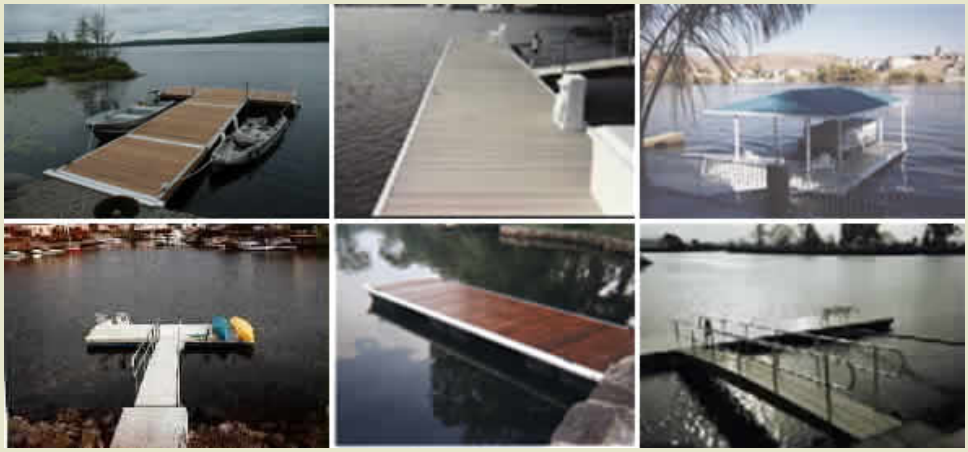

# Personal Dock Building

*Waterfront Development Notes for Residential Docks*

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# Introduction

Construction methods on and along the waterfront vary from state to state and region to region. Regulations to build a personal dock span the extremes – too much, as to cause non-conformance and frustration – too little, causing environmental and life-safety problems. Some areas have very strict licensing and permit procedures, some areas have no regulation on 'floating structures' at all. As an introduction to your personal dock project, consider the following:

**What it floats on** --- encased flotation which can handle wave action, garbage, sunlight and varying weight loads; while still keeping sufficient buoyancy and stability. Stationary docks are usually anchored to pilings or pier structures (and don't require floats).

**What's the frame made of** --- steel, aluminum, wood, plastic, composite all have their benefits with reference to twisting, strength, and exposure to outside elements.

**What you walk on** --- literally hundreds of composite deck materials are available. Make sure they span 24", have skid resistance, don't lose strength in the sun, and have a warranty that means something. A common sense note -- if a product has all the draw-backs of wood (fuel for fire, splinters, stains, etc.) is it worth choosing an alternative material – which will cost more?

---

Each dock component may have a different structural requirement and maybe better or worse for any given site. Good dock building blends the positive features of construction materials with environmental awareness and easy installation.

This booklet is a dock building guide for personal property owners promoting clean, safe and sustainable waterfront environments. Included are notes contributed by marine contractors and design professionals to help educate homeowners about construction on the waterfront. This is not a how-to manual, nor is it a substitute for advice and direction from qualified experts about a specific site or local waterway.

## Dock Planning Checklist

Use the following table to investigate your dock site. Record notes and questions for your contractor on separate sheets.

| (√) | Item | Description | Result |
|---|---|---|---|
| | 1 | Soil / Site Analysis (waterbed) | |
| | 2 | Utility lines located | |
| | 3 | Water depth | |
| | 4 | Changes in water elevation | |
| | 5 | Dock design / type | |
| | 6 | Choice of float material | |
| | 7 | Choice of frame material | |
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"T" Shaped Floating Dock Using Ramp

"U" Shaped Floating Dock with Cover

# Dock Planning Notes & Descriptions

### 1. Soil / Site Analysis (waterbed)

If new or special anchoring of your dock is required, you may need to know the type of soil in the waterbed and onshore. Most local contractors have an understanding of the limits of your soil for piling (and other anchoring). Local building departments and regulatory agencies can also explain your water bottom characteristics.

### 2. *Utility Lines Located

Insure that all underground utilities are located. Overhead utilities should be sited, if any will interfere with erection equipment or moving materials. Most utility districts have free services to locate their lines. Reference the need, location and protection of all lines on, in, or near the water.

### 3. *Water Depth

Insure the water is deep enough to handle the draft of your boat, then add two feet. This is your minimum water depth. If the body of water has depth charts, look for Mean Low Water (MLW).

### 4. *Change in Water Depth

If the water depth changes, insure the dock is in a location which allows your minimum water depth. If the dock will be ‘aground’ at any time, additional bracing should be added to protect fastener connections and flotation.

### 5. *Dock Design / Type

General site characteristics and water depth will dictate your dock layout. How stable your dock feels depends on the width of the dock sections, dock structure, and the layout. Long straight sections may need to be wider, have more anchoring, or more framing components.

When possible design sections with an ‘end’ section for stability (i.e. ‘L’, ‘U’, ‘H’, ‘T’ Shapes). Look for added strength features such as:

a) Finger sections designed to ‘go through’ the main walk
b) Additional framing support

## 6. Choice of Float Material

Most dock flotation is made of some form of polystyrene (Styrofoam). Without protection (coatings or encasement) polystyrene will break-apart over time. Wave action, garbage, sunlight, insects and rodents --- all contribute to float damage. Lakes and waterways governed by the U.S. Army Corps of Engineers (and many other regulated waterways) will not allow polystyrene which is not protected (encased).

