



BUILDING AQUARIUMS WITH PLEXIGLASS

THIRTY GALLON CUTTING TANK

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Last month, before the seminar, I received so many calls from people who were bringing new sps corals for the genetic bank that I decided to build a cutting tank for my office. This aquarium had to fit in the space between my 150 gallon reef and the wall. I decided to make the aquarium from Plexiglass so it would match the brood stock tank. I am glad I had this new tank hooked to my system because people brought us more than twenty new strains that we did not have.



The new tank is 36 inches long, 18 inches wide and 12 inches deep. I also added a 20 gallon sump next to the other sumps in the stand below the 150 gallon tank. Part of the water from the 150 gallon reef flows into the new sump, and a Maxi-Jet 1000 lifts the water into the new cutting tank. I have added plastic racks with 1 inch holes to both of the new tanks.

The cutting tank has 2 power compact lights that Tom Frakes gave us. The lower sump has 4 - 2 foot VHO bulbs. The water enters the new cutting tank through an Ocean Motion™ wave maker that turns the incoming water in an arc. I added two Maxi-Jet 1000s to the left end of the tank.

This tank fit into the space between the wall and the 150 gallon tank so I only had to finish the front of the stand with oak. I made the stand from 2 by 8 pine. The tank is made from 3/8 inch Plexiglass. I was an antique refinisher for 17 years and I had not built too many things since I got out of college the last time in 1984. Sally Jo had never even seen me change many light bulbs so she was quite surprised to find this new aquarium in my office on Monday. It was just a sheet of plastic when she left Friday night. I guess it just took me 14 years to get over the burn out from 17 years of making and repairing furniture:)

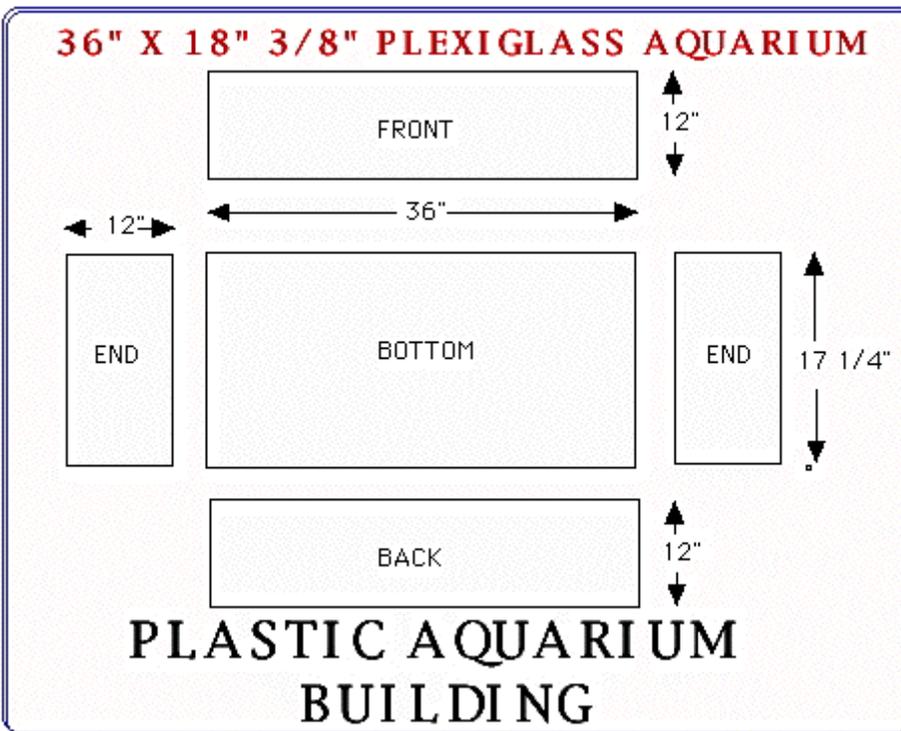
Now that I have the building bug, I have started to buy power tools, and I am going to build a shop. Plexiglass is a fun material to work with, and I will share all of the new projects as I build them. The only tools you will need for the project is a table saw and drill.





I used the extra Plexiglass to make 3 racks to hold the corals. Each rack is 4 inches wide. For this tank I just added 4 legs to racks. I made each rack 2 inches taller the one in front of it. I used a Forstner bit to drill the 1 inch holes that hold the reef plugs.

