of the dock frame. A larger washer will be used on the top side of the assembly with a large washer and wing nut used to secure under the dock frame center rail. Sequence becomes important on these panels in order to be able to access the center rail decking clip assemblies. For installation, panels 1 and 2 should be installed, then the first assembly, then panels 3 and 4, then the second assembly. Reverse order during removal.

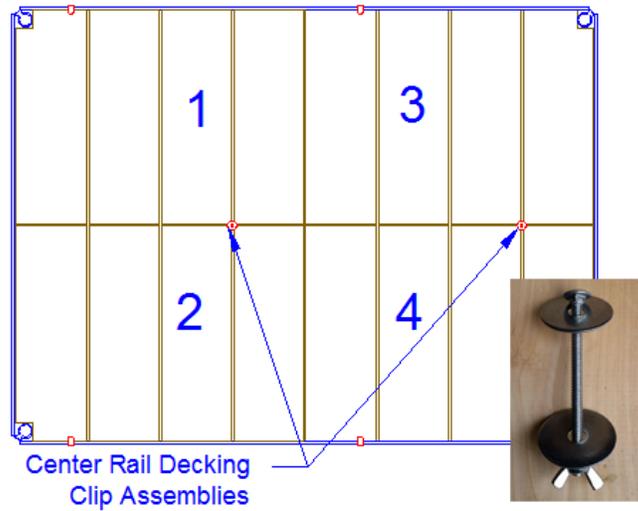


Image 20

Once the deck panels are installed, any unused leg holders can be covered with a black vinyl cap as seen in Image 21. Round vinyl caps can also be installed on the top of all legs.



Image 21

4. Carry subsequent dock sections down the dock, working from the shore to the farthest sections of the dock using previously installed sections as a walkway. Dock sections are secured to one another via the tip in hinges installed in Section 1.2. Each hinge connection is 2-position. There is a "tip" position (Image 22) for use in tipping the docks into the water, and a "locked" position (Image 23) to secure the sections together for the season.



Image 22



Image 23

To Install subsequent sections, carry them to the last installed dock and place the dock frame upside down with both the hook hinges and pin hinges pointing out into the water (Image 24).



Image 24

Next, lift the dock frame upward and engage the pin hinges into the "tip" position of the hook hinges (Image 25 and Image 26).



Image 25



Image 26

Being sure that the pin hinges are properly engaged in the "tip" position, gently tip the dock frame into the water (Image 27 and Image 28). Then pull the frame back into the locked position by slightly lifting up on the frame, pulling backwards, and dropping the pins back into the lock position groove (Image 29).



Image 27



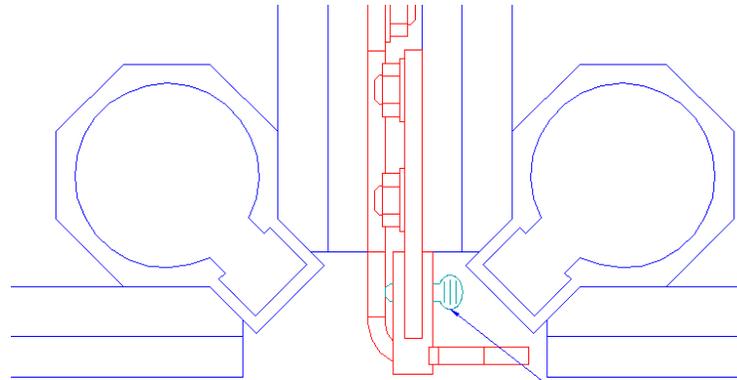
Image 28



Image 29

Once the dock has been placed in the locked position, tighten the thumb screws such that the thumb screws push the pin hinge backwards into the recessed area of the hook hinge plate, thus fastening the frame into position (Image 30). A pair of needle nose

pliers can be helpful to spin the thumb screw if space constraints make the operation difficult. ***** It is not necessary to torque down the thumb screw excessively! It's sole purpose is to push the pin backwards into the profile of the hook hinge that prevents it from lifting out *****



ONCE THE DOCK HAS BEEN PLACED IN THE WATER,
THE THUMB SCREW FORCES THE PIN AGAINST
THE RECESS IN THE HOOK HINGE PLATE

Image 30

If the dock frame is not level after tipping in, it must be leveled either A) from the water or B) by removing the section, adjusting the legs, and then tipping in again. For most applications, the legs will need very little adjustment year-to-year. Fine adjustments to the dock level can be made via a dock leveling tool. For first time set up there is usually a fair amount of trial and error unless specific water depth measurements are known and transferred to the dock leg height.