Encased flotation with galvanized steel frames

Encased flotation is the preferred method and can be compared using several factors:

a) Resistance of the encasing to Ultra-violet (UV) light.
b) Thickness of the encasing material. Thicker materials have more resistance to rodents and puncture.
c) Weight /Buoyancy of the float unit. Most manufacturers have buoyancy tables to help you calculate how many floats .

A number of tests are available to compare the quality of encasement and floatation material. The following should be researched further to gain a full understanding of this dock component.

a) Wall Thickness Test – acceptable wall thickness (minimum is 0.125”), nominal 0.150”.
b) Hunt 7 Day Absorption Test – measures water adsorption limits (minimum is 3 lbs/cu. Ft.)
c) ASTM Falling Dart Puncture Test – measures impact resistance under extreme conditions

In the best of all worlds choose floats which are light and strong with high buoyancy. To calculate an average ‘load’ for dock construction use this:

Example ---

> Take the ‘dead load’, (the weight of dock materials) Example: 6' x 20' floating dock section weighs approximately 1,000 lbs or 8.3 pounds per square foot.
>
> Add permanent weight on dock (i.e. dock box, deck furniture)
>
> Add the weight of people, Example: two people 170 pounds each in a twenty-five square foot area or 13.6 pounds per square foot.
>
> Account for other ‘live loads’ which will be on the dock (i.e. snow, filled dock cart).
>
> Calculate the total pounds per square foot.

Too complicated? Estimate a total load (dead load plus live load) for an average home dock as 20 – 40 pounds (of buoyancy) per square foot of decking.

Flotation is measured by buoyancy. Review buoyancy charts and check the accuracy of the rating. Choose floats which will be submerged not more than 50% when all loads are on your dock.

Freeboard is the distance from the top of your deck to the water. Adding more floats will increase buoyancy and help maintain a consistent freeboard. Too few floats will limit the amount of weight the dock can handle at onetime. You may find your feet in the water when standing on a corner of the dock. Adding more floats will increase buoyancy and help maintain a consistent freeboard. Typically the flotation will be submerged about 3-4 inches.

Even with correct buoyancy information, flotation ‘coverage’ will affect stability. Main walks should have a minimum of 50% coverage, fingers 60% (measured by square footage).

Distribute the floats evenly throughout the layout and always error on the side of more flotation when calculating loads.

| Flotation Comparison | | | |
|---|---|---|---|
| **Flotation Type** | **Typical Size** | **Weight** | **Comments** |
| Polystyrene Only | 8-12" x 2' x 48<br>8-12" x 2' x 4' | 14 pounds and greater | Not recommended. In most cases not permitted. Insure approval by local agency |
| Polystyrene encased with polyethylene | Various sizes<br>12" x 2' x 4' | 16 pounds and greater | Insure polyethylene is UV stabilized. Inspect wall thickness. |
| Polystyrene encased with concrete | Various sizes. Concrete formed locally | 60 pounds and greater | Insure concrete specifications are consistent. Check for leaks before installation. |

## 7. Choice of Frame Material

Standard dock framing materials.

Concrete — used primarily with large dock construction and marinas, the material is formed as a complete unit (float, frame, deck). Stability factors are very good. Extremely expensive; both in cost of material and installation (a crane is needed). Because floating docks move constantly, concrete eventually cracks.

Steel -– frames are typically box truss designs. The depth of truss is usually 10 or 12". Look for:

a) internal gussets (for added strength)
b) different size steel members (frames with thicker steel components are stronger, if the design is the same)
c) Painted or galvanized (better).

Aluminum – frames come in various shapes. Insure the strength is tested, and the aluminum is 'marine grade' (ASTM 6000 series). Aluminum frames, as a general rule, have a longer product life.

Wood – should be treated for long lasting results. Insure treatment is approved for use in your body of water. Usually the least expensive material, and allows for the most flexibility in design. Intense levels of

rodents, wave action or adverse weather, will result in wood frames having a shorter life than other materials.

Additional framing support:
Gussets --- located at the corners of the frame add strength to the frame.

45º Corner --- like a large gusset, this will add extra strength to the finger/main walk connection

Underwater bracing --- If your finger sections are too long, you may want to consider underwater bracing. Framing extends below your dock and below the draft of your boat; and attaches dock sections under water. Check the water depth to insure the dock will not 'go aground'.

Torsion bar — is an extra framing member down the middle of your dock section. The added material improves strength and stability. A good torsion bar helps the dock section from twisting.

Low water legs --- can be added to protect the dock from laying on the ground. If there are times the dock will have too little or no water for docking your boat, low water legs will help prevent the floats from scrapping bottom, and protect undue stress on the frame and fasteners.

