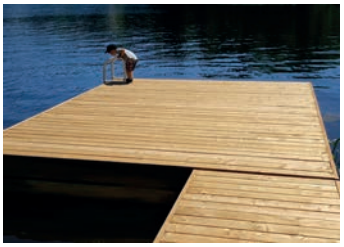
PLANNING AND CONSTRUCTION GUIDE FOR WOODEN DOCKS



How to choose your dock type ?

Multinautic offers dock hardware and dock floats to create the most popular features for quality and safe residential dock systems. They are designed to build sturdy, modular and easy-to-assemble docks. You will plan the configuration that meets your needs by combining semi-floating and floating dock sections. Your layout can also evolve as it can be expanded over time.

If you have a boat, a floating dock is required as the dock and boat will move together with the waves. If you have not yet decided on the type of dock that will best suit your shoreline and activities, see the information below to help you decide.

A **floating dock** configuration should include a **semi-floating dock** section (also called a gangway). This section will provide the transition between the land (or a stationary dock) and the floating sections which will move with the waves occuring on a body of water. For greater stability when moving on the dock, this semi-floating dock will have its floats at the junction with the floating dock section.

> A floating dock is ideal for lakes and rivers where the water level fluctuates periodically. Since the dock floats, it will always be at the same level above the water.

> Start your setup with a semi-floating dock section. This layout will follow the water level. The longer the semi-floating section, the more the movement of waves and people on the dock will be attenuated.

> If the lake or river bottom has a gentle slope, use stationary wood dock sections near the shore until the water level is sufficient to install a semi-floating section (usually 3-4 feet deep) and then add one or more floating dock sections in deeper water.

> A floating dock is not recommended where waves higher than 3 feet can occur as it could be damaged as can the boat that is moored to it.

> A floating section connected in a T-Shape at the end of the layout will add stability.

> You will need chain and concrete blocks to anchor your floating dock See our «Anchoring Suggestion» page to determine your needs and get the appropriate material locally.

> Depending on their size, our floating and semi-floating dock kits are to be combined by installing the supplied hinges, connected to the inside corners. If your layout doesn't allow it, we've added 2 extra backplates and 8 carriage bolts so you can place them wherever you like. To help you choose, here are the semi-floating and floating combinations that connect the hinges with the inside joist steel corners:

- 4 ft will connect to 8 ft
- 5 ft will connect to 10 ft

Other combinations will be possible but using the back plates instead of the steel corners:

- 5 ft will connect centered to 8ft
- 4 ft with the 10 ft will be shifted (like a P shape)

As you will read on the next page, you can also modifiy the sizes of your dock to fit your needs.

A good way to help you make the right choice of dock system is to observe your neighbors' docks. If they have been installed for a few years and are still in good condition a similar choice may be right for you.

ASSEMBLY OF A WOODEN DOCK

Please refer to the "How To Build a Wood Dock in 4 Steps" for detailled information

If this product does not meet your expectations, do not return it to the store. Please contact our Customer Service Department. If you have any technical questions, our specialists are there for you: 1-800-585-1237 or info@multinautic.com.

REQUIRED TOOLS

Saw
Hammer
Tape measure
Multi-bit screwdriver
Cordless Drill with drill bits:
- 9/16" for 1/2" carriage bolts
- 11/64" for the lag bolts
- 1/8" for screws

9/16" and 3/4" wrenches

SAFETY FIRST

> Always wear approved personal safety protection
> Do not use corded electrical tools in or near water
> Keep children and pets clear of work area during assembly
> A wood dock is a heavy construction. Make sure to have enough people to help you during the assembly (especially for flipping it right side up) and the installation.

INCLUDED IN A DOCK KIT

Our dock kits include carriage bolts, 4 in. lag bolts and wood screws:

> the carriage bolts are for the installation of the steel hardware;

> the lag bolts and their super sized flat washers are used to install the floats (don't overtighten!) You will use 4 per float. If you wish to align your floats flush with the dock sides, you will need to pre-drill the side beams with an 11/64 drill bit;

> use 2 screws per beam junctions before the installation of reinforcement steel corners. Install at least 2 screws on decking boards at every inside joist location and on side beams. Ideally, pre-drill;

> the float supports will also be installed underneath the dock frame using these wood screws;

> the leg holders should be bolted to steel corners (rather than to back plates) for a sturdy, durable construction.

