

Setting Up A Fishroom

Most people set up their fishroom by allowing it to develop as it grows, a tank here, a tank there. An effort is made to make the best use of space, keeping the wiring out of sight while trying to keep maintenance into each tank as comfortable as possible. You want to be able to get around every tank, and have close access to a sink. Some ventilation would be nice, and a way to include a centrally located blower should be taken into consideration. Wiring means extension cords and power strips, ideally away from somewhere that water may splash on them.

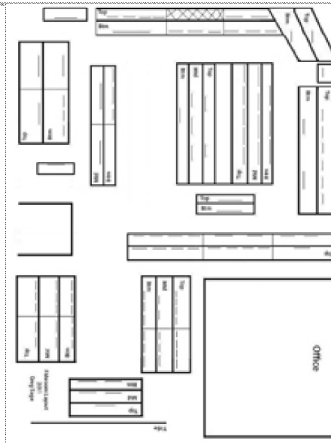
This approach generally causes problems in the long run. The best way is to decide ahead of time what you want the room to do. What do you want to work with, where will every tank go? Will there be an area where all of the fry tanks should be, so that their heavier maintenance can all be done in one place? An area where breeders can all be together and watched closely for fry. Without a plan ahead of time, you could easily face periods where broad changes have to be made after the fish are in all of the tanks, changes that could have been avoided when first setting everything up.

Though a large undertaking, it has been positive that every 6-7 years I have needed to entirely redo the fishroom. Everything can be moved and cleaned around, and an improvement and modernization can be done to address how the room has developed. Each time the room is set up there are many opportunities to consider, and each redo can build upon experience gained from the last setup.

If the room you are planning is going to be 5 tanks or a hundred, there are some things to keep in mind that are consistent for both, and hopefully I can provide some information that will help you.



Two of the metal racks. Tanks are near eye level, maintenance is easy, area below is used for storage.



The basic floor plan of the fishroom. Roughly to scale, not shown is a 30 inch walkway between the racks and the surrounding walls.

The room you choose to use for the fishroom will need to meet a few requirements. Besides being large enough to hold the tanks and stands, allow yourself at least a **30 inch walkway** behind everything to easily do maintenance, and aisles that are **comfortable to navigate**. You could easily create a fishroom that makes great use of space, but is too cramped and claustrophobic to want to spend much time in. This is especially important if you are planning to keep cichlids, for example, where the room may need to be kept warm as well.

Allow yourself room for a **work area**, where you can keep a few tools, small containers to move fish from one place to another, nets, etc. This can be as simple as an open spot on a rack where a tank was going to go, but you need somewhere that can serve as a "command center" for whatever comes up or routine work that needs to be done.

Most importantly, keep in mind that you will need **storage space**. A side room, whatever, but there will be things you will need to keep on hand that are unsightly to just be leaving around. For example, a very important component to a working fishroom, that visitors never see, are the **buckets**. Generally the 5 gallon painter's type, but this fishroom keeps a wide variety of plastic containers used for any variety of reasons. Here we have about twenty 5 gallon buckets, and there have been times

when many things are being moved around and they have all been in play at once! Siphon hoses, a place for foods, extra tanks, medications, etc. all will need to be stored out of sight. Here, all of the tanks are on a siphon driven **automatic water change system**, requiring that all tanks be about 30 inches above the ground, as their drains are sloped toward the house drain. So each rack has a waterproof skirt from the bottom shelf to the ground, behind which is used for storage.

If you are going to use a **basement**, you may also want to find out how consistent the **temperature** is from one part to the next. My basement is a large "L" shape, and I was surprised to find a temperature difference of 3-4 degrees between the two ends of the room. It isn't that there can be anything done - unless you wish to add insulation- but that information goes into the planning of which species and tanks should go where.

Sitting with a pencil and paper, before a single piece of wood is cut, many potential problems can be avoided. When **planning** out which tanks will go where, we would all like to make the best use of space. This way, the greatest number of tanks can be set up in the most efficient manner. However, this often does not make for the best fishkeeping. With multiple tanks, every tank must be in a placement where it will receive **100% care**. Often, we set up groups of tanks, and those slightly out of sight or placed on too low a shelf will get neglected. Your goal when first planning out the room is to be sure there are no areas where maintenance or routine care can be challenging, or more difficult than in the other tanks. The energy we have will not always be 100%, nor do our schedules always allow for the time to properly care for our tanks. When tanks are not as easily accessible, over time, they suffer to a greater degree than those tanks whose maintenance is simple, convenient and consistent.

