RollingBarge.com is a company located just outside of Portland, Oregon. We manufacture a line of floating trailers or “Rolling Barges”. These Barges are can range in size from the smallest at 13’ long and 8.5’ wide, to the largest at 36’ long and almost 17’ wide. However, even the largest of our barges folds up so that it is never wider than 8.5’ down the highway and can be towed without any special permits. Below are three different potential sizes of Rolling Barges:

**Large – 29x17’ – 550 sq ft deck space**
For simplicity, let’s start by building the “small” Rolling Barge shown above. This Rolling Barge has the following preferred design features:

1. The wheels are connected permanently to the barge. The entire unit goes in the water and stays in the water making this a floating trailer.
2. The front/bow of the barge is the rear of the trailer and the rear/stern of the barge is the front of the trailer.
3. Once the Rolling Barge is floating on the water, the trailer tongue is removed from the swim step and stored either on the barge or in the tow vehicle.
**Building a Rolling Barge**

All Rolling Barges are built along the same design with the same materials. All of the metal structural members are made from 6061 T6 Aluminum. All of the bolts, nuts, and washers are stainless steel. The nuts are all nyloc locking nuts. All of the parts of the Rolling Barge are bolted, riveted, or screwed together. Some of the individual parts have been welded, but there is no welding done during the assembly of a Rolling Barge. The maximum stresses on each part have been calculated and the parts have all been sized to have a safety factor of at least 3.0. This means that each part is 3 times stronger than we calculate that it needs to be.

The foundation of the Rolling Barge is the “Endcap”:

Each Endcap is identical and is made up of two top angles, two side angles and two flat bar cross braces. These parts are all made of 6061 T6 structural aluminum and are bolted together with four stainless steel bolts with locking nuts and washers. Our 13.5’ long and 8.5’ wide Rolling Barge require a total of 16 Endcaps. They are placed in four rows as shown below.
Edge to edge, the Endcaps are a little over one inch apart. Front to back there is about three feet between them.
Now let’s add five rows of cross bracing along the length of the barge:
In the next step we connect these Endcaps with rails along the four corners of each Endcap as shown below. These rails are made from 6061 T6 aluminum tubing that is typically 2” tall and 1” wide. However, the top outside barge rails are 4” tall and 2” wide to better support the railing and gates:
Now let’s add the tubing along the top front and top rear. This is also 4x2” to better support the railings and gates:
This is starting to take the shape of a barge. The bow of the boat needs some angles for better support as shown below:
Now that we have the basic outline of the barge, let’s add the aluminum structure at the stern for the swim step that also serves to support the trailer tongue:
While we are working on the stern, let’s bolt the aluminum in place that makes up the transom:
It is time to add the floatation to our barge. First let’s bolt four Nosecones in place in the front. These are made of polyethylene plastic and are sealed. They provide approximately 3 cubic feet of floatation and allow the barge to move more efficiently through the water.
The next step is to attach the deck. The deck is made of treated Douglas Fir plywood and is attached with self drilling stainless steel screws. This same decking material is attached to the swim step.

The deck holds the drums down, so unlike conventional pontoon boats where the frame is holding the pontoons under the boat, in a Rolling Barge, it is the deck that holds the drums/pontoons. Because of this, the deck screws must be placed an average of 12 inches apart along the top of every rail.
Next we install ten 55 gallon polyethylene drums. Two bolts through the drum lip hold each drum in place. In addition, a standard automotive tire valve stem is installed in the bung (cap) of each barrel and the barrels are inflated to about 0.5 – 1.0 psi. This locks the barrels in place and prevents them from rattling on the highway.
Next let’s work on the bottom of the barge and bolt in place the aluminum axle support channels.
On the axle mounts we bolt the galvanized Dexter Torflex Axle with aluminum wheels and radial trailer tires.
When we insert the Trailer Tongue and pin it into place, a new Rolling Barge is born.

At this point the unit rolls down the highway and floats on the water. However, there are some additions required to make it meet the U.S. Federal Highway standards and the U.S. Coast Guard and American Boat and Yacht Club (ABYC) standards. There are also a few amenities that make the barge more comfortable. Let’s keep building...
To meet the ABYC standards as a deck boat, we need a railing with a minimum height of 24” all around the barge. For this design we set the railing at 30” because we have found that to be a more comfortable height. To keep the water from splashing into the boat, we cover the railing with Sunbrella brand marine fabric. The fabric provides a second feature because the ABYC requires that railings taller than 24” require a mid rail. The fabric and trimming of poly webbing meets this requirement. New for 2009, the ABYC requires that the railing handle 400lbs in any direction at any point along the railing and to all closed and secured gates. Our design meets this very stringent criterion.

Shown above are the fixed railings that we add to the Barge.
In the areas not covered by the fixed railing, we are going to secure them with removable gates like the one shown below:

These gates have a locking mechanism at the bottom of one of the legs that holds them down, yet, allows them to be quickly and completely removed. This design also meets the 400lbs in any direction ABYC standard.
Above shows all the gates installed.
Since this particular Rolling Barge is used as a recreational boat, let’s add some carpet to make it nice for bare feet.
For legal towing along U.S. Highways, we install the appropriate trailer lights and reflectors.
To meet Federal requirements, the trailer tongue needs a pair of safety chains (not shown). The above trailer has a Gross Vehicle Weight Rating (GVWR) of 3000 lbs and is, therefore, not required to have trailer brakes. Our larger Rolling Barges, however, do have stainless steel disk brakes on all wheels. This is a hydraulic braking system with a quick-disconnect hydraulic line between the trailer tongue and the swim step.
Your new Rolling Barge is ready to roll down the highway and right down the launch ramp into your favorite lake or river!
The tongue is removed from the swim step on the water.
When used as a pleasure craft, the above Rolling Barge is rated to carry a maximum of 6 people or 860lbs on the water. Alternately, when used as a utility trailer/deck barge, on the water this vessel can safely carry one operator and up to 1300lbs of cargo, provided the cargo is centered and securely tied down and the center of gravity of the cargo is no higher than 4 feet above the deck. For additional technical and design information, please see our Engineering Reports.