CUSTOMIZING YOUR DOCK STRUCTURE

> Build your dock section using 2" x 6" boards according to the supplied lumber list included with your Kit. You may use 2" x 8" for sub-structure: the dock will be heavier...and more stable but beware of the steel corners height to free the anchor chain plate retainer hole.

> If you want to modify our suggested dock size, here is how to calculate the lumber:

- Side pieces: desired dock length
- Inside joist(s): dock length minus 3-1/4"
- End pieces: desired dock width minus 3-1/4"
- Float supports: dock width
- Decking boards: dock width
- Girts: take measurements between inside joists and beams (start by installing the side girts)

> Our Floating Dock Kits are designed with the right amount of floats for the suggested dock size (+/- 25 lbs/sq.ft.). If you enlarge it, you might need to get more floats of the same height to keep its buoyancy accurate.
> If you plan to make your decking with 5/4" x 6" planks instead of 2" x 6", make sure to have inside joists at ±16" or it will flex under heavy people.
> If you choose treated wood, apply a protectant on any fresh board end cuts.

TIPS OF THE PROS

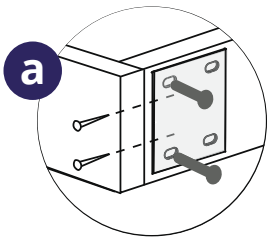
> For heavy floating dock, add the decking boards in the water after sliding it on its floats over some boards on the ground.
> As the hinges will create a gap between floating dock sections, consider adding a piece of 2x6 between the 2 sets of hinges (leaving space to allow the installation and removal of the hinge pins). This will partly fill the gap and limit the rocking of the docks. NOT to be installed between floating and semi-floating sections.

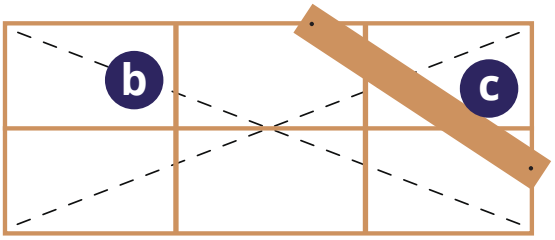
MULTI NAUTIC

HOW TO BUILD A WOOD DOCK
in 4 Steps

1

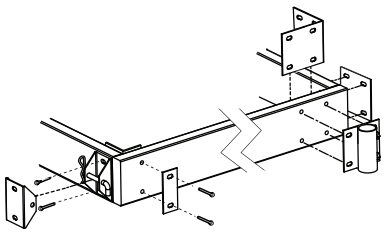
For a floating dock, start assembling the dock upside down so you can easily install the floats in Step 3. Arrange the side beams, ends beams and the interior joists of the structure and screw them in place. The screws should not be aligned with the holes you will make for the hardware (a). Check the squareness by measuring the 2 diagonals. They must be within 1/8" of difference in length (b). Secure in position by temporarily screwing a board on the frame (c). Add girts if your dock requires some.

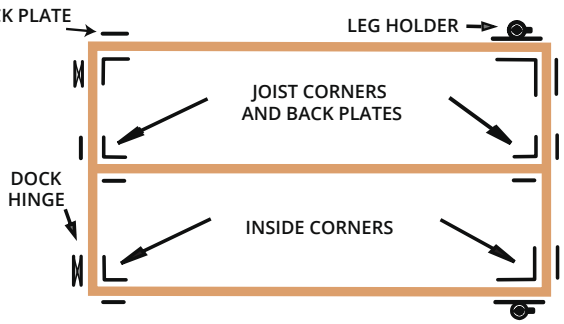




2

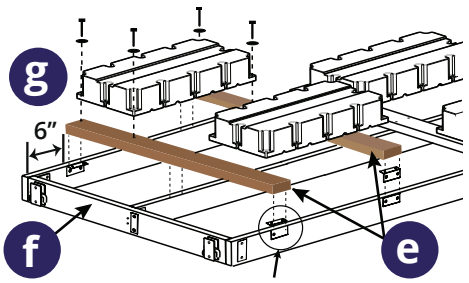
Starting with corners, align the parts, mark the holes with a pencil (d), drill and install the hardware with the bolts. Note that parts may vary from the drawing. For a stationary dock, continue with step 4-B.

