PROJECT CASE STUDY

Location: Beverly Shores, Indiana
Engineer: Archistructure Eng
Completed: September 2014

Description

Above-ground pool with concrete base and sheet steel framing suffered massive foundation failure as a result of the harsh winter of 2013. Water left in the pool froze and expanded, causing massive cracks and sheering of the concrete walls and complete tears in the liner. This sheering and release of the water when thawed caused settlement of the pool and deck by about 3”.

Requirements & Challenges

The construction of the pool , deck, and underside sheds limited site access. With the house positioned on the crest of the dune, all work had to be completed with hand-held equipment. The pool walls needed to be leveled and reconnected to create a solid box rather than individual walls. The decking would also need to be leveled around the pool to prevent trip hazards and to allow the retractable cover to open and close properly.

Solution

With consideration of the retaining wall and helical piers installed in 2010, we believed the best approach would include the installation of 7 additional A.B. Chance SS5 helical piers on the settled pool walls, along with the construction of a steel cage connected at the top of the walls. Archistructure Eng added a rebar detail with 12” embedment and 18” overlap to tie in the bottom of the concrete walls. A concrete bottom was poured with 8” thickened edge tapering to 4” in the center. The corners were to be lagged together using angle brackets and all foundation cracks were epoxied.

Results

The project was delayed by an extended stretch of rain, but was completed on budget. The pool foundation was leveled by a total of 3” and completed tied together. The deck was also leveled and the retractable cover was able to operate properly. The pool will be fully operational for the 2015 summer.

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