

# Design/Build

## Battling the Elements

Design-build professionals overcome harsh weather to create a multi-level water feature

By Paul Oliveira / Contributor

**D**uring the hustle and bustle of the workday, employees appreciate a relaxing and peaceful area outside to take a break or enjoy lunch. With that in mind, Gentex Corp. decided to include a water feature at its new headquarters in Zeeland, MI. The main outer wall of the cafeteria and conference center is primarily glass and would have looked out onto an empty, uninspiring space. The company knew a water feature designed to surround the building's two outdoor patios, cafeteria and conference center would be welcomed by its 2,200 employees who work in the headquarters and nearby facilities.

Gentex brought in Landscape Design Services of Holland, MI, to develop a multi-level water feature design.

**WHETHER THE PROJECT** is a small backyard pond or a multi-acre water hazard on a golf course, water features have the ability to transform otherwise mundane environments into appealing and scenic landscapes.

“Because the water feature was going to be located in a very visible area, it was important to Gentex to have a calming and aesthetically pleasing view for their employees,” says Rick Timmer, vice president of Landscape Design Services. “Gentex has water features at two other locations and recognizes the importance of providing employees with a serene environment.”

For additional design insight, Timmer reached out to local design and supply company, EasyPro





**1** Crew members installed aluminum termination bars 2 in. apart, below grade, to conceal the liner. **2** Three 4-ft. manholes were created to carry water back to the reservoir, which then traveled to the pumps under the waterfalls. **3** Firestone EPDM liners were specified for the project because of their performance and flexibility in extreme temperatures.

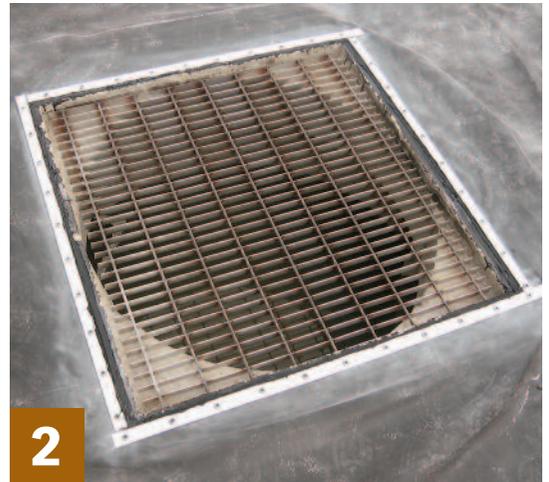
Pond Products, a division of Stoney Creek, Inc., Grant, MI.

“When we were approached with this project, I knew that we could create something unique that the employees would enjoy for many years,” says Dave Ouwinga, vice president of EasyPro Pond Products.

### The design

The water feature was designed to have three levels. The first was a 60-x-25 ft. upper pond. Water from the upper pond would then flow into a 110-x-30 ft. middle pond before falling into a 220-x-40 ft. lower pond on either side of a wooden bridge. Also included in the design were two dramatic waterfalls using 200 tons of rock.

While preparing the water feature design, Landscape Design Services also worked with EasyPro Pond Products on a liner referral. The total square footage of the pond surface was about 18,000 sq. ft., but the project needed 5,000 sq. ft. of extra liner for the concrete walls, waterfall spillways and pond edges. Ouwinga recommended 45-mil PondGard™ Rubber Liner from Firestone Specialty Products.



The liners are made of flexible EPDM rubber, making them suited for shaping around pond contours. They also resist punctures and will not crack or split in temperatures down to -40° F.

### Installation challenges

The Landscape Design Services crew began working on the project in late fall of 2005, when the average temperature in Zeeland ranges from the low 40s during the day, to the teens at night. With a typical installation, liners are installed in the pond and under waterfalls first to ensure that water drains properly into the ponds. Knowing that they would not be able to get the ponds finished before winter, and not wanting the liner to sit exposed, Landscape Design Services took a different approach and installed the waterfalls first. The crew began the project by digging a small portion of the pond surrounding the waterfalls, enabling them to

continue work through the early winter months.

A 10-x-12-ft. bunker was poured underground behind each waterfall, which drew water from three 4-ft. manholes at the bottom

of the ponds with 12-in. intake pipes. These pipes carried the water back to the reservoir and, through the use of gravity, the water traveled to the pumps installed under the waterfalls, pushing the water through. After the waterfalls were completed in the early winter, the job was put on hold due to extremely cold and damp weather conditions.

In the spring of 2006, the crew excavated the pond and installed approximately 680 sq. ft. of flexible PVC pipe for the plumbing system. Two motors were installed to pump a steady water supply to the waterfalls, while another motor supplied the upper pond. Each motor has a 950-gal.-per-minute capacity, allowing for greater energy savings in the short and long term.

The crew then laid the liner, seaming the panels with Firestone QuickPrime™ Plus, QuickSeam™ Tape and 6-in. Batten Cover Strips to ensure the pond would resist leaking at the seams. Because Gentex did not want the liner to appear above the water level, the crew installed aluminum termina-

**THE FINISHED** pond and waterfalls provide Gentex Corp. employees with a relaxing view from the company's cafeteria and conference rooms.



tion bars below grade, anchoring into the concrete every 4 in. around the edge of the deep pond facing the building. Then, 3 in. to 5 in. of small, lightly colored stones and larger rocks were added in the shallow pond to conceal the liner there as well.

Completed in May 2006, the water feature was landscaped with various shrubs, small and large trees, wild grasses and plants to enhance its aesthetic appeal. The water feature received great reviews from Gentex employees and others visiting the headquarters.

“We are extremely pleased with the work of Landscape Design Services and EasyPro Pond Products, because they designed and implemented a plan for exactly what we were looking for, and we now have a beautiful water feature with a durable liner that will last us for many years to come,” says Jeff Sluiter, facilities maintenance supervisor for Gentex. ■

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