PVC Decking, power pedestal, dock box

Special composite (EPPI), w/white bumper

## 8. Choice of Deck Material

Things to look for:
Skid resistance - water, ice, dew, moss and other walking inhibitors invade your dock surface. Look for surfaces which add to your walking stability. Adding 'texture' to the walking surface will resist sliding and

falls. The more skid resistant materials may also be the most abrasive. There is a trade off.

Support – Does the material show strength in all directions? Does the material hold the load? Does the material create a structural member to the dock? Some deck products increase the structural strength of the dock.

Water absorption - porous materials (by definition) absorb water; and therefore add weight to your dock. Too much added weight will increase the required flotation.

Weather resistance / maintenance - the warranty and life of materials in your environment (i.e. salt air, freeze-thaw) will affect your maintenance schedule.

Fire resistance – with all phases of boating, the need for safety (particularly fire safety) can not be over emphasized. Materials which have low 'flash points' and support a flame should be reviewed for alternatives which are more fire resistant.

Surge and uplift – from water or wind may put extra stress on the fasteners holding the deck surface. If these conditions are common in your area, check the "upload" characteristics of the fastening system.

Material Type:
Wood decking material for docks is like any outdoor wood decking. All the same choices and maintenance apply. Wood decking can add structural support to the dock. Some areas have 'marine plywood', which usually come in 4'x 8' pieces usually, not recommended because poor drainage .

PVC varieties are now abundant in the industry. Because the material is light and will expand and contract, it should not be used as structural elements in the dock. The dock frame should stand structurally alone; and then add PVC decking. It is a mistake to assume the PVC deck will add strength to your dock. Check the material specifications.

Aluminum extrusions come in a number of sizes. Light weight and a good long term material, it is usually expensive.

Composites are different 'mixtures' of wood and plastics. These products are most often the result of combining recycled materials to

form wood boards. Unfortunately, when used for floating docks some problems arise. The material may be weaker structurally, absorb liquids, and be less fire resistant (with a higher cost). For use with floating docks ---- the fact that these materials may add as much as 4 times their dry weight from water absorption, which increases the number of floats needed , creates extra costs. Double check the product history with your contractor.

| Deck Material Comparison | | | | | | |
|---|---|---|---|---|---|---|
| Deck Material | Skid | Abrasive | Absorption | Weather | Fire | Cost |
| Wood | +++ | ++ | - | -- | -- | +++ |
| PVC | ++++ | - | +++++ | ++++ | ++++ | - |
| Aluminum | ++++ | -- | +++++ | +++++ | +++++ | -- |
| Composites | ++++ | ++ | --- | ++++ | --- | -- |
| Concrete | +++ | -- | ++++ | +++ | +++++ | --- |

Installation:
The deck should be reviewed with a total cost in mind. Because of the variety of material applications, there are a wide range of fastening systems. Each decking material will involve a different cost to install. To prevent exposed fasteners (screws and nails) from becoming hazards, some deck systems have special below deck fastening. For instance, installation of panels or kits may cost $0.50 per square foot; while planks which require extra drilling for pilot holes or special below deck fastening may cost 3,4,5 times that.

## 9. Anchoring Type

What to look for:
Water depth, any changes in the water depth, and the distance from shore you place the dock --- will determine the type of anchoring. To attach rods or stiff arms to a wall, the length must be long enough to keep the dock floating as the water changes.

New Piling - Usually 20' to 40' apart. Determine whether to place the piles outside, or inside, the walkway.

Existing Piling - may need new or additional hardware components. Look at pile covers, pile rings and pile rollers.

Steel piling support for end of ADA finger (w/deck rail)

Ramp / Walkway - anchored to shore. Hinge points at both the head walk and the dock should allow for movement above and below the dock sitting level. No ramp should be steeper than 30 degrees in either direction. Review product conformance if ADA (American Disabilities Act) specifications are required.

Aluminum ramp w/composite deck

ADA style ramp w/anodized aluminum deck

Rods - can be designed with hinges at the wall and on the side of the dock.

Winch / Cable - systems are designed for deep water lake regions. The cable is usually ½" to 5/8" steel cable with weights or anchors at the water end to hold the dock in place. The cable is reeled in and out to move the dock when water levels change. The most stable designs have the cables 'crossing' beneath the dock. As in anchoring a boat, insure there is enough cable to accommodate the depth of water and the angle of the anchor.

### 10. Hardware Type

Many times the quality of the hardware components is overlooked. The best dock systems won't last long if the hardware fails. Insure the

thickness (and grade of materials) installed on your dock is what you ordered.

Galvanized Steel - a protective coat of zinc applied to the surface of the steel. Hot-dipped pieces are the best (double hot-dipped even better).

Zinc plated hardware is less expensive and will corrode much faster, especially in saltwater environments.

Stainless - is more resistant to the elements, but more expensive. Hardware choices should be made in favor of stainless, if the budget allows.

Other - composites, aluminum and even fiberglass have entered the hardware market with various level of success.

## 11. Accessories

Bumper material - usually extruded or molded vinyl, they are fastened to the sides of the dock and piling to protect boats from scraping the dock. As with other hardware materials around water you should fasten the bumper with protected hardware (see Hardware).