If your room is being set up such that needing 3-4 days to go on a trip isn't possible, or a few days of being sick in bed can be disastrous for the fish, a better setup may need to be considered. Keep things straightforward and relatively simple, so that others can be easily instructed as to how to take care of your room if you need to have someone come in.

There are a **few considerations** I try to follow:

The lowest tanks in the room should still be high enough off the floor to see into easily, as well as to clean and see easily beneath. This also helps with cleaning the tank, as a siphon hose can be used more easily when the tank is 24-30 inches above the floor. This distance from the floor may be necessary if you use an automatic water changing system requiring drain lines to slope toward a main drain.

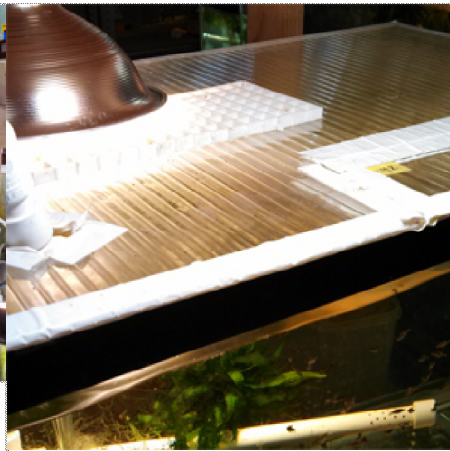
The tops of the tallest tanks in the room must be easily reachable to feed into the tank and do maintenance.

Each row of tanks needs to be far enough apart from one another that there is enough space between the top of one tank, and the bottom of the shelf above it. There needs to be enough room to do maintenance easily and put in and remove pots, filters etc.

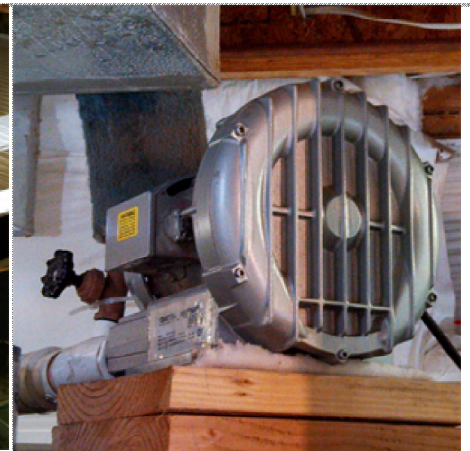
Another consideration is when choosing between rooms to use, decide if you will be doing much breeding. If so, when the fishroom is in a room with windows and natural light, the fish kept there will receive **seasonal cues** that could cause them to breed seasonally. Often many species will slow their breeding or stop completely from about mid-September, and resume in early-mid April. A room with no natural light can be kept on a similar light schedule year around, and most fish will breed more consistently throughout the year.



Wooden racks when constructed well are sturdy and functional. The mounted CFL bulbs can be better seen in this pic. A backup 1/8 hp blower can be seen at lower left in photo.



The twin wall thermal polycarbonate 8mm tops, easily cut with a dremel tool. White duct tape is used to seal and make feeding doors. Egg crate plastic can be seen under light.



The 1/4hp blower used to power the entire room. All of the air needed everywhere in the room comes from this unit. A 1/8hp blower is perfect for up to 60 tanks. Smaller options and types are available.

Another consideration is **humidity**. Many of us do not use **tops** on our tanks, and I have found this is fine up to about

15 tanks (of at least 10 gallons each), and beyond that in a smaller room, humidity issues can begin. As a rule, humidity becomes a problem when:

Condensation begins to appear on the insides of the windows- particularly when it occurs in other rooms in the house. Mold forms in window channels, in corners of the ceiling, etc. **Mold** is something to keep an eye on. Most of us fishkeepers blow it off, and people that know anything about mold totally freak out. Some people are very sensitive to molds, and problems from long term exposure to mold spores for some people is well documented. After a mold issue appeared in my room a few years back, a team of mold experts came out to do an inspection to assess any damage. While stepping out from the fishroom where I worked many hours a day with no ill effect, I was met by workers dressed in full head to foot white suits with ventilators, shocked that I would be in their midst without protective clothing. As a result, I installed a humidity controlled 10" **hydroponics fan**, using the Dryer appliance exhaust hole provided in the basement/fishroom. In combination with cutting tops for all of the tanks (120 tanks), made of thermal twin wall 6 or 8mm **polycarbonate sheeting**, the humidity now stays at 30 – 45%. It used to be closer to 65-70%, effectively ending the mold problem, and in fact often keeping the fishroom at a lower humidity than the rest of the house.

