

Partners in Excellence



SIKA Chemical

By Jon Otto

In September of 2014, Rob Loughery called on Penn Valley Constructors to prepare a budget proposal for an expansion of the SIKA chemical plant on Ben Fairless Drive in the U.S. Steel industrial park. Happy to accommodate, I met with Rob and his partner Barry Fleck shortly thereafter. Rob and Barry are the managing partners for HFH of PA. The owner of the facility occupied by SIKA.

The SIKA corporation is based in Baar, Switzerland with facilities around the globe. SIKA manufactures a broad array of products primarily for the construction industry, which we were acquainted with having used them since the early seventies for repairing, sealing and strengthening concrete.

The truth is, we only thought we were well acquainted with their products. The reality was that we only had a limited understanding of their product lines. The breadth of their products covers almost all aspects of the architectural trades: concrete and additives used in foundations, walls and slabs, masonry accessories such as caulk, adhesives and flashings and Sarnafil®, SIKA's roofing and waterproofing systems.

At that meeting I learned two things: SIKA was in a hurry and this would be no "garden variety" construction project. The existing building to which we were to attached housed an operation which manufactures primarily liquid concrete additive. The proposed addition that Rob and Barry wanted us to build was to house a mortar plant in which sand, aggregate and cement were to be blended into mortar and bagged. The manufacturing equipment was coming from Spain and the foundations had to be in place and ready for the huge silos only 3 months after we were to break ground.

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Exterior view of Sika Chemical



Underground storm water basin



Beginning of helical pile installation

The plans provided by The Elias Organization and Gilmore and Associates showed the site was being "maxed out". Out of necessity, the storm water management system was to be placed under the parking lot. To accomplish this we installed a series of 36" pipes

three heights; the highest of which was 42' clear and being built over the existing office (which was also to be renovated). The Elias Organization, the project architect, had wisely chosen a pre-engineered steel building as the framing system to accomplish large clear heights and



Helical pile installation continues.



Cut and capped helical piles

wrapped in stone to create the storage volume needed to satisfy the post development drainage requirements.

clear spans, so those problems were easily minimized.

The building itself, at just over 38,000 square feet, was pretty straightforward with minor complications of being

The major challenge that remained was the need to install foundations and piers to support five 65 ton silos that would house raw materials used for production.



Piers prepped and ready to receive concrete



Piers are set and ready to receive silos



Installation of steel begins



Steel installation continues



Steel installation nearing completion

This requirement was significantly complicated by the presence of poor soils in the area where the silos were to be placed. Sound bearing was determined by the soils investigation to be 45 feet beneath the proposed finish floor level. Various options were considered for the deep foundations which would be required. Caissons were found to be much too expensive and conventional pilings were not an option owing to the proximity of the existing building.

concrete and 13 tons of rebar were used in the pile caps and piers.

The project was released spring of 2015, but we were not able to start until mid-June. SIKA was scheduled to deliver the silos for erection on the first of October, not a lot of time. To accomplish this project, we split the job into two schedules. The first was the area for the silo foundations. The second, was the balance of the project.



Interior view

The solution was Helical Piles. Helical piles were found to be ideal in this situation because they are designed for deep foundation systems. They feature bearing plates welded to a central shaft and load is transferred from the shaft to the soil through these plates.

The huge silos presented another problem. In addition to the very significant live load caused by the weight of the silos when full, we had to contend with wind load on the empty silos. For these reasons, the pile caps had to be both broad and deep. A total of 140 cubic yards of

Project manager Angelo Grisolia and superintendent Rick Lutz, with some help from upper management, assembled a team of contractors committed to both the precision required and the tight schedule.

Blessed by generally good weather we finished the piers in late August, well ahead of schedule. The building itself was progressing at the same time and also finished ahead of schedule with final township inspections on December 15th, only six months after the start of construction.



Profile view



Installation of silo supports



Silo installation

For more information:

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Finished silos



Interior view of silo connection

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 your next building project!**

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