Typical, easy to obtain fasteners include industrial staples and galvanized roofing nails. The industry has ‘corner bumpers’ which match the different profiles of side bumpers. ‘Bumper wheels’ are molded vinyl, 6" to 14" in diameter, which help guide the boat off the corner. Better quality vinyl products are more resistant to UV and saltwater exposure.

Cleats/Mooring - come in a number of styles. Use ‘hardware which fits’ your dock system and insure the fastening bolts go through the deck framing, securing the cleat to the frame (not just the deck).

Residential dock w/molded corner bumper

Residential dock w/solar Lighting

Lighting - Similar to outdoor lighting for decks and landscaping, the industry has a number of products for dock lighting. Systems are low voltage or solar, are excellent for security use; and many come with remote controls, allowing the lights to be turned off-and-on from several hundred feet away from your dock.

Boatlifts & Attachments – have individual design and installation requirements. Consult your dock builder or marine supplier about the affects of attachments to your dock.

## 12. Contractors & Construction

Most regions with large boating populations have several marine contractors who build docks. It may be only a seasonal scope for general contractors or other specialty contractors. Unfortunately, the barrier to entry is very low; and most anyone can call themselves a dock builder. Some states have license procedures for marine contractors. Each spring brings a new batch of 'dock builders'. Be sure to research procedures, license credentials and references. Local contractors have the best understanding of the water's bottom, changes in elevation, and local environmental concerns. Qualified builders are your best resource for building a sustainable waterfront.

Homemade (DIY) - If this is your first dock building venture, be sure to plan plenty of time, and sufficient people-power. Most docks can not be assembled by one person; and most docks take more than one weekend of time. One first-time construction rule is (3 x 3) - plan every step of the project, estimate the time for three people to accomplish a task and multiply the time by three. As a general rule, do-it-yourself dock construction is not cost effective. Working over water takes experience and each waterway has unique characteristics which affect your layout. Building your own dock is not recommended without a thorough understanding of the products, construction techniques and local waterway demands --- In other words, building your own dock is not recommended.

## 13. Maintenance

If the dock is properly planned, and materials are chosen with long term maintenance in mind, your dock should be structurally sound for

close to twenty years or more. Limited maintenance will include the following:

| Item | Description | Date | Comment |
|---|---|---|---|
| M1 | Flotation stability check | | |
| M1a | Flotation damage check | | |
| M1b | Flotation freeboard check | | |
| M2 | Hardware fastener check | | |
| M2a | Hardware corrosion check | | |
| M2b | Hardware excessive wear check | | |
| M3 | Decking cracks, failure check | | |
| M3a | Decking stains check | | |
| M3b | Decking sun or color damage check | | |
| M3c | Decking excessive wear check | | |
| M4 | Review warranty information | | |

M1) Flotation - If the dock is sitting low or is listing (or tilting), check your flotation for leaks. Replace the float or seal the leaks. Some encased floats have small pin-holes at the top of the float. They are created during manufacturing, to release pressure, when the float is formed. Your dock system flotation is at the mercy of the absorption quality of the polystyrene. During a period of high temperatures, you may see polyethylene encasements expand. This is a good sign – that the floats have no leaks.

M2) Hardware (and cable) - Check the amount of corrosion on all hardware and cables, every year. All hardware which holds structural members should be replaced with a better grade if excessive corrosion is noticed.

M3) Decking - Having a pleasing deck surface on your dock requires the same degree of care as any outdoor deck. (See Deck - Material Type)

M4) Annually, inspect the dock for loose fasteners and deck boards and review warranty information.

## 14. Protecting the Waterway

Dock building contractors should provide their customers with products and support services which promote and enhance clean, safe and sustainable waterfront environments. Local permitting agencies and non-profit boating organizations have a number of pamphlets and consumer information on methods to protect the waterway. Insure you and your contractor are up-to-date. Here are some “NO BRAINERS” for small and residential docks, to start:

a) As much as possible, buy local.
b) Research local waterfront agencies for unique characteristics of your waterway.
c) Investigate low voltage and solar lighting options.
d) Provide waste recovery options wherever and whenever possible.
e) Inspect product literature and certifications for green or sustainable recognition.
f) Use “low-VOC” products where possible.
g) Work with contractors who focus on keeping the waterway clean.
h) Inspect your site for waste and hazardous emission points to the waterway.

## Local EWaterfront Questions

**How to Do I Evaluate a Marine Contractor or Supplier?**
Regulations for working on or over the water are constantly changing. Similar to any construction, some activity requires a license. In Florida, we have an aid for the search --- a separate professional association for marine contractors.

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**Waterfront Project - How Do I Get More "Bang-for-the-Buck"?**
After regulation (and what 'you must do'), cost seems to over-ride every decision. Do research on product and resource alternatives and their history of use. Many times, ‘buying the best’ will cost you less than you think.

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**What Makes an Environmentally Sensitive Waterfront?** The resources available for both enforcement and compliance vary greatly from region to region. Most programs are voluntary. ‘Doing the right thing’ is sometimes a challenge and many standards may seem to contain conflicting information. The best answer at this point is to stay informed.