That sheeting is used to make walls for greenhouses, and is available from most greenhouse supply stores. Unlike glass, it is lightweight, transparent, doesn't break, cleans to as good as new and doesn't become yellow or become cloudy. It is available online, but is prohibitively expensive to ship. Initially coming in 6 x 20 foot sheets, it can be cut into 3x4 foot pieces that can be put into an SUV and cut up into aquarium tops. Easily cut with a **dremel tool**, duct tape is then used to seal the ends so that water does not get into the channels inside the sheets, and little feeding doors and other customizations can be made to accommodate PVC siphon tubes, etc.

Humidity needs to be addressed because besides any mold issues that may develop, damage to wood, metal piping, electrical infrastructure and fixtures can occur, resulting in repairs if the need arises to sell the house, etc.



A central air system keeps the room organized and easy. 2 inch PVC should be used with air valves available at many online fish equipment suppliers.



Simple box filters work great in a multitank fishroom when striving for simplicity, cost effectiveness, cleanliness and ease of maintenance.

Electrical issues are always of concern in a fishroom, and there are a few basic rules to keep you out of trouble. Essentially, the electrical needs come down to:

1. **The blower, linear or diaphragm pump** used to power the air into all of the tanks. Besides aeration, these also power the filtration in most fishrooms, as individual hang on the back filters in a fishroom quickly becomes maintenance intensive, expensive to set up and run (when compared to a single pump or blower, when each filter requires its own electrical supply), and introduces far more variables that become clogged, can break, etc. A box filter in each tank (or equivalent such as sponge filters, etc.) has no moving parts, is easy to clean monthly, and is a consistent form of filtration throughout all of the tanks. The filters when changed can be cleaned and checked, essentially maintaining them in new condition for many years, and their initial cost is about a third of what impeller driven hang on the back filters will cost. If you want more filtration than the filter is providing, you simply add another filter. You also do not run into fry getting sucked into the filter, as is so often the case with filters dependent on a siphon going out of the tank. Simple 1/2" extension tubes can be added of about 4 inches long, and they can nearly double the strength of the pull of each filter, greatly increasing their effectiveness. These can be seen on the box filters in the picture above right.

When constructing a **central air system**, a couple rules again come into play. The PVC used to carry the air pressure coming from your blower or air pump should be 2 inches in diameter. A smaller diameter pipe introduces restriction you do not want. It is also very important that the PVC line **MUST** form a closed loop out from the pump, around the room, then back to the pump. Avoid lines that extend out to service tanks that end and do not continue back to the main line and back to the pump. Much resistance and uneven areas are created when the PVC is not constructed this way. Also, if you are not using all of the air being put out

by your pump, be sure to put in a valve that bleeds the excess air off that you are not using. The goal is to run the air with as little pressure as possible. You want to avoid excess pressure in the line, as this will eventually damage the air pump.

2. **The heaters** will each need their own plug. The exceptions to this are if you decide to keep the room at the temperature that is best for the fish, keeping fish that all do best at that temperature.

3. The tanks will all need to be provided with **light**, and this can be done in a number of ways, some requiring more cords than others. Obviously, if there is a way to keep cords to a minimum, you should do so. It is far better, for example, to go with a light directly over a tank than light over 2 or three tanks from a bulb 1-3 feet away. With recent use of CFL bulbs, (and "daylight" type CFLs are every bit as good, if not better, than the old 4 foot cool white bulbs used in the past, for both the plants and the fish.) one emphasis in my fishroom has been light fixture portability. Rather than relatively heavy 4 foot light hoods sitting on tanks, overview **CFLs** are mounted above groups of tanks, and individual **lightweight shoplight type dome lights** sit on tanks requiring better individual light.

A small sheet of plastic egg crate is placed under each dome so that the heat from the light does not overheat the tank, since they are covered with the thermal sheeting. There is some **transparency loss** with the plastic sheets. According to websites selling the material, the compromise in transparency is about 12%. Fortunately, it maintains this transparency as it does not yellow, become opaque, and is easy to handle and clean (as opposed to glass). The electrical cost of CFLs is a fraction of what the old 4 foot light hoods cost, so lighting can be provided a little more generously.