Repeat steps 3 and 4 with subsequent sections until the dock is complete.

5. Some dock systems are ordered with a ramp section. A ramp section can be used to change the angle of approach from shore to the finished dock height over the water. Ramp frames and Cottage Style Dock frames are identical, they just use different hardware for connecting sections. Ramps are also sold without dock legs, foot pads, and cross braces. When installing a ramp, Section 2 (a 4-leg dock section) is installed into the water first at the appropriate dock height, with the ramp (Section 1 – no legs) then installed. A ramp will be supported on the shore side by the shore itself, and on the lake side by a hinged connection between the ramp and Section 2.

To install the ramp hinge, first install the ramp bar to the shore side of Section 2 via (3) 5/16" carriage bolts, washers, and hex nuts in the upper track. Take care to make sure the ramp bar is centered on the dock frame. From there, the ramp section will be fastened to Section 2 via (2) ramp hinges which fasten to each side of the ramp frame via (2) 5/16" carriage bolts, washers, and hex nuts each as shown in Images 31 and 32. The ramp should be positioned as close to Section 2 as possible to minimize the gap between the frame of the ramp section and Section 2.

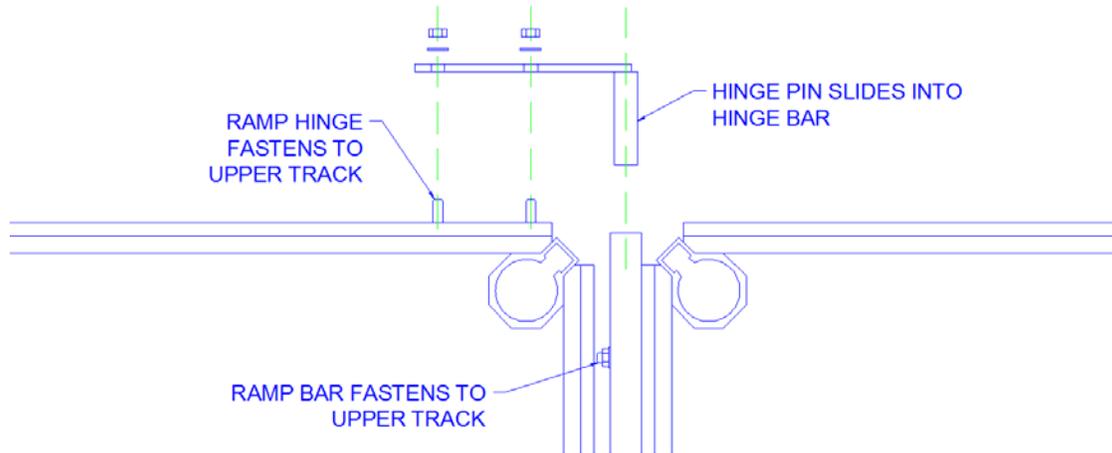
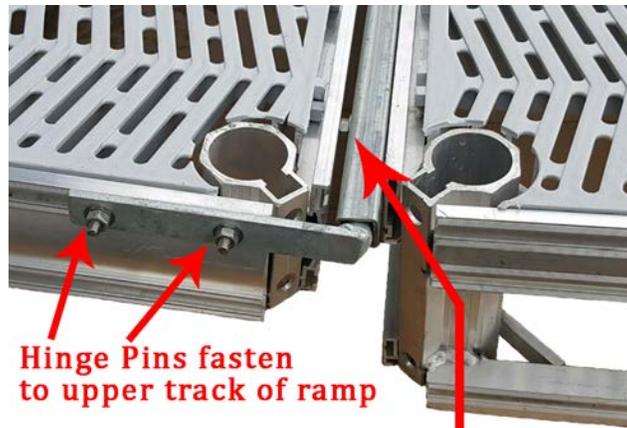


Image 31



Hinge Pins fasten to upper track of ramp

Hinge Bar fastens to upper track of dock

Image 32

6. In soft lake bottoms, your dock may settle in the first 1-2 weeks. When this occurs, the dock should be leveled. To level the dock, loosen the set bolts on a given leg holder and raise or lower the section, then re-tighten the set-bolts.

