

Materials List and Suppliers for Family 256 and 512 Square Foot Systems 2015

Note: This materials list is for an average installation with the store-bought tanks; your installation may use different tanks and different fittings, which you will need to order or purchase, so check these figures against your specific installation and the CAD drawing. Also follow all the information in the "Tank Discussion" section of the manual. There may be miscellaneous fittings not shown in this list that you need to complete your particular installation.

If you plan to build the Family System 512 instead of the 256, use the figures marked "**ADD 6** 2x4x 18' treated construction grade lumber", OR "**CHANGE TO** SL56A outdoor air pump for **FS 512**" instead of the first figures given.

Fish:

Although we recommend using 0.3 pounds of fish per square foot of raft area for these systems, we have some information that indicates as little as 0.03 pounds per square foot (**if** they are fed adequately 3 times a day!) can generate plenty of nutrients. This is all dependent on your troughs either being inside a greenhouse, or outside with no rainfall occurring to dilute the nutrient levels in your system. **So**, you can probably run the **256 square foot** system on **8 pounds** of fish, and the **512 square foot** system on **16 pounds** of fish if they are active and feed well (3 times a day), and are inside a greenhouse with no rainwater dilution. Conversely, if your water is cold, your fish are sluggish and not eating much, and you have rainfall dilution occurring in your troughs, you should probably consider using a minimum of **80/160 pounds** of fish in these systems.

Tank

Get a 700-to-1,600 gallon polyurethane, fiberglass, steel with liner, or concrete tank. Get the best and most affordable tank you can find.

Trough Materials

20 5/8" by 2' steel form stakes (if your ground is hard), 3' if your ground is soft

ADD 20 more

5 sheets Treated 1/4" ACX plywood

ADD 5 more

2 boxes of 100 1-1/4" #8 or #10 FH hot-dip galvanized screws

ADD 2 more

16 Each of 1/4" x 2-1/2" hot-dip galvanized carriage bolts, washers, and nuts

ADD 16 more \$4/\$6

4 2x4x 16' treated construction grade lumber

ADD 4 more

5 2x4x 18' treated construction grade lumber

ADD 5 more

(Remember, you can use Trex, MaxiTuf, Bear Board, Evolve, and Perma-Poly plastic lumber instead of the 2X4, AND Hardipanel or equivalent quarter-inch thick concrete panel board in place of the treated quarter-inch plywood to build your troughs if you would prefer, although these will cost more).

70 lineal feet of Dura-Skrim R20WW by Raven Industries (www.dura-skrim.com, PO Box 5107, Sioux Falls, SD 57117-5107). This is a tough, 20-mil laminated LDPE plastic film that comes in 6-foot-wide rolls. 140 lineal feet is required for the 512 square foot Family system.

Your contact for large orders (over 500 lineal feet), is Courtney Mendelson, Account Sales Service Representative, Raven Industries - Engineered Films Division, Phone: 800-635-3456, Fax: (605) 331-0333.). **Don't bother her for orders smaller than 500 lineal feet, please! (info next).**

Purchase smaller orders from: Randy Campbell, 256-679=9488; rancam@hughes.net, AND Global Plastics (<http://www.globalplasticsheeting.com/aquaponics-plastic-film/>), AND from IWT CargoGuard: <http://iwtcargoguard.com/>, 609-971-8810. You can sometimes get this or an equivalent at places that sell greenhouses, or at places that sell catchment water tanks.

ADD 38 feet more 12' wide, OR OR 76 lineal feet of 20-mil 6-foot wide liner.

8 4' x 8' x 2" Dow Blue Board Square Edge Styrofoam rafts (Lowe's sometimes stocks this; they order 1 "unit" at a time. A unit is 8' tall and contains 48 sheets)

ADD 8 more

3 gallons Bright white exterior latex semi-gloss enamel for painting rafts with

ADD 3 more gallons

Aquatic EcoSystems Parts

(From Aquatic EcoSystems 877-347-4788, on the Web at AquaticEco.com)

1 MD3 water pump

1 SL56A outdoor air pump

USE SL56A outdoor air pump for **FS 512 ALSO**

3 110A 5/8" barb to 3/4" MNPT adaptor

8 feet TV80 vinyl tubing from water pump to 1-1/2" PVC and from air pump to 1" Driscopipe in tank

10 AS8L airstones (includes 2 spares)

ADD Two more airstones

1 100' roll BTV40 black vinyl air tubing

ADD One more 100' roll

14 Aquatic Eco catalog # 62006 airstone barb (4 spares)

ADD Two more airstone barbs

2 Packs of DB10 (diffuser bumpers come in packs of 10)

ADD One more pack of DB10 diffuser bumpers

1 gallon inoculating nitrifying bacteria Catalog # 239211

4 boxes each of Pentair R443 (ammonia) AND Hach 27454 (nitrite/nitrate) test strips, which come 25 to a box. This is enough for a year of tests at one test every four days or so.

1 Box each of Pentair R444 (nitrite/nitrate) test strips for use **ONLY DURING SYSTEM STARTUP** to detect nitrite spike and high levels of nitrates present then. Do **NOT** use for regular organic aquaponics system testing, **NOT** sensitive enough!

1 box Pentair R446 chlorine/chloramine test strips (for testing system water fills and makeup water before adding to system)

1 BK112 bulkhead fitting

Optional from Aquatic EcoSystems

1 Dissolved Oxygen Meter Kit catalog #850041 (You don't need the tetra test oxygen strips if you purchase this meter kit)

Plumbing parts

Note: Use Schedule 40 sweep 90's if they are available from your plumbing supplier. If not available, use ells instead. The sweeps will give better air and water flow and will reduce electrical cost for water pumping.

Schedule 40 2" PVC pipe and fittings

Sweeps 3

Couplings 2

Bulkhead fitting 6

1-1/2"-2" slip adaptor 1

Pipe 1- 10' length

Schedule 40 1-1/2" PVC pipe and fittings

Sweeps 6

Male Thread adaptors 2
Pipe 1- 20' length

Schedule 40 1" PVC fittings
Couplings 1 (if you have a lined steel tank)
Ells 4 (if you have the plywood/fiberglass tank)

Schedule 40 3/4" PVC pipe and fittings
Ells 4
Adaptors, Female thread/male slip 2
Pipe 1- 10' length

Miscellaneous parts

30 feet of 1" flexible food-grade polyethylene water pipe (one trade name is "Driscopipe") for aeration manifold in fish tank, (and 4- 1" PVC elbows if you use the plywood/fiberglass tank, and 1- 1" PVC coupling with the lined steel tank)

hose clamps

Stainless steel bolts or screws to fasten pumps down to wood base

3/4" flexible Polyethylene water pipe (one trade name is "Driscopipe") long enough to connect back to your water source from the hose bib at the fish tank. You need a 3/4" male thread bronze hose barb for each end of the Driscopipe with 2 hose clamps each end; AND fittings necessary to connect a hose bib.

Conduit, wire, distribution panels, junction boxes, and fittings to wire as desired.

Note: If you don't already know what this stuff is, please DON'T email us and ask us to explain it! It would take a book to explain it; and that is way beyond the scope of this course. Get someone involved in your project who already has construction experience, and feels comfortable reading a list like this. You'll be much happier!