Most hobbyists run their **electrical cords** from a set place in each tank so that all of the cords can be easily plugged into a power strip mounted along one side of the tanks. Heaters or lights a distance from a power strip are then plugged into an extension cord that then goes into the power strip.

Those concerned about such things advise that you should never plug one extension cord into another, as this is considered a fire hazard. After speaking with electricians about this issue, they are right, and it is advised not to plug two extension cords together to reach an outlet. However, everyone does it, and in most fishrooms you will find numerous examples of it. No one has ever heard of a problem that has ever occurred in a fishroom (or anywhere else) because of this, including the electricians I spoke to, so my advice is to keep it to a minimum and be aware of any risk when making the decision to create that situation.

A few **electrical must do** rules-

-Always use **Ground Fault Interrupt (GFI)** plugs to protect the room from any possible electrical shorting. Water splashing around in a fishroom is a normal state of affairs. Water splashing on an electrical plug can be a big problem.

-Mount all plugs as high as possible, at or above the highest nearest water line. Water can drip down heater cords, heavy aeration routinely spills occasional water out of a tank if it is, say, placed too close to a corner of the tank. Creating a "drip loop" with a cord is also an option, where the cord is looped and tied off so that water will not run down the cord.

-Do not use the **cheater adapters** that allow you to plug a grounded 3 pin plug into a standard 2 prong outlet. Though the risk of any issue is again minimal, multiplied dozens or more times you are asking for a problem you don't need. They also take up extra space at the outlet, and simply are not the cleanest, most professional way to do what needs to be done. Until recently, the common 4 foot shop light hood came with 3 prong cords, and the most affordable extension cords were all two prong plugs. Today, the 4 foot hoods are less popular with the arrival of longer lasting CFL bulbs, screw into a standard 2 pronged light socket.

You want to make decisions that are permanent. Never take shortcuts just to get the tanks up and running. Don't put something together now just so that it will work, assuming you will have the time or desire at some point in the future to revisit and redo it. You may revisit and do catch up repairs, but you won't want to, and much will be overlooked.

-Watch your **amperage at each main plug**. You may need to add a **circuit** or two to your fuse box to accommodate the electrical load. Not terribly expensive, I was able to do it a number of times with an electrician friend, but necessary. Without taking that step, you could be tripping the breaker to the room on a regular basis, losing electricity each time, until some things are turned off or unplugged, and it is flipped back on.

The **type of tanks** you use- their size and shape, depends on the type of fish you will be keeping. Provide the tanks the fish require, with an area of smaller tanks to raise fry, quarantine fish and work with pairs when necessary.

Water always spills- so aquariums over a **carpeted or wooden floor** need to be carefully considered. Water does and will spill, routinely, for most people. I have seen fish rooms with carpeted floors- and it becomes a big influence when an effort to keep the carpeting in good condition is a priority. For safety, however, carpeting can be important to help prevent falls on a wet, slick floor. **Indoor/outdoor carpeting** works best, bare against the concrete so that it dries easily and quickly. Removing it occasionally to dry out underneath, or to even totally wash it is best. I have used this in the past and found that the carpeting will need to be replaced about every 3-4 years.

Otherwise a bare concrete floor works fine. Since it does become slick when wet, a durable, waterproof shoe that grips the floor should be worn.

Do you want an automatic water changing system to do water changes for you? If so, a number of alternatives are available, but a no pumps, no drilling of tanks system is what is used here, and a manual for building that type of system is available through Select Aquatics. An automatic system generally requires that tanks be in level straight rows, near one another, etc. Close access to a sink and a line in to the city sewer system is always a big advantage. Plan out ahead of time the type of water changing system you would like, and draw out on paper the PVC infrastructure within the racks that the tanks will be on to determine how the rack, PVC and tanks need to be arranged. (The automatic water change system article is now offered free from the same download page this essay came from.)

If possible, having an old refrigerator to keep the dried flake, pellet, frozen and possibly live foods kept cool and out of the warm, humid fishroom is ideal. Keeping frozen ice cube trays of BBS, beedheart feedings and purchasing and storing dry foods in larger quantities are all possible with a refrigerator.



Metal vs. wood, an older metal rack on the left, a newer wooden rack on the right.