****IMPORTANT NOTE**** Only loosen the set bolts on 1 leg holder at a time! Loosening all the set bolts at the same time would cause the dock to collapse. You should not be standing on docks when any set bolts are loosened without the use of an appropriate leveling tool.

7. For removal, reverse steps 4 through 2. When removing a dock section, first remove the decking, then remove the locking bolts, and finally pick up and drag back to pick up the frame and carry it back to shore (Image 33 and Image 34).



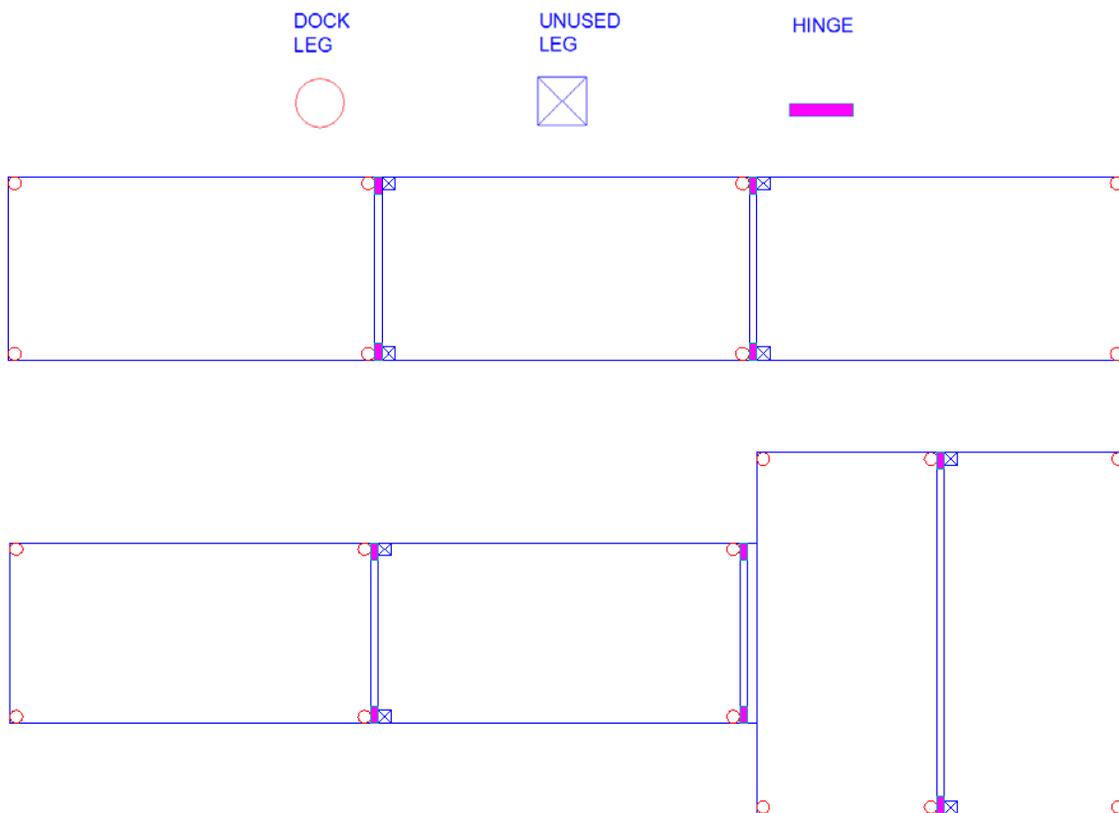
Image 33

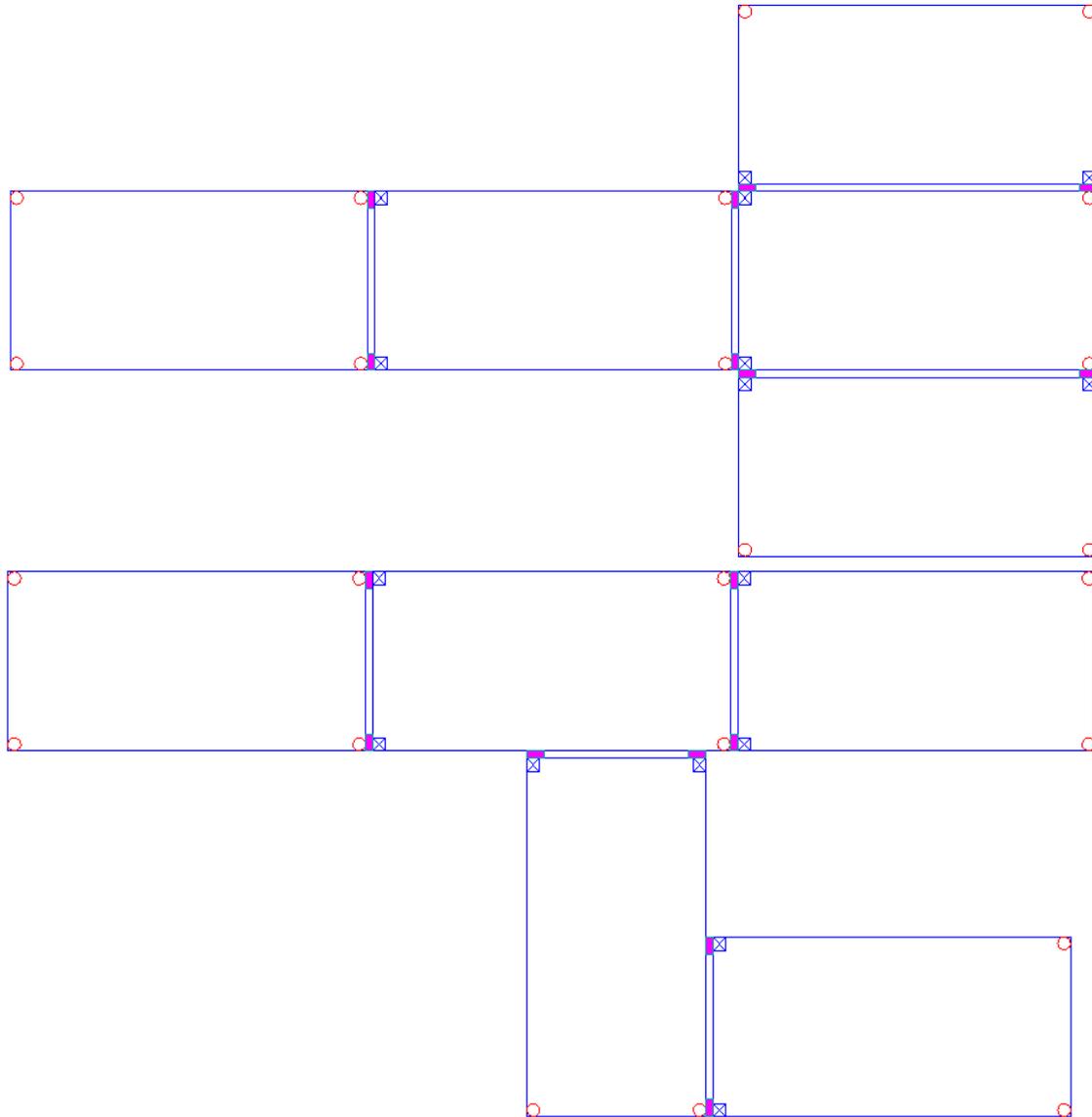
Image 34

It is best to store decking in a dry area out of the weather. Frames, legs, hinges, foot pads, caps, and cross braces don't need to be removed from the frame each year. Sections can be stacked on shore as individual units without decking.

1.7 Sample Layouts

The majority of customers will use some variation of the following layouts. Use this as a reference for how to position dock legs and hinges.





2. Safety

2.1 Safety Introduction

Your Bestmade Docks were designed to provide a lifetime of safe and enjoyable use. However, even the most carefully developed products are not without their limitations. As such, this safety section has been introduced to not only educate the owner about the proper use of their product, but also to introduce warning signs of a potential dock malfunction. This entire document should be read thoroughly and any questions or concerns about the safe use of your docks should be addressed to Bestmade Docks directly.

2.2 Safety Definitions

The safety messages outlined in this document are in place to alert dock owners and users of potentially dangerous situations. If a situation or item is addressed in this text in regards to a safety concern, it is in place to prevent the possibility of damage of equipment, mild or severe personal injury, or even death. General safety practices as outlined in this text should be performed at all times.

