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DOUBLE THE WATERFALL, DOUBLE THE FUN

By Lindsey O'Connor, Communications Specialist for Redi-Scapes.



Top: The double waterfall and pond features incorporated natural stone slabs, metal plates and natural stone to create cascades into a concrete-lined pond. To create steps, two “corner” blocks were installed side by side, then the crew installed coordinating caps to create a level, safe step.

Above: Installing the retaining walls, freestanding walls, steps, patio, waterfalls and pond took the two-man crew a total of about three weeks. Since the blocks are light enough to be set by hand, the block installation did not require heavy equipment other than to transport the pallets of block on site and to pour the gravel for the backfill.

Project Team:

Project Location: Charlevoix, Michigan

Year Built: 2009

Block Manufacturer: MDC Contracting Precast

Wall Installer: MDC Contracting

In areas where summer lasts for just a few short months, maximizing outdoor living space is a high priority for new landscaping projects. Outdoor kitchens, water features, seating areas and fire pits are increasingly popular this building season, and finding new ways to create them attractively, affordably and efficiently gives a landscape contractor a leading edge.

When a Northern Michigan resident decided it was time to renovate an un-used corner of his property, he knew he wanted to make it a place his family and friends would use often. Several design elements were at the top of the priority list—first, he wanted to create a roomy patio with seating areas for barbecues and parties. A double water feature and pond also needed to be incorporated into the design, as well as seat walls and planters for landscaping. In addition, a granite countertop and recessed area to place a grill were essential.

The property slated for the outdoor living area was adjacent to a stream, and a very wet, marshy yard area sloped up to the property line—basically making the site unusable, but full of potential. The owner of the property had a background in architecture and construction, and he designed the retaining walls, freestanding walls, waterfalls and pond himself before he had the plans approved by a local engineer.

The design included extensive retaining and freestanding walls to elevate the patio area above the wet soil. Because the walls would be the focal point of the entire project, the owner wanted to use



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natural stone, but was put off by the price tag of building an entire outdoor living area out of it, or hiring a stone mason to install a natural stone veneer over poured walls.

Looking for a cost effective alternative with same high-end look, the owner turned to Redi-Scapes—a new wall system from the makers of Redi-Rock that combines the textures and colors of natural, stacked stone walls with the functionality and engineerability of a manufactured block wall. The wall design required straight walls, and also walls with inside and outside curves. These retaining wall blocks are angled to allow all of the above without cutting blocks.

1: Placing the first row of blocks determines the level of the entire wall, so taking the time to make sure both the leveling pad and blocks are placed correctly saves time in the long run. When placing each block, the crew used a level to ensure that each block was completely level—both side to side and front to back.

2: The crew cleaned the excess stone off the top of the blocks to prepare for installation of the next course of blocks. Since the wall design was 6 feet tall at the highest point, it required geogrid reinforcement in 6-inch lifts as specified by the engineer. The installation crew installed approximately 3 to 4 feet of geogrid behind the walls, attaching the geogrid to the blocks using a friction connection.

3: Since the wall design called for caps to give the walls a finished look and create seat walls in certain areas, the installation crew had to trim the knobs off the top of the last course of blocks to create a level surface for the caps to sit. The blocks allow coping to coordinate with curved or straight walls. The caps were attached using construction adhesive.

The first step was to install a proper leveling pad as specified by the engineer which was critical to the success of the project. A proper leveling pad ensures that the wall will not shift or settle over time, which can cause unsightly gaps or make the wall structurally un-safe as the years go by. The installation crew excavated a trench 3 to 4 feet deep over the entire footprint of the patio area, compacted the soil using a plate compactor, then placed a layer of drain stone 3 to 4 feet deep which was also compacted.

Hydrostatic pressure caused by water buildup behind walls is the number one reason for retaining wall failures, so ensuring proper drainage is critical in retaining wall construction. To further allow the retaining walls to drain properly, the crew placed 4 inches of perforated drain tile or sock pipe in the stone at the base of the wall. Behind the wall, the crew excavated 3 to 4 feet to allow room for installing proper backfill. The back limit of excavation was covered with geosynthetic fabric as specified by the engineer to keep the soil from infiltrating the drain stone.

After the leveling pad was complete, the installation crew began installing the first course of blocks. Weighing 67 pounds each, the crew was able to carry the blocks to the wall site relatively easily. After the first course of block was successfully placed, it was time to backfill. This block system had hollow cores that the MDC Contracting crew filled with stone at the same time they backfilled and compacted the drain stone behind the wall. They then also compacted 6 inches of toe backfill at the face of the wall. This pattern continued—placing blocks, backfilling, and installing geogrid—until the wall reached the 6 ft. height, as specified by the engineer.

In addition to the seat walls atop retaining walls, the outside perimeter of the project used freestanding walls atop retaining walls to create seat walls. The freestanding blocks are essentially the same size and shape as the retaining wall blocks, but they are textured on both sides and have zero batter.

To create a space for the granite countertop, the installation crew installed freestanding walls to 6 inches below counter height, then placed a metal bar across the top of the blocks. On top of this bar, they placed one more layer of freestanding blocks, then the granite countertop. To complete the feature, they installed several more layers of freestanding blocks then topped the blocks with caps. To the right of the countertop, they created a similar freestanding enclosure for a grill.

Once the walls were complete, the crew installed pavers, leaving space near the edge of the wall for potting soil and landscape plants.

Once the hardscaping was complete, a local landscape contractor planted grass and installed perennials above the wall including shrubs, flowers and ornamental grasses.

For more information or design ideas, visit www.Redi-Scapes.com. 