

Filtration:

The three step process

PHASE ONE - DRAINAGE AND SURFACE SKIMMER

Think of a pond as a mini waste water treatment plant. Fish waste, plant material, blowing dust and landscape debris collect in the water. Without a surface skimmer and a bottom drain the water stratifies resulting in waste material sinking to the bottom where it decomposes. Without removal, this waste remains in the pond creating anaerobic bacterial action. This smelly, black, green anaerobic bacteria is toxic to fish. Removal of this waste is essential to water clarity and quality. Without a bottom drain the only alternative is for the pond owner to vacuum, scoop, net or worse yet drain the pond and start over.

A two phase drainage system allows for water to flow from the pond in the first phase through the filter system. The second phase removes waste products and sediments from this filtration system and delivers them to the garden or sewer system.

The first phase of drainage takes water from the surface and the bottom of the pond. The surface skimmer removes floating debris such as falling leaves and the bottom drain removes the heaviest material. Proper designing the pond without dead areas pushes the water flow through the pond to direct the debris to the drain and skimmer. This water is then delivered to the filtration system where it is cleaned and returned to the pond.

PHASE TWO – PRE-FILTRATION

Pre-filtration allows for the removal of the heaviest material from the pond bottom before the water enters into the bio-mechanical filter. Without this stage all the pond debris would enter the final stages of filtration lowering efficiency and increasing maintenance.

The latest developments in pre-filtration are vortex settling tanks. These are round tanks from two to five feet in diameter with a cone shaped bottom. The water enters the tank from the side at an angle creating a “whirlpool” flow. This flow pulls the heavy debris into the bottom of the tank where it settles in the cone. By opening a valve outside of the vortex tank the debris flushes into the garden or sewer.

From the top of the vortex tank the pond pump continuously pulls the cleanest water from the tank and sends it to the bio-mechanical filter.

PHASE THREE – FILTRATION

It is possible to have too little filtration but it isn't possible to have too much filtration. A bio-mechanical filtration system is the last stage of filtering your pond.

This filter is a protected environment where two types of bacteria live. The first type of bacteria converts the ammonia rich water produced by the fish into nitrites. The second type of bacteria converts the nitrite rich water into nitrates. These Nitrates are then eliminated through regular maintenance when flushing the system to the garden or sewer drain.

Any pond containing fish needs a minimum of ten percent of total pond volume in the filtration. (50 gallons of filtration/5000 gallon pond).

Newer, state of the art bio-mechanical filters are easily cleaned with air blowers and back flushing. Depending on fish load and type of filter the cleaning interval can range from weekly to every three or four months and taking just a few minutes to complete. Because the biomechanical filter is a protected home for the bacterial colonies which are the heart of the pond filtration, the longer the cleaning interval the better. Cleaning is only required when the system becomes restricted or you notice a change in water quality.