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**I'm Just An Individual Trying to Build A Dock -- What Can I Do?**
As a starting point for research on sustainable waterfronts --- Clean Marinas and dock builders have information on protecting your local waterway. Education and focus are the first steps.

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**Is There a Difference Between a Green Marina, a Clean Marina or a Sustainable Marina?** No. The terms are used interchangeably. All refer to marinas which recognize (mandatory or voluntary) standards which improve the quality of your local waterfront.

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**Does All This Cost Me More Money?** Making the 'right' decisions about waterfront construction is cost effective and saves you money. 'Greening' your project, may produce LOWER price proposals -- both in initial capital costs and long term costs. In the past, conforming to environmental standards required more time and permits; and even, when comparing long-term savings, the cost was difficult to justify. Today not only are some 'green' products priced competitive; but other

results (of better warranties and fewer call backs) are also changing the bidding process. As well, you may find permitting more favorable – especially if your project is in partnership with clean water programs.

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**Can I Trust The Warranty?** Maybe. Check how long the manufacturer has been in business and job site references. Beware of 'life-time' designations – As a saying goes "Whose Lifetime".

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**How Do I Find Products & Services for a Clean / Sustainable Waterfront?** You can't pick up a magazine or listen to news documentaries without some reference to green products and green buildings – the eco-benefits of this or the global warming problems with that. Waterfront developers have been working with regulatory agencies for over 30 years through Clean Water and Clean Marina programs. From that history, there is an emerging niche industry of products and services for local contractors seeking to expand the clean waterfront philosophy. Ask your dock builder.

# Dock Building Glossary of Terms

Terms related to building residential docks.

**ADA** American Disabilities Act sets building standards for handicap access. In dock layouts, specifications are used with to govern width, turning radius, degree of incline and side rail protection.

**ASTM** International, originally known as the American Society for Testing and Materials. ASTM is one of the largest voluntary standards development organizations in the world - a trusted source for technical standards for materials, products, systems, and services. www.astm.org

**Aluminum** (Alloy Series 6000) products are resistant to salt water corrosion. Aluminum alloy compositions are registered with the Aluminum Association. www.aluminum.org

**Boatlift** Typically a manufactured device pulls the boat out of the water. Floating boating lifts are attached to floating docks, and are designed based upon the weight of the boat.

**Breakwater** Structure designed to shelter from waves. Floating breakwaters can be designed to offset wave impact using the same materials as the floating dock. U.S. Navy and U.S. Coast Guard have various studies available on the effectiveness of different types of breakwaters.

**Bumper** Material used to cushion impact of boats from the side of the dock. Horizontal bumper for the dock frame. Vertical bumper for piling and vertical structures. Material should stay resilient without marring the boat. Weathering of the material is the main consideration -- less expensive materials tend to break down (i.e. harden, crack and/or mar boats) after only a couple of years.

**Buoyancy** The load capacity of the flotation. Indicates the number of pounds to totally immerse the float. When calculating load limits maintain a safe freeboard before immersion.

**Cleat** Dock hardware which ties the boat line to the dock. Various shapes and materials are used. Typically aluminum or galvanized steel.

**Decking** Material used for the upper surface of the floating dock. Standard materials are wood plank(usually 2" x 6"), aluminum, concrete, steel, and alternative composites (i.e. vinyl).

**Decking Runner** (or stringer) Material used to support the decking surface. Attached to the main frame, stringer material is usually spaced 12" to 18" on center.

**Decking (Vinyl)** Either virgin or some composite of poly vinyl chloride (PVC) which has been strengthened and UV stabilized. The material is extruded by manufacturers to simulate wood boards. Usually sold in wood sizes, the material is lighter than wood. Vinyl decking should not be used as a structural element in the dock design.

**Decking (Wood)** Various species of lumber used for wood decking. For dock building purposes; treated lumber, or species which maintain strength around water (or saltwater) are preferred.

**Decking (Concrete)** may be separate from flotation or formed as one piece. The heavier weight characteristics require more flotation, but generally add more stability than other materials. Some concrete decking is manufactured in panels which are meant to alleviate cracking. Even reinforced concrete has problems with a foundation which floats.

**Dock Frame** Material used for the 'guts' of the dock support. Standard materials are wood, steel, aluminum and concrete. Floating dock frame designs usually provide for 15 to 30 pounds per square foot of live load.

Frames allow for decking attachment, float attachment and access to equipment (i.e. utility lines).

**Dock Hardware** Various components used to make dock building complete. Fasteners, support dock members and accessories. Hardware should be made of water (and saltwater) resistant material and specified to support the required loads and stresses. Common materials are aluminum, stainless steel, hot-dipped galvanized steel, and zinc-cadmium plated.

**Dock Wheel** Accessory part attaches to the corners of dock sections. Boats entering the slip will 'roll off' the wheel and protect damage to the dock and boat. Usually a molded vinyl material.

**Draft** The depth of the water needed to float. For dock planning purposes underwater bracing should be deeper than the boat draft entering the slip.

**Encased Flotation** Usually polyethylene or concrete encasing polystyrene (Styrofoam). The ability of the encasement to withstand the elements (sunlight, freeze-thaw, wave action, rodents, etc.) is crucial to the longevity of encased flotation.