This picture shows some of the new sps corals that came in during the seminar. THANK YOU ALL for the great gifts. These corals were placed in the new tank just 48 hours after the tank was filled. Attaching a cutting tank to your brood stock tanks is one of the fastest ways to expand your new farm. The two new tanks increased the total volume of this system by over 70 gallons so the brood stock tank will be more stable.



You can use these plans to make any size aquarium. The trick to planning your cutting list is that you add the two thickness's of plastic together and subtract that from any place you need to.

In this drawing the front and back pieces set on top of the bottom piece so I subtract 3/4 inch from the ends. You can order the Plexiglass precut if you do not have a table saw. I always make the bottom piece the size of the finished tank. The other pieces are glued on top of the bottom piece for extra support.

As we learn to produce corals we are making our new tanks shallower because the light is used better, and we can stack several tanks on one stand. Some of our newest cutting tanks are only 4 inches deep.

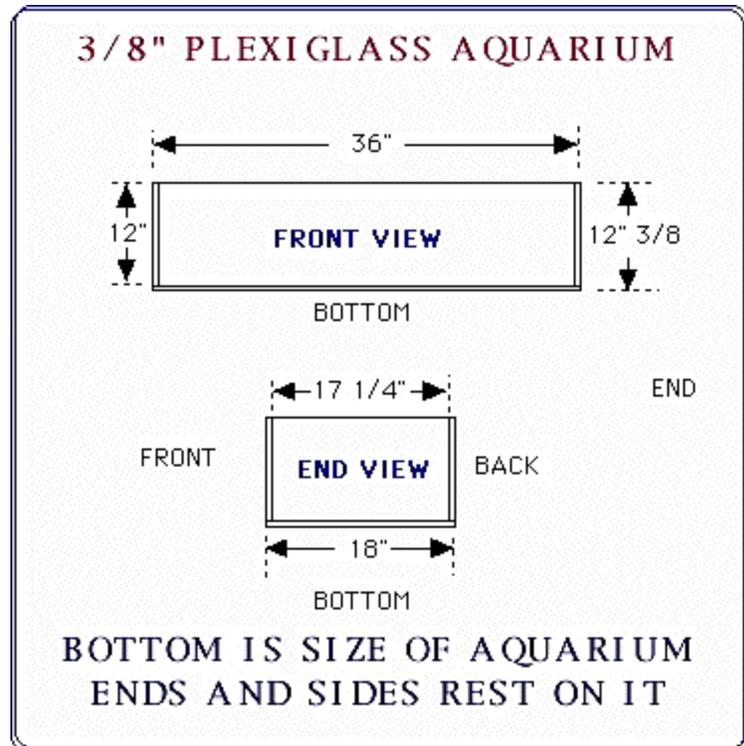
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MATERIALS

1. Plexiglass cut to size
2. 4 oz. can of thin acrylic cement
3. a needle squeeze bottle
4. 2 oz. tube of thick filling type acrylic cement
5. electrical tape
6. sand paper

The small needle squeeze bottle will be used to apply the cement by squirting it between the pieces of plastic after they have been taped together.

I like to use electrical tape because I can stretch it to apply even pressure as the cement dries. The tube of thick filling type acrylic cement is used to fill any small spaces left by not having straight cuts. This will not be a problem if you order the plastic pre-cut.



GETTING STARTED

The first thing you need to do is remove the paper from all of edges you will be gluing. By not taking the paper off of the rest of the plastic you avoid scratching the centers of the pieces while you are working on the aquarium. I had already removed the tape when I remembered to take some pictures;)

The best way to tape the tank together is to have a helper hold the sides while you put 3 pieces of tape under the bottom. I often do this job alone so I add the pieces of tape to the under side of the bottom and leave 1/2 of the tape sticking out. I then turn the bottom back over so the tape is laying out with the sticky side up. The best way to do taping in a hurry is a trick I learned from one of the many fine craftsmen I have worked for. With a razor blade you can make a cut across the roll of tape so that each time you unroll a piece it is already cut.



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After the tank is glued together you just run the needle bottle full of cement down each edge that you are gluing. You will see that the space between the two pieces of plastic becomes clear as the cement melts the plastic. Be very careful that you do not get any glue on the rest of the plastic because it will damage the surface. If you are making a tank with a sump it is better to practice on the sump first. The sump will not be viewed so any mistakes you make on it can be corrected on the main tank.

