

Building Your Waterfall – Flexible Liner

Step 1: Layout and Excavation

Layout and Foundation

Begin by laying out the site for the waterfall. The header pond can be located at the top of a natural slope, or you can use the soil excavated from the primary pond as the foundation of the waterfall. Mark the path and the tiers with a pair of stakes at each step. Pack the soil down.



Carving the Steps

Starting at the base of the mound, excavate the waterfall using the stakes as guides. Make each step roughly horizontal and the sides roughly vertical. If the soil is not holding its shape, allow it to settle or use a tamper.



At the top of the waterfall, create a header pond using the same techniques used for building your primary pond.

Be sure the extra liner you have is large enough to fill the header pond and the waterfall all the way down into the pond.

Step 2: Installing Liner

First line the waterfall and header pond with 1 to 3 inches of moist sand. Use old carpeting for additional padding.

Line the waterfall and header pond with a piece of flexible liner. Consider the Tetra 8 ft. x 9 ft. liner for this, or unused liner left over from your bottom pond.

Use a liner piece that is large enough to cover the entire waterfall. If a piece is not large enough to do both the header pond and waterfall, make sure you purchase additional liner.

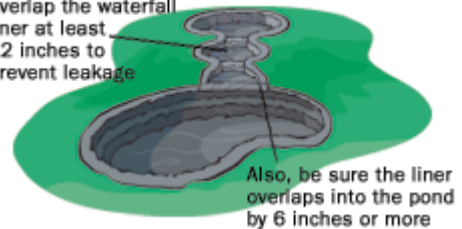
This liner spillway from the header pond should overlap the waterfall liner at least 12 inches to prevent leakage. Also be sure the liner overlaps into the pond by 6 inches or more.

Water Leakage Test

Now is a good time to test the liner placement. Using a garden hose, have water flow down the liner into the pond. Be sure all the water drains into the pond, and not over the edges of the waterfall or between the overlapping areas of the header-pond liner and the waterfall liner. Make adjustments to the liner positioning, to make sure there is no leakage.



This liner spillway from the header pond should overlap the waterfall liner at least 12 inches to prevent leakage



Also, be sure the liner overlaps into the pond by 6 inches or more

Step 3: Layout

Place the first flat stone on the bottom tier, overlapping the pond edge by 2 to 3 inches.

Next, set a stone flat against the back of that tier. The backing stones should be slightly higher than the rise of the tier.

Lay the next stone horizontally on the next tier, so it overlaps the first by 2 to 3 inches.

Continue until you have reached the top, laying the final stone on the bottom of the header pond.

Edge stones should be placed at each tier along the sides of the falls. Make sure the edge stones are taller than the surrounding earth.



Step 4: Adjusting the Water Flow

Shingles

Cut small pieces of liner and, using contact cement or spray insulation foam, attach them to the edge of the liner to help channel the water over the flat stones.

Start the Water Flow

Fill the header pond with water using the water-garden pump and tubing from the lower pond, or use water flow from a garden pond. Allow the water to overflow down the liner and back into the pond.

Adjusting the Stones

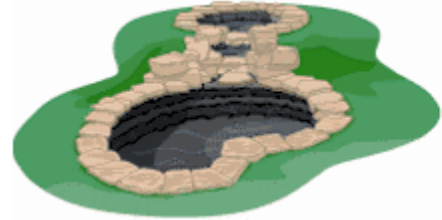
While the water is flowing from the header pond, adjust the shingles to channel water over the stones. Also, try different stones for the spillover to create the waterfall effect you desire.



Step 5: Finishing the Stonework

Finish the Stonework

Add stones along the sides of the header pond and waterfall. Be sure they are stable. Be sure the liner on the edges of the waterfall is raised and all the water is routed back into the pond.



Avoiding Water Loss

Caution: A major cause of water loss from a pond is water flowing off the sides of the waterfall. While the water is running, therefore, make sure the liner is raised on the sides and no water escapes over the sides.

Trimming the Liner

Trim the liner only when the stonework is complete, and after you have tested the water flow and made sure there is no leakage over the sides.

Hiding the Liner

For a natural appearance, make sure all of the liner is covered with stones, mulch or plants. Consider adding a combination of evergreen and perennial plants around the pond. Add small stones or gravel between the stones.

Step 6: Planting the Header Pond

Importance of Plants

Plants are a very important part of a healthy filtration system. However, many pond keepers don't want to overload their pond with plants. At the same time, however, they realize plants are an integral part of their pond's health. Plants absorb nitrates that would otherwise feed unsightly algae.



Header ponds solve this dilemma.

Header Ponds and Their Benefits

A Header Pond is a smaller pond that feeds the waterfall that flows into the primary pond. A Header Pond usually is constructed above the primary pond and is filled with many plants that have extensive roots. Floating plants and marginal plants can thrive here. Water hyacinth is a good plant to place in the Header Pond, mainly because its many roots act as a natural filter. In addition, one water hyacinth floating on the pond surface can quickly become hundreds, overtaking a pond during the summer. For that reason, you may want to confine water hyacinths to a Header Pond, and keep them from overtaking the larger, primary pond.

Building Your Waterfall – Preformed Liner

Step 1: Layout, Installation, and Operation

Dig down into the soil to the depth of the preformed waterfall then dig down another 2 to 3 inches. Cover the excavated area with 2 to 3 inches of wet sand, and adjust the falls to the position you want. Backfill around the preformed waterfall to make it secure.

Water Leakage Test

Now is a good time to test the liner placement, using a garden hose, by having water flow down the liner into the pond. Be sure all the water drains into the pond. Make adjustments to the positioning of the liner to make sure there is no leakage.

Hiding the Liner

For a natural appearance, make sure all of the liner is covered with stones, mulch or plants. Consider adding a combination of evergreen and perennial plants around the pond. Add small stones or gravel between the stones

Operating the Waterfall

Place the pump in the pond farthest from the waterfall. Attach tubing to the pump outlet and pump water through tubing to the top of the waterfall. Be sure the water being pumped into the waterfall does not splash out or overflow.

Adding a Waterfall - the Waterfall Filter

You can also choose to use the Waterfall Filter.

Options for Positioning the Waterfall Filter

- Bury next to the pond, either partially buried or above grade
- Bury into hill or mound next to pond
- Place at the top of a stream
- Stack stones underneath the spillway to hide the filter



For more details, download the Waterfall Filter Instruction Manual from the Product Catalog.