**EWaterfront** A term used to indicate a focus on holistic planning for the waterfront and local waterways.

EWaterfront development blends the benefits of sustainable and green building techniques with marina construction and Clean Marina management practices.

Ewaterfront development can be considered a method of environmental stewardship and an implementation tool for clean water programs along our local waterways.

**Finger pier** The dock section extending from the main walk. Usually runs alongside the boat. Floating docks with narrow finger piers need additional support when designed too long (i.e. corner bracing, underwater bracing).

**Flotation** Material on which the dock floats. Standard materials include various encasements of Styrofoam or polyurethane. Many areas do not allow permit 'virgin' Styrofoam use. Other float material includes 'anything which floats and maintains freeboard'.

**Freeboard** The distance from the top of the deck to the water.

**Gangway (Ramp)** Section of deck material usually attached from shore to a floating structure (dock).Includes fastening hardware to the shore and dock. Gangways over 30’ should have handrails.

**Gusset** Extra support hardware. Typically found at main structural connections at the corners running at 45 degrees. Usually fabricated as part of corner connection.

**High Water** The highest point on land which the water will rise. Many times a legal marker used to determine where work on land versus work in the water begins.

**Hot Dipped Galvanized** Coating of zinc applied as a protective plating to steel. The plating is done after fabrication. If holes or cuts are done to the metal after galvanizing, additional cold galvanizing should be applied to protect the exposed metal.

**Lineal foot** 12" of a given material. Square footage is different for different material. One lineal foot of a 2"x 6" wood decking covers half the area of one lineal foot of 2" x 12" material.

**Load Capacity** The weight applied to the dock. Usually expressed in pound per square foot.

**Low Water** The lowest point on land which water recedes. Opposite to High Water.

**Main walk** Sections of dock which connect the fingers. Usually wider (and allow for more people) than finger docks. Typically 6' to 10' wide.

**PWC** Abbreviation for personal water craft (jet skis)

**Pile Ring** Typically a fabricated steel ring, larger than the diameter of the column, used to attach a pile to dock sections.

**Piling** Vertical support columns which hold floating dock sections in place. Usually wood, steel or concrete. driven into the waterbed. Depth into the water bed (and piling length above water) depends upon soil conditions and change in water elevation. Spacing and placement depends upon the design of the dock.

**Pile Rollers** Material (usually attached to the dock) which allows the dock to float freely as water elevation changes.

**Ramp** (See Gangway)

**Slip** Area of water where a boat is moored. For dock building purposes the area covers the width and length of the boat, with enough additional space to maneuver the boat in or out of the space.

**Underwater Brace** Additional material (usually wood, aluminum or galvanized steel) attaching finger sections. Bracing must be below the deep boat draft. Typically used with finger sections longer than 20'.

**VOC**
Volatile Organic Compounds; encompass a variety of chemicals, some of which may have short- and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times) than outdoors because they are found in materials commonly used indoors such as paints, cleaning supplies, building materials and office equipment including copiers, printers, correction fluids and permanent markers.

**UV Stabilized** Various chemicals are added to composite and manufactured material to slow the process of ultra-violet degradation.

**Wood treatment** Various chemicals which are pressurized into the pores of wood to decrease the effects of water, insects, rodents and other environmental effects of exposure. Some treatments (i.e. creosote) may be restricted or illegal.

## Site Inventory

EWaterfront inspection and review - A checklist for dock building:

1. List and identify your waterfront components.
2. Label the type of impact (Examples: emission, waste, use of energy).
3. Rank the item with other similar impacts (Use numbers).
4. Priority and grade your focus (Use A, B, C, D, None).
5. Find a Reference, Resource or Standard to guide you.

| | List / Identify | Type of Impact | Rank | Priority | Resource / Standard |
|---|---|---|---|---|---|
| | | | | | |
| | Shoreline | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
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| | In Water/ Docks | | | | |
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| | Accessories | | | | |
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| | Products | | | | |
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## EWaterfront Product Selection

A checklist for dock building product evaluation. Factors which may justify additional cost or help compare equal pricing.

1. List and identify products used on your waterfront.
2. Inspect labeling for toxic, hazardous or VOC content (y or n).
3. Recycled content (%).
4. Percentage reusable or recyclable (waste reduction).
5. Testing available for comparisons and quality control (y or n).
6. Buy local, when possible (within 500 miles).
7. Note certifications and warranty (long term).