Metal racks will deteriorate in a humid fishroom. If ignored, entire legs can rust away, leaving the tanks holding one another up. You need to replace the racks before that happens!

Depending on the number of tanks, you will need **racks** or some type of structures for the tanks to sit on. Wooden or metal? **Metal racks** are made well these days and can be affordable at around \$100 a rack. However, metal deteriorates, rusts and can require replacement in about 10-15 years in the humid confines of a fishroom. **Wooden racks** are sturdier, longer lasting, and are considered by some to be better looking, and are also less expensive. However, wooden racks require construction, and hooking up with a friend with the appropriate tools may be necessary. Metal racks can be bought at most home improvement stores, and the hardest part, after having the workman at the store put it into your car for you, is getting the box, which weighs a ton, from your car into the house. Putting them together goes pretty quickly.

I have known a couple people that built their fishrooms using 8 ft. planks of 3/4" wood over **concrete foundation blocks**. The part of me that appreciates convenience, simplicity, portability and low cost loves that type of setup. But for a section to be moved or altered, everything needs to be taken down, unless you build the stands in 4 foot sections, like a typical wooden or metal rack. Many do not consider that look to be professional or attractive, but it is an alternative that works. For a setup anywhere but in a basement, however, the extra weight from that type of setup may not be best over wood braces on an upper floor.

When you choose where the footprint of the racks or stands will be, always plan to get around the tanks easily, and envision with each tank being able to do the maintenance. A lovely presentation of tanks flush against a wall with plenty of open space is nice, but over time any difficulty doing maintenance will catch up with you. Ease of doing maintenance must always come first. 99% of the time the room only needs to look good for you.

Place tanks on these racks and stands so that they can **be removed easily**, tanks often leak over time, and at some point may need to be replaced. Whenever that needs to occur is never a good time, so having to drain a tank or two around it first is not a task you will appreciate when the time comes, if any are hard to get to!

Rows of tanks, especially with all of the PVC that goes with a water changing system, requires some infrastructure that can be unsightly. Wiring for heaters and lights will be running everywhere, as well as electrical power to the blower or pumps you will be using. To place the wiring entirely out of sight is a mistake. Besides making maintenance difficult, moisture will collect in confined areas, and access to turn off the electricity easily must be provided. It is best

to place the power strips where they can be reached easily, and such that appliances can be simply put in and removed. Avoid long strings of extension cords whenever possible, and be sure to install a GFI switch- ground fault interrupt switch before going into the house electrical supply. This way a pathway provided through a wet area will not lead to being shocked or electrocuted when working around live current and water.

Keep all wiring and air tubing **above the water levels** of the tanks whenever possible. A filter with an airline that runs below the water line of the tank it services can develop a siphon easily, running water back into the airpump, or to the PVC line where the air is coming from, draining into other tanks. Keeping the airlines above the tanks avoids this. Keep all wiring and air tubing, obviously, off the floor below the tanks!

Pay attention to the wall and ceiling material, and whether it will absorb moisture. The last thing you want are tanks up against a dry-wall side of the room, where the minor unseen splashing from an airstone will over time stain and eventually destroy the dry wall surface.

And lastly, provide space for the **room to grow**, but keep in mind that everyone has their physical and mental limits. Over time, we all get an idea of what the maximum is we can handle, allowing for occasionally being under the weather and times when you simply need a break. The fish room is not a full time job. I try to keep my room only as large as I know I can provide 100% care. If I ever begin to feel overwhelmed, or the room has become a challenge to routinely maintain, I cut back. The room I currently run is about 120 tanks, mostly 10s, 20s, 30s and 50s. There are others that take care of 200 little beta tanks without a problem, and those whose single 30 gallon tank takes up all of their time. You need to decide what you are capable of, and what you are willing to take on over the long term.

For me, a room of about 20 tanks existed for about 7 years in Northern California. That was my maximum at that time. Everything was done manually. With a move to another location in Colorado, the room expanded to 40 tanks with a basic water changing system. That continued for 3 years. Another move, and the fish room went to 60 tanks, where it stayed for 5 years. Then, with the advent of Select Aquatics, the room doubled in size, and now runs 120 tanks, and I know that it would not be fair to the fish, myself or my patient wife if I added any more!

Greg Sage
selectaquatics.com
selectaquatics@gmail.com

[Back to Downloads Page](#)

[Home](#)

[Species for Sale](#)

[Fishkeeping Tips](#)

[Receiving and Shipping Fish](#)