

Firestone

GEO PROFILES

WATER FEATURE SERIES
Project Profile #1



Project
Profiles
Featuring
PondGard
EPDM
Rubber
Liners



**Claremont Community
Portland, Oregon**



QUALITY OF LIFE IS PAR FOR THE COURSE AT CLAREMONT

While golfers concentrate on hitting fairways and greens, water feature specifiers select PondGard EPDM Rubber Liners to bring healthy water hazards into play.



For Instant Appreciation, Just Add Water Features

Not many things can match the enjoyment home owners at Claremont take from their golf game, but one aspect of the Portland, Oregon community rates even higher than the golf courses — the water features. Without question, water features add instant value to residential property and enhance the quality of life.

Hughes Water Gardens, a Portland-based landscape design and contracting company, created 20 water features at Claremont using PondGard EPDM Rubber Liners from Firestone Building Products Co., Carmel, Indiana. The project included ponds, streams and waterfalls on the community's 18-hole putting course; two large water hazards on the Claremont Golf and Country Club course; a streambed; and a number of other features among the development's residential areas.

"The addition of water features is a major amenity for the Claremont community," said Dan Grimberg, project manager for Claremont Limited Partnership, the development company for Claremont, and co-founder of the Marshall-Grimberg Group, on-site developing partner. "People enjoy the natural beauty and visual excitement of the water features, and they love listening to the sound of running water — whether they're on the golf course or their back patio."

Claremont's Ace-in-the-Hole is PondGard EPDM Liners

The Claremont Golf and Country Club course is a nine-hole regulation golf course. The Claremont community, which is primarily occupied by adults 55+ years of age, also features an 18-hole putting course.

"Claremont Limited Partnership developed the general landscape plan for the community, but we trusted the expertise of Hughes Water Gardens for the water feature design and material selection," explained Grimberg.

"Our goal with each water feature was to create something of beauty — a small piece of natural wilderness," said Eamonn Hughes, owner of Hughes Water Gardens. "We planned each water feature at Claremont with form, scale, color, line and texture in mind. We also designed for minimal maintenance and year-round interest, so home owners can also enjoy the water features from indoors during the winter when they're not playing golf."

GROUND UNDER REPAIR: THE INSTALLATION PROCESS

According to Hughes, he specifies Firestone's PondGard EPDM Rubber Liners to control the water quality in the ponds he builds. PondGard liners are durable and flexible geomembranes based on EPDM rubber. The highly stable, inert material has a proven performance record in exposed applications, resisting microbial and algae attack for healthier ponds. "Compared to unlined ponds, PondGard provides a higher measure of control over the ecosystem," said Hughes. "Unlined ponds can have problems with silting — the suspended solids in the water that cause murkiness. Plus, seeds distributed by birds can cause cattails and submerged weeds to run rampant through the water of an unlined pond. With a PondGard liner, the plant life and water quality can be controlled."

The Bottom Line for Thriving Water Features

The last thing an avid golfer wants to think about is the bottom of a water hazard. However, among the lost golf balls beneath the surface of the water is the liner — one of the most important considerations for a specifier of water feature materials. In addition to providing an added degree of quality control, 45-mil PondGard EPDM was selected to line the Claremont golf course water features due to its flexibility, strength and ability to resist punctures.

PondGard EPDM also shows outstanding resistance to ultraviolet (UV) radiation and weathering along the waterline. Plus, the material's high expansion and contraction characteristics enable it to stretch and conform to objects in the subgrade, such as roots and rocks, protecting against punctures.

"The performance characteristics of a liner are also tested as water levels and temperatures fluctuate," explains Hughes. "Resistance to weathering and UV exposure comes into play around the waterline where membrane can be exposed with rising and falling water levels. PondGard's ability to expand and contract, while maintaining its integrity as water levels and temperatures change, is another reason I specify the material."

PondGard and QuickSeam Tape Simplify Installation Process

After grading and compacting the excavated sites, the liners were pre-cut at Hughes Water Gardens. PondGard is available in widths of 20 to 50 feet and lengths up to 200 feet, which helped simplify the installation process. Based on measurements gathered

(continued on back)



Installing the PondGard Liner

Following excavation, the water feature sites were graded and compacted in preparation for the PondGard liner installation. Based on measurements of the excavated areas, the liners were pre-cut off site, transported to Claremont, then unrolled, positioned and smoothed into place by the crew.



Liner Size Speeds Installation

PondGard's large roll size made the liner quick and easy to install. Firestone PondGard EPDM Rubber Liners are available in widths of 20 to 50 feet and lengths up to 200 feet, which helped speed the installation of the 20 water features at Claremont.



EPDM Liner and QuickSeam Tape

PondGard EPDM was used to line each uniquely contoured water feature on the Claremont golf courses. For the larger water hazards, the QuickSeam Tape System was used to join EPDM panels, forming high-quality field seams that grow stronger with time.



Finishing Touches

For the 18-hole putting course alone, 2,600 tons of basalt rock was specified, including 400 boulders, ranging in weight from 1,000 to 10,000 pounds. A combination of aquatic plants and native wetland plants were added to soften the appearance of the completed features.

on site, most of the liners could be pre-cut from a single sheet of material. The pre-cut liners were then transported to Claremont, unrolled and positioned into the excavated holes.

“PondGard’s large roll size speeds installation time,” said Hughes. “The water features on the nine-hole golf course required such a large liner that two panels had to be joined together. I used Firestone’s QuickSeam® Tape System to join panels of PondGard EPDM together to form larger panels — with great results.”

Seam tapes provide superior seam strength and are easy to install accurately for dependable, long-term performance in the field. QuickSeam’s strong initial bond strength grows even stronger with time in temperatures ranging from -40°F to more than 175°F.

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. The moss-covered rock was used to form the structure of the features and hold the liners securely in place. A geotextile provided an added layer of protection under the larger boulders. Stones were carefully selected to provide a natural variation of size and shape, then positioned in horizontal layers and anchored using thick mortar. Smooth river rock was loose-laid at the bottom of the pond, directly over the PondGard liner.

PondGard: The Preferred Liner for the Back Nine

According to Hughes, the back nine of the Claremont putting course includes the largest water feature installed on the property. The feature consists of a long, winding stream-bed leading to a crashing waterfall that plunges into a large pond. The specifications for the impressive feature include 18,000 square feet of Firestone’s PondGard EPDM.

“The ability of the PondGard liner to maintain its flexibility in a wide range of temperatures gives us the option to install

water features throughout the year, or repair the membrane easily, should the need ever arise,” said Hughes. “I rely on PondGard for large projects such as Claremont because I’ve had enormous success with the material in each water feature that I’ve installed over the last 10 years. It’s durable, safe for fish and plant life, and it helps control water quality for healthy water features.”

PROJECT DETAILS FOR CLAREMONT

The Claremont project included ponds, streams and waterfalls on the community’s 18-hole putting course; two large water hazards on the nine-hole course; a communal streambed; and a number of other features among the development’s residential areas.

Overall Project Details

Total Features:	20 water features of varying sizes, shapes and slopes
Liner Material:	45-mil unreinforced PondGard EPDM
Liner Size:	300,000 square feet
Seaming:	800 feet of QuickSeam Splice Tape

Water Feature on Back Nine

Pond Dimensions:	150' long by 80' wide and 4' deep
Pond Side Slope:	1:1
Waterfall Dimensions:	30' long by 20' wide
Waterfall Slope:	Straight 90-degree drop
Liner Material:	45-mil unreinforced PondGard EPDM
Liner Size:	18,000 square feet



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