| | Product / Description | Content | Recycled | Recyclable | Testing | Source Location | Certification |
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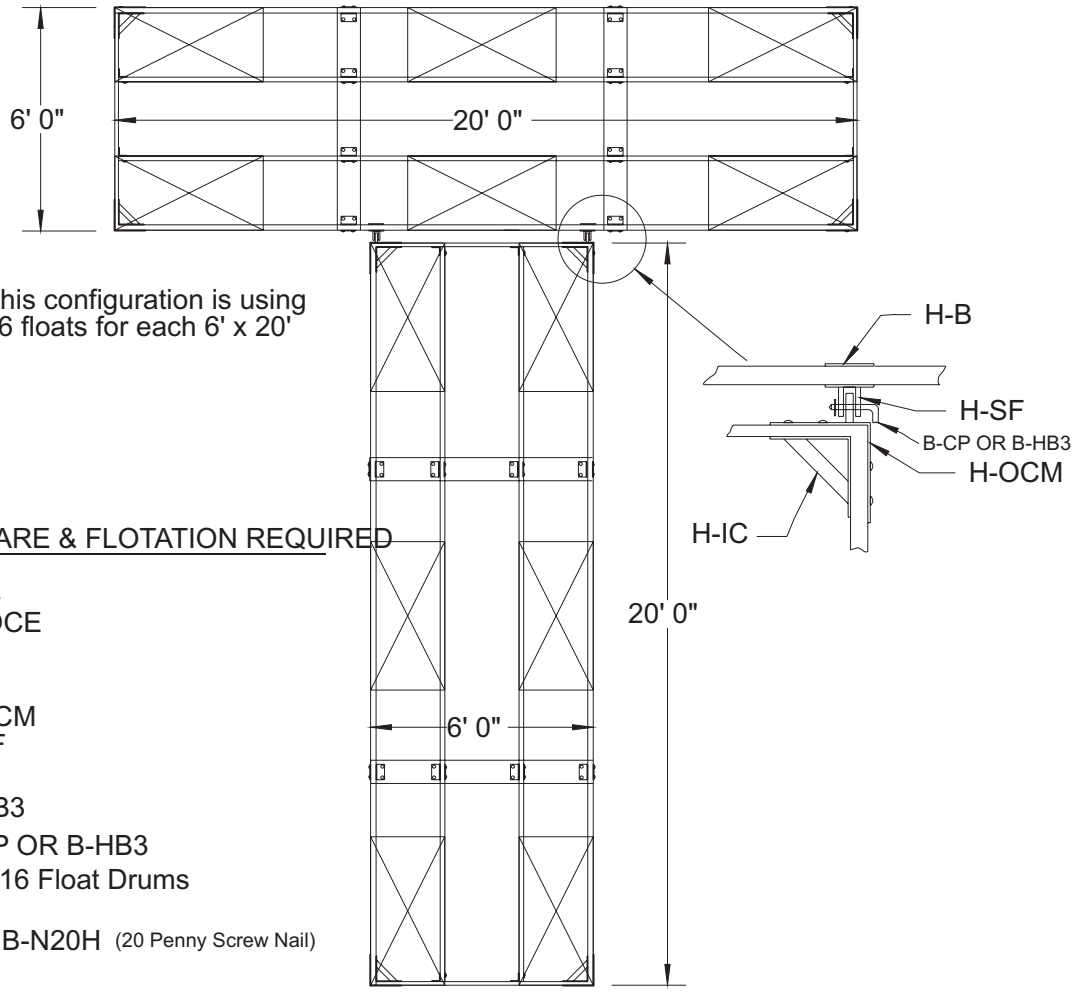
# TYPICAL "T" SECTION