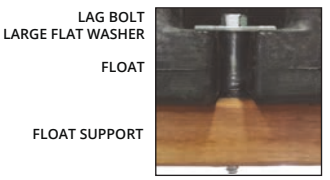




3

Lay out the float supports (2" x 6" boards) (e) and floats on the structure (f) to determine their positions. Leave +/- 6" of space from the main structure to allow for later manipulations (g). Mark the locations of the float supports on the structure and of the floats on their supports. Remove the floats, screw in the supports and secure the floats with lag bolts and large flat washers. You can also use bolts with lock washers and flat washers.

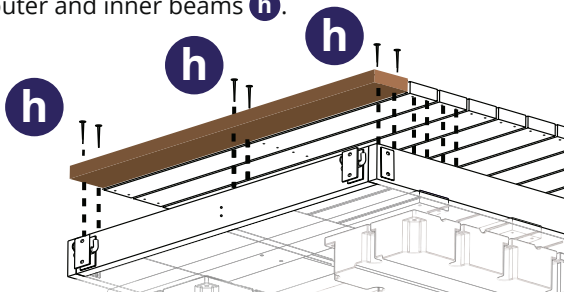




4

A For a floating dock, before installing the decking, you will need help to carefully turn the structure right side up without injury.

B Recheck the squareness (see step 1).
Screw the decking in place, starting at one end of the dock and adjusting the width of the second-to-last board to fit the remaining space. Screw them into the outer and inner beams (h).



INSTALLATION GUIDELINES FOR WOODEN DOCKS

Read carefully the "Anchoring Technique Suggestions Guide" before designing your layout

REQUIRED TOOLS

Level
SledgeHammer
Tape measure
7/16", 9/16" and 3/4" wrenches
Hammer

DOCK ACCESSORIES

Planning ahead your whole dock layout will allow to install the proper complements, such as dock bumpers, on solid ground.
Some accessories like dock ladders and some mooring cleats must be reinforced under the decking. If you don't install them while building the dock, you will have to unscrew decking planks later...sometimes in the water.

INSTALLING STEEL POST

> To facilitate the installation, the piles can be inserted into the leg holders beforehand; tighten just lightly as you will adjust them to the right height once in the water.

> Before entering the water, you can slide the base plates on the posts, leaving about 6" underneath them (a little more if the lake bottom is muddy or a little less if it is a very hard bottom) and tighten firmly the locking bolt.

> By hitting the posts with a sledgehammer (protect the end with a piece of wood), drive them until the base plates reach the ground. With your foot, press on the plates to make sure that they are flush to the ground.

> Readjust the height and level of the dock by loosening the leg holder bolts one corner at the time. Tighten them securely when all leveling is done.

> Multinautic® posts can be cut with a metal saw, a grinder or a pipe cutter. Allow enough lenth to protrude above the dock for possible adjustments due to water level fluctuations.

> Complete by installing the protective PVC caps on the posts.

SEMI-FLOATING DOCK

Being the key to a floating dock layout, your Semi-Floating Dock section may have to be preceded by a Stationary Dock section to reach your required water depth. In that case, do not install posts on it. The hinges should move freely at both ends of this Semi-Floating section. Move the short posts and leg holders at the beginning of the stationary dock.

CONNECTING FLOATING DOCKS

> To move a dock while protecting its floats, lay long planks on the ground and slide the dock over them.
> Once in the water, bring 2 dock sections together and align them.
> Assess the wind direction to begin connecting the hinges on the windward side. This way you won't have to struggle to get the dock sections together and the second set of hinges will interlock on its own.
> Kneel down on the two dock sections to level them and interlock the hinges. Using a hammer, insert the hinge pin and secure it with the safety pin.
> Refer to the Anchoring Technique Suggestions page to tie down your dock with chains attached to concrete blocks.

PLEASE VISIT OUR WEBSITE MULTINAUTIC.COM TO LEARN
HOW TO PREPARE YOUR DOCK FOR WINTERTIME.

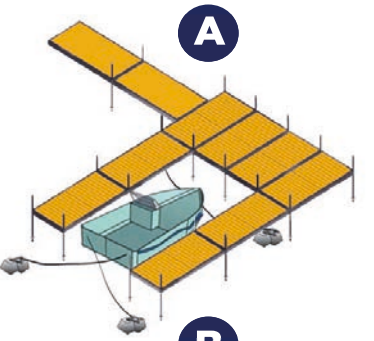
ANCHORING TECHNIQUE SUGGESTIONS

STATIONARY DOCK

Normally, it is not necessary to anchor a fixed dock except in areas where high waves may hit the dock. Posts driven into the ground will ensure its stability.
You should, however, moor your boat in such a way that it cannot rub or bump on the docks, thus protecting the structure and the boat.

