Port of Friday Harbor

Cardboard Boat Regatta

Float on… or swim to shore! The Cardboard Boat Race will be a favorite part of the Rock & Roll Regatta weekend because whether you sink or make it to the finish line, you're going to have a blast. Participants compete with homemade cardboard crafts ranging from nautical to whimsical and from seaworthy to waterlogged vessels!

Instructions for Building Your Boat:

Use un-damaged cardboard. If you break or crush or cut through the corrugations, the cardboard may fail while in use. Don't step on your cardboard!

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1. Use water-based wood glue. Use a roller to spread the glue over large surface areas and remove excess glue. Excess glue can damage the cardboard and take too long to dry.
2. Clamp or use weights to press the glue joints and layers together. Be sure to use a large flat surface in between the clamp or weight and cardboard. This will protect the cardboard corrugations from damage.
3. Keep your cardboard dry! Seal the open edges with silicon sealant (use a water-soluble type if possible as it makes for easier cleanup). Remember to seal the ends of the cardboard with caulk or silicone, or you'll have great fun watching the water draw up into the corrugations just like a drinking straw. This could cause premature failure.
4. Use paper tape to help join pieces of cardboard. Duct-tape shrinks when it is painted, and it also shrinks differently than the cardboard.
5. Reinforced paper tape works well over caulked edges and seams. Use the tape to cover and reinforce joints and any "open" ends of the cardboard.
6. Layer cardboard for additional strength. Try layering the cardboard with the corrugations going in different directions. This will make for a stronger laminate. You'll have strength and keep boat light if you place the second layer so that the corrugations run at a 90-degree angle to the first layer.
7. To fold cardboard across the corrugations, consider scoring the line of the fold with the butt end of your utility knife or other rounded edge of a tool.
8. Try to build the raft in a warm, dry, low humidity location. This will speed up the glue drying process.
9. Use water-soluble outdoor latex-based primer for the initial coats of paint. Avoid oil-based paints, stains, caulk, and glue because the oil soaks into the cardboard, which weakens and damages it. The cardboard may never dry!
10. Try building a model first. Scale down your design and cut it' "flat-pattern" shape out of a manila folder. Use stones of small weights to test the buoyancy. Tape together and seal it from the water using scotch tape. This could give you an idea if the boat will float the way you want.
11. Remember to decorate your boat (highly rewarded by the judges) and to bring your own wooden paddles or oars. Double bladed paddles are not acceptable.
12. Be sure your boat will be able to get out the door of wherever you build it!

More Tips:

-Flat bottoms are recommended, V-shaped bottoms are likely to tip over
-You want to sit in your boat, kneeling or standing will cause you to tip over
-Longer boats are faster but harder to turn

-Boats under 10' are difficult to steer
-For height, allow about 18" for you to sit and paddle effectively without the edge of your boat blocking your arms
-Figure about 30" max for 1 person, 48" for 2 people
-Clear tape melts when it is painted
-Forget about "glue guns" because that type of glue melts on hot days
-Fold a lot and cut sparingly

Cardboard Boat Regatta:

Participants (at least 2 people on a team, with a max of 6 people on a team) design and build a human-powered boat made of corrugated cardboard which can complete a trip around a 50-meter course. All participants must be at least 12 years of age. The race starts right in front of the Port's Waterfront Park between the main pier and fuel pier **June 28, 2019** at **3:30 PM**.

Boat Building Rules

The first ingredient in cardboard boatbuilding is creativity. The second important ingredient is problem-solving. Then there is cardboard, which must be corrugated. There is no one way to build a cardboard boat. There are some requirements about the use of certain substances and materials for boat construction. But other than those, people are encouraged to have fun.

Approved Construction Materials

Corrugated cardboard
Tape
Water-soluble caulk or silicone sealant
Water-based wood glue
Water-soluble outdoor latex-based primer/paint

No foam, no plastic, and no wood allowed in building your boat! You may not wrap the hull in tape, plastic, shrink wrap or any other material. There are no restrictions placed on decorative materials as long as they do not aid in the flotation or propulsion of the boat and do not create a safety hazard. Stay away from stuff that is toxic, either for you or for the environment. Boats will be subject to a technical inspection before the race and must adhere to these guidelines. Any boat not following these guidelines will be disqualified. Exception: you may use wooden paddles, or you may use wood to make paddles or oars.

Race Day Rules

Each boat must have a Captain and at least one crew member. That means a minimum of 2 people per boat, but the Captain may have up to 5 crew members (for a total of 6 people per boat). Captains must have their boats on the premises and check-in on the Loading Dock at the Port of Friday Harbor at 2:30 PM. A Captains' meeting will be held at 2:45 The official race start is 3:00 PM.

Safety Precautions

All boating participants must be at least 12 years of age and wear **a life jacket and closed toe shoes** (no bare feet or flip flops). Each occupant must be visible while the boat is in the water. Alcohol is prohibited.

What types of boats are involved?

We've heard of cardboard kayaks, barges, freighters, pirate ships, riverboats, rafts, beds, and other floating vessels in the shape of a bratwurst, a giant Tootsie Roll, cars, trucks, airplanes, space shuttles, aircraft carriers, dragons, sea monsters, sharks, dolphins, sea turtles and other marine animals — all made of cardboard, of course.

Before Building

Building a person-powered cardboard boat, capable of completing a trip around a 50-meter course, is a lot of fun. First, start with some objective in mind. Do you want to build the fastest boat at the regatta, or are you more interested in one of the awards for best theme?

Next, envision what you want your cardboard creation to look like and come up with a design idea. **Build a model** using a manila folder or other heavy paper or lightweight cardboard. That way, you can fold, re-fold, and fold again to your heart's delight. You can cut it up, glue or tape it together, and try out your design idea in small scale before working on a full-sized creation. Or you can throw out an idea that sounded great, but just doesn't work, and then try something else before you waste any cardboard.

Most teams utilize engineering and design principles. Consider the science involved. There's a simple principle in physics which says that the total buoyant force is equal to the weight of the water displaced by the object. This buoyant force is distributed evenly across the area of the object. Otherwise the boat bends in half when you get into it and water pours in. Calculate the displacement of your idea so that you will have some idea about the buoyancy of your design.
Here's the basic number: a cubic foot of water weighs about 62 pounds. That means that a 180-pound person will float in a boat that is 1 foot by 1 foot by 3 feet. Sounds uncomfortable, but at least you would know how much boat you and your crew will need at a bare minimum to displace enough water to stay afloat, without taking into account things like splashing or wobbling. Last minute modifications and frantic problem solving, however, are often required. Creative problem-solving adds to the fun. Whether you get your insights from methodical effort or from wide-ranging trial-and-error, building a cardboard boat can be very rewarding.

Be sure your boat will be able to get out the door of wherever you build it. There are woeful tales about creations that had to be dismantled — or even trashed and rebuilt — just because no one thought about the size of the boat and the size of the doorway.

Where to get materials?

You might obtain corrugated cardboard from appliance stores. The shipping boxes for refrigerators and big freezers can be good possibilities. Maybe you can get boxes for TVs, bedding, bookcases, or other furniture.

For Questions please email Tami Hayes, Harbormaster at tamih@portfridayharbor.org or call 360-378-2688. We can't wait to see you out on the water!