It is better if you do not need the thick cement, but I often run a bead of it inside of all seams. This extra cement will fill any leaks that are caused by the uneven edges. If I am making a show tank I do not use this thick cement. The joints will very strong if all of edges are water tight.

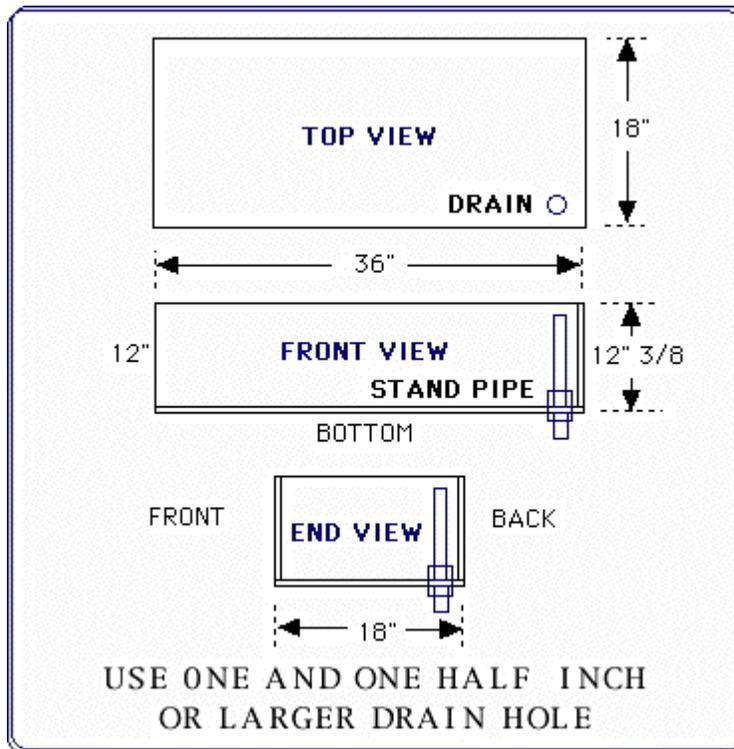
When the tank is sealed I add a piece of plastic that is one inch wide around the top. This piece of plastic makes the sides stronger so they do not bow when the tank is filled. You can see this top molding in the pictures of the finished tank.

There are several ways to finish the edges of the tank. Sand paper is the safest way to round the outside edges. I use 200 grit and then finish with a 400 grit wet and dry paper. You can also finish the edges with a blow torch, but I am sure you will want to practice on some scraps first.

Let the tank dry in a warm room for 24 hours before you fill it with fresh water. If there are any leaks you can apply a bead of thick cement to the inside seam.



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There are many ways to plumb your tank. This cutting tank is in my office so I used clear acrylic tubes. I went to the plastic wholesaler and chose a piece of 1 inch plastic tube that fit into a piece of 1 1/2 inch tube. The smaller tube fit into the larger one very tightly. By sanding the 1 inch tube to a slight taper I made a good fitting. I stopped by the hardware store and found a PVC fitting for 1 inch pipe that fit into the larger clear tube very well.

I drilled a 1 inch hole in the back corner of the tank. This hole in the bottom was just big enough to glue a 2 inch piece of the 1 1/2 inch tubing over. I turned the tank over and glued a matching piece to the bottom. I cut the 1 inch pipe so that when it was locked into the larger pipe it reached just to the desired water level.

I used the table saw to cut 8 slots into the 1 inch stand pipe so it looked like a clock face.

This picture shows how I added the top pieces around the inside of the tank. I made two T shaped braces from plastic to hold the new Aquarium Systems power compact lights in place. One of these lights is an Actinic and the other one is a daylight bulb that is about 6000 K.

One thing I have to say this system of lighting is that it EASY to set up. Just take the lights out of the box and plug them in. I spent about 3 hours wiring the 4 - 24 inch VHO bulbs in the other tank. I will now be able to test the VHO - Icecap lights with the Power compacts.

You can see how I mounted the 2 Maxi-Jet 1000 power heads in the right end of the tank. All of the corals are doing very well as the next picture shows.





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