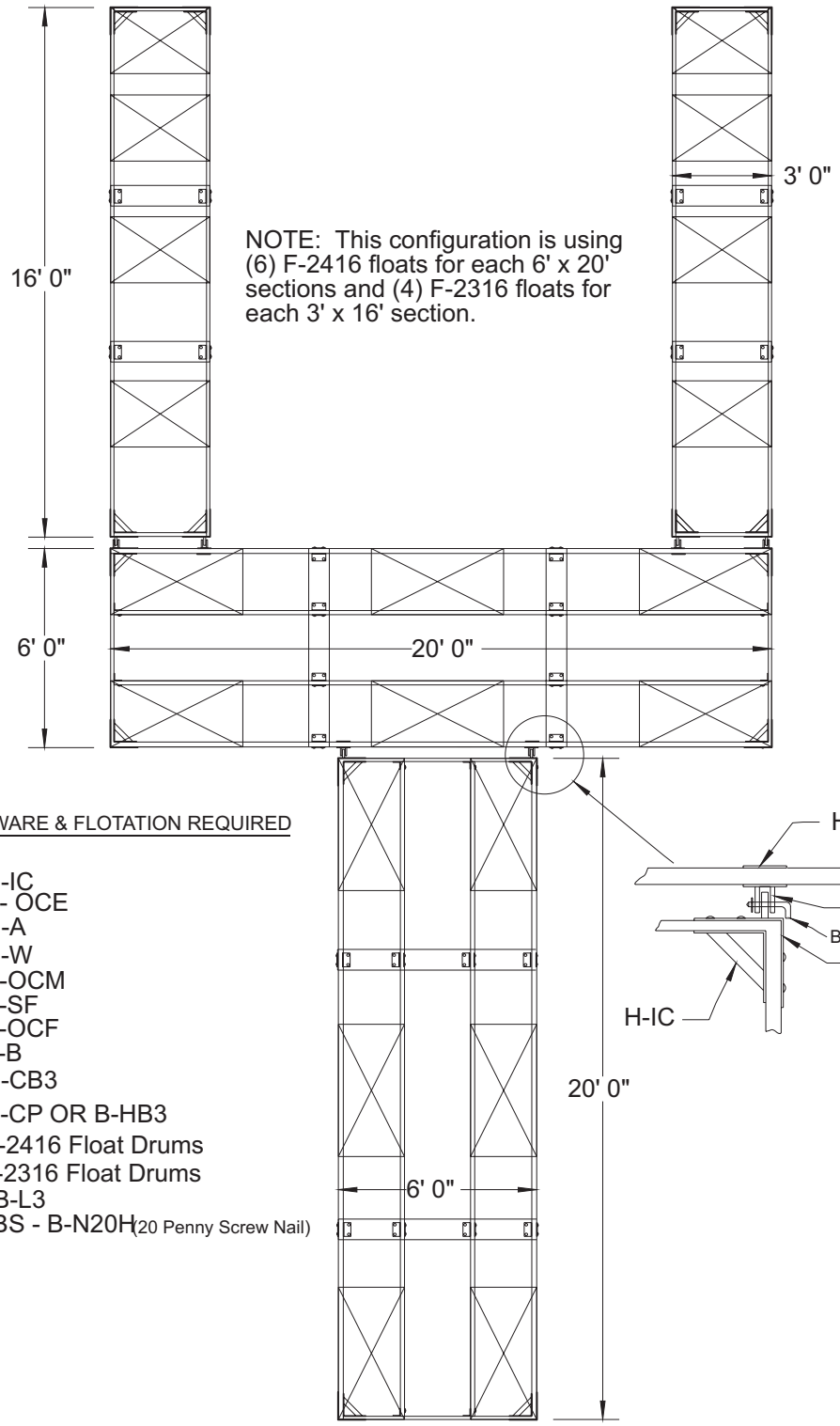



NOTE: This configuration is using
(6) F-2416 floats for each 6' x 20'

HARDWARE & FLOTATION REQUIRED

- 8 - H-IC
- 6 - H- OCE
- 24 - H-A
- 48 - H-W
- 2 - H-OCM
- 2 - H-SF
- 2 - H-B
- 168 - B-CB3
- 2 - B-CP OR B-HB3
- 12 - F-2416 Float Drums
- 48 - B-L3
- 10 LBS - B-N20H (20 Penny Screw Nail)

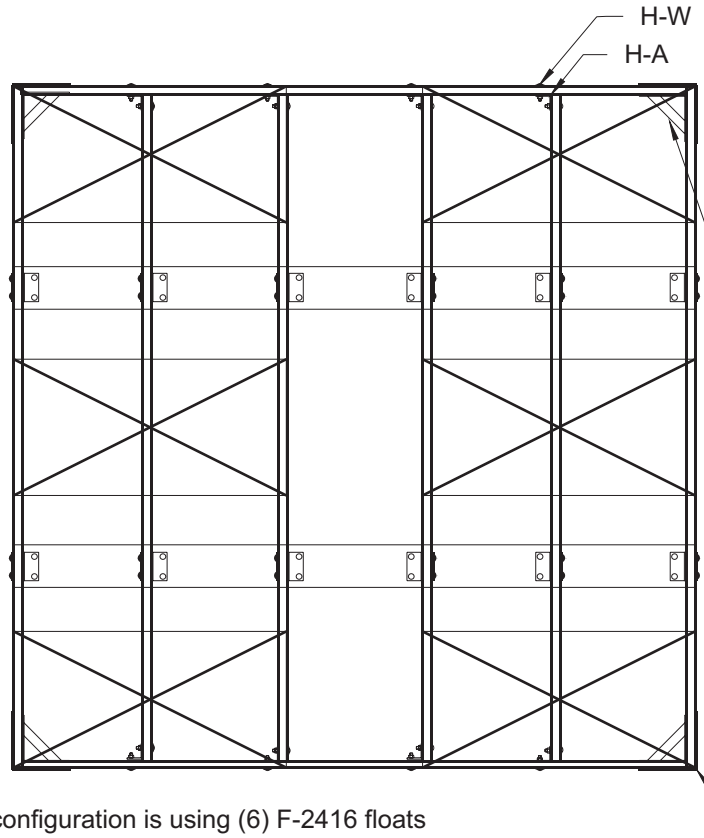
# TYPICAL "U" SECTION




HARDWARE & FLOTATION REQUIRED

16 - H-IC
8 - H- OCE
32 - H-A
64 - H-W
6 - H-OCM
4 - H-SF
2 - H-OCF
4 - H-B
272 - B-CB3
6 - B-CP OR B-HB3
12 - F-2416 Float Drums
8 - F-2316 Float Drums
80 - B-L3
20 LBS - B-N20H (20 Penny Screw Nail)

# 10' x 10' SWIM FLOAT




NOTE: This configuration is using (6) F-2416 floats

MATERIAL & FLOTATION REQUIRED

4 - H-IC
4 - H-OCE
20 - H-A
40 - H-W
112 - B-CB3
24 - B-L3
6 - F-2416 Float Drums
5 LBS. - B-N20H(20 Penny Screw Nail)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