2.3 Personal, Operating, and Installation Safety

Do not walk, stand on, or use the docks under any of the following conditions:

- The dock shows signs of damage.
- The dock is not in its fully assembled state.
- Leg holder set bolts are not fully tightened.
- All bolts and nuts are not fastened securely per Bestmade Docks' specifications.
- The dock has been modified or repaired by an individual unauthorized by Bestmade Docks.
- The weather is severe including, but not limited to, excessive rain, wind, or waves.
- The dock has ice, snow, or other potentially hazardous conditions on its walking surface.

Additional Safety Recommendations:

- Never use the docks beyond the rated maximum weight capacity, as specified in this document.
- Do not allow anyone to swim under or near the dock at any time.
- Before allowing anyone to use the docks, be certain they fully understand the proper procedure for safe use.
- Keep people and pets clear during removal and installation of docks.
- Check the dock periodically as specified in the general maintenance section of this document for excessively corroded or rotted members, or any other condition in which safe use of the dock has been compromised.
- Wear heavy leather gloves when handling the docks during removal and installation, or during any adjusting. Insufficient hand protection when handling the docks can cause serious personal injury.
- Do not attempt to make any adjustments to the docks while they are in use.
- Never use the docks under the influence of drugs, alcohol, or medication.
- Dock maintenance schedule must be followed to avoid possible equipment failure or personal injury. See the maintenance section of this text for more information. Failure to perform proper maintenance can result in equipment damage or failure.

- Do not exceed the maximum torque rating on all bolts as specified in this document.
- Do not exceed the maximum weight rating on the docks.
- Never allow children to be on, near, or in the vicinity of the docks unsupervised. Failure to do so could result in serious personal injury or death.
- Never add additional equipment or products to the docks without prior authorization by the Bestmade Docks.

2.4 Mooring and Docking Watercraft

Often times one of the primary functions of a lake front dock is to tie or secure a watercraft to the dock for mooring purposes. If done correctly, your Bestmade Docks can certainly handle the pressures exerted on the docks by a light watercraft being tied on directly. Since the docks are installed in a variety of locations, with varying water levels, wave heights, and wind directions, Bestmade Docks can neither specify safety limitations, nor take responsibility for damages or personal injury associated with any improperly moored watercraft. The best choice is to avoid securing a watercraft to the dock directly, and instead place the watercraft on a properly sized hoist.

3. Specifications

3.1 Specifications Introduction

Your Bestmade Products dock has been engineered to perform at a high level over the lifetime of the product. To ensure the docks are used in the correct way, and for reference, the following specifications have been made.

3.2 Specifications Table

Specifications List	4'x8' Dock	6'x8' Dock
Frame Weight	50 lbs	60 lbs
Width	4 feet	6 feet
Length	8 feet	8 feet
Maximum Recommended Depth of Water	7 feet	7 feet
Number of Deck Inserts per Section*	2	2
Deck Insert Weight *	40 lbs	60 lbs
Fully Assembled Dock Section Weight	160 lbs	210 lbs
Capacity	1200 lbs	1200 lbs

*Deck insert weights can vary dramatically with material choice and condition. Cedar is specified in the table. For 6ft wide docks, Surestep panels use (4) deck panels per 6x8 section.

3.3 Rated Load Capacity

The maximum rated capacity for any one section of dock in its installed position, whether connected to other docks or not, is 1200 lbs. Exceeding this maximum rated weight limit could result in equipment failure which could lead to personal injury or death.

4. Inspection and Maintenance

4.1 Inspection and Maintenance Introduction

To ensure your Bestmade Dock performs at an exceptional level for the lifetime of the product, and to prevent compromising the safety of the dock, the following preventative maintenance should be performed.

4.2 Annual Inspection

At least once a year, the docks must be thoroughly inspected using the following procedure:

1. Check and torque all bolts to the proper specification listed in the fasteners section of this manual.
2. Check the docks for rotted, cracked, split, or broken members.
3. Check all parts of the frame and deck thoroughly for defects of any kind.
4. Lube all leg set bolts as needed with a good quality marine grade anti-seize.

4.3 Storage Procedure

When storing your docks, use the following procedure:

1. Protect your docks as best as possible from airborne fallout, chemicals, tree sap, ice, or other weather hazards.
2. Never use the docks to lift or hang any auxiliary equipment such as boating hardware.
3. Do not allow anyone to swim, wade, or play near the stored docks at any time.