

KEY ELEMENTS TO HELP INSTALL AND MAINTAIN A BETTER WATER FEATURE

By Bill Johnson, field sales engineer, Firestone Specialty Products



Left: When installing water features with a steep bank, it is important to use a liner that will allow a higher “friction angle,” to prevent the soil from sliding off the slope.

Water features can add an aesthetic element to almost anything – from golf courses, to shopping centers to office complexes.

Landscape contractors are constantly looking for new, innovative geomembrane products to enhance the life and look of water features. Selecting a high-quality geomembrane is a critical first step in creating a healthy, long-lasting water feature. Choosing the right liner can save a landscape professional precious time during installation and maintenance – two equally important steps in the life of a water feature.

PVC liners also have a history of cracking in cold temperatures.

- **HDPE** (High Density PolyEthylene) – A thermoplastic material with a 20-year lifespan in most water feature applications. Its benefits include durability, stability and chemical resistance. While it is safe for aquatic life and relatively inexpensive, HDPE has the least elasticity of all pond-lining materials, making it difficult to work with during installation – especially in colder climates.
- **Butyl Rubber** – The most expensive option, Butyl Rubber is a flexible and UV resistant material. Imported from Europe, Butyl Rubber liners typically have a 20-year lifespan but are limited in width and length due to manufacturing restrictions.
- **EPDM** (Ethylene Propylene Diene Monomer) – Offers a high-quality, durable and user-friendly geomembrane material. Key benefits of EPDM include installation

A well designed water feature can blend with its natural surroundings, create a calming atmosphere and add an inspiring view while performing a valuable function such as water retention, backup fire suppression or storm water runoff management.

Know Your Options

Several pond-lining materials are widely available, including:

- **PVC** (PolyVinyl Chloride) – A highly flexible, synthetic product that is not always safe for plants and fish – only “Fish Grade” PVC is non-toxic. Non-resistant to ultraviolet (UV) radiation, most PVC geomembranes must be covered with one foot of soil to prevent degradation. With an average lifespan of 10 years,



Above: After the size of the liner has been determined, the sod should be removed and shelves dug out. Most water features are designed with shelves 9-12 inches below water level to hold plants. The feature’s basin should be dug out with preferably a 20-degree slope on all sides.

Water Facts

50: Percent, the ratio of salt contained in the base polymer contained in PVC. Other materials rely 100 percent on petrochemical-based material and those that deplete forests or ore reserves.

Source: PVC Geomembrane Institute

30+: Years, the lifespan of EPDM geomembranes, if properly installed and maintained.

Source: Firestone Specialty Products

Selecting a high-quality geomembrane is a critical first step in creating a healthy, long-lasting water feature.

► Ponds, Lakes & Waterfalls

and ease, exceptional weathering characteristics, plant and fish friendliness, UV resistance (even in direct sun exposure), and outstanding elongation allowing for creative water feature designs. A cost-effective solution, EPDM has a 20-year lifespan.

Installing a Quality Product

Once the geomembrane has been chosen and pre-installation work has been completed, landscape contractors begin to focus on the project itself. There is no typical water feature installation, as each varies by the scope of the individual project. For more than 40 years, landscape contractors have used EPDM geomembranes for use in a wide variety of water feature installations.

It is also important for a landscape contractor to have design versatility over geomembrane options. For landscape contractors, installing water features with a soil base, these geomembranes provide a higher friction angle, which means a steeper slope can be created and the soil will not slide.

A recent installation at a community golf course involving the use of Firestone PondGard EPDM Geomembrane included several water features and began with the excavation process. Following the dig, the water feature sites were graded and compacted in preparation for the installation. Based on measurements of the excavated areas, the geomembranes were pre-cut off site; transported to the site; and then unrolled, positioned and smoothed into place by the crew. For larger water hazards, seam tape was used to join the panels, forming high-quality field seams that grow stronger with time. They also provide excellent seam strength and are easy to install accurately for dependable, long-term performance.

In the final stages of the project, weathered basalt boulders and smaller stones were added around the base, sides and perimeter of the water features. A moss-covered rock was used to form the structure of the features and hold the geomembrane

Right: In addition to their long-term benefits, geomembranes generally require little year round maintenance and have been used by landscape contractors for more than 40 years in a wide variety of water feature installations.



Left: In storm water retention ponds the water level can often fluctuate seasonally leading to exposure of the geomembrane. Therefore, it is important to select a liner that provides excellent UV resistance.

in colder winter climates, the geomembrane should be checked for ice damage. Typically, landscape contractors and site

superintendents can visually expect the perimeter of the geomembrane for irregularities and problem areas once a year. If a puncture occurs in the geomembrane, it can be repaired with the same tapes used to seam panels together during installation. The surface of the liner does not change over the course of several decades or more, making a repair relatively easy at any time during the membrane's installed life.

Long-term Benefits of EPDM Geomembranes

EPDM geomembranes offer a minimum 20-year lifespan in exposed applications and can exceed 30 years when covered continuously.

It is important that the geomembrane provide excellent UV resistance where it is exposed, such as in golf course water retention ponds where the water level fluctuates. Some geomembranes can age prematurely as the water level drops and UV radiation penetrates the water.

In instances where a water feature has geomembrane exposed above the water line

superintendents can visually expect the perimeter of the geomembrane for irregularities and problem areas once a year.

If a puncture occurs in the geomembrane, it can be repaired with the same tapes used to seam panels together during installation. The surface of the liner does not change over the course of several decades or more, making a repair relatively easy at any time during the membrane's installed life.

The Premier Choice

Knowing your geomembrane options, installation methods and preventative maintenance techniques are the most important parts of any water feature project. From water purity to lifespan, using the correct liners offer landscape contractors the assurance of a durable product while delivering the design flexibility needed to build lasting and aesthetically-pleasing projects. **LCN**