> Since your dock is in shallow water, it will be easy for you to install blocks to allow for detached mooring from the dock (**A**).
> Some will prefer the installation of a boat lift.
> If you install wheel kits, you may need to add anchor chains to retain the dock (**B**).

A



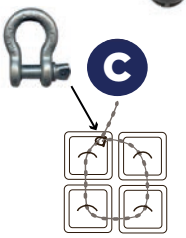
B

FLOATING DOCK

A floating dock system should include anchor blocks at the end of the dock and approximately every 30 feet. When the dock is subjected to lateral pressures created by water, wind or boats, the concrete blocks hold the dock in place. You need to assess their positioning to avoid interfering with docking or swimming. Chain retainers must be installed on the dock at each anchoring point.

> Calculate the dock width plus water depth for each chain. Cut them to size and attach floating rope to one end for handling in subsequent steps.
> To protect the decking, lay cardboard or pieces of wood on the floating section of the dock. To drop the concrete blocks into the water, place them near the corners.
> A first chain will link a group of blocks together using a quality shackle (**C**).
> Once your floating dock section has been placed over the first anchor location you've determined, you'll tip the group of blocks into the water (**D**). Watch out for the chain, which will quickly follow the blocks as they fall !
> Repeat the steps on the other side, then connect this section of dock to the rest of the layout using the dock hinges (see previous page: Installation Guidelines_Connecting floating docks).
> Using the ropes, guide the chains to opposite corners of the dock to create an "X", and slide the links into the chain retainers toward the outside. Tighten the chains as much as possible.
> Cut the unused chain, leaving an extra 2 feet to allow for adjustments.

C



D

ANCHORING MATERIAL

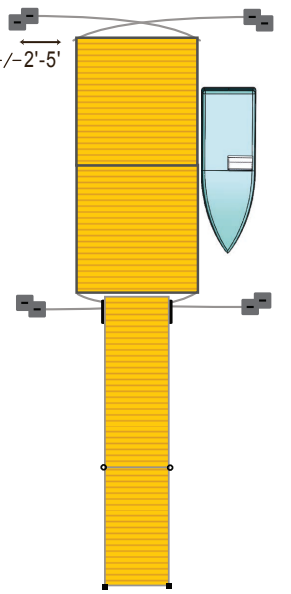
Your local concrete products dealer will probably have heavy enough weights to serve as anchors or they can make them for you from unused concrete. Be sure to comply with municipal by-laws regarding the use of concrete at the bottom of the water. You may have to choose a different material. Your hardware dealer will provide you with the necessary chain.

> Different types of soil, such as clay, can affect the stability of your anchors, so be careful. Muddy soil will provide a good grip for anchoring.
> The chain used to connect the blocks to the dock should be made of galvanized steel, size 5/16" and grade 30 (regular) (available in hardware stores). Choose hot dip galvanized or stainless steel shackles for underwater fastening. Avoid zinc-plated quick links for this use.
> Blocks should weigh about 125 lbs. each and be rather square (+/- 1' x 1' x 1') to avoid movement on the bottom of the water (filling a bucket with cement is not a good idea since it will roll on the bottom of the water). If you make your own blocks, make an attachment point by placing a piece of chain with a bolt or a knot at its end for a better grip in the concrete.
> Note that the concrete will lose about one third of its weight once underwater. This is why we recommend as much (below).

MINIMUM ANCHORAGE EXAMPLES IN CALM WATER AREAS

It's advisable to anchor the dock at the 4 corners of the section where the boats will be moored (**E**).
If you plan to accommodate other boats during the season, estimate your needs accordingly.

E



> Small boats under 15' such as canoes, kayaks, rowboats or personal watercraft,
(maximum of 2 boats) at least 250 lbs. per chain, on each side;
> Pleasure craft less than 19' or approximately 2500 lbs,
(maximum of 1 boat) at least 375 lbs. per chain, on each side;
> Pleasure boat less than +/- 23' or +/- 4000 lbs. for water skiing or wakeboarding,
(maximum of 1 boat) at least 500 lbs. per chain, on each side;
> Pontoon with a canvas roof, (which can catch in the wind),
at least 650 lbs. per chain, on each side.