

# ENGINEERING TIMES

## Employee Happenings:

- Carlos Meza, P.E. received his Professional Engineering License in Quebec Canada.
- Heath Dumack P.E., P.L.S. & Carlos Meza P.E. attended a lecture hosted by Penn-DOT on current highway occupancy standards.
- Kristen Wolfinger is taking an advanced Autocad training course at Mercer County Community College.
- Ralph Dumack, P.E. & P.L.S. attended the 2005 ASCE Structural Congress in New York City.
- Carl Conrad & Mark Robinson received training in the latest Survey-Pro robotics software from Keystone Precision.

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## HOUSE RAISING IN YARDLEY BOROUGH

### Recent Floods Create Unique Opportunities.



During the past several years, the Delaware River has flooded with increased frequency and caused damage to many homes along its banks, particularly in Yardley, PA. As a result, many homeowners in this area have sought the services of home lifting companies. Structural engineering services are also required for the design of the new bearing walls and frames, which will ultimately be in place to support the home in its final raised position.

Dumack Engineering had the opportunity to perform services recently in Yardley Borough. The first project was a two-story wood framed home. The building originally had a basement that consisted of stone foundation walls. The building was raised about five and a half

feet. After the home was raised, the basement was filled in with stone, and a new concrete slab was placed on top. A concrete cap was poured on the top of the existing stone foundation walls, providing a base that the new concrete masonry block walls could be constructed upon. Existing columns that were located in the basement were removed and relocated to new positions with foundations constructed for each. Columns were designed to support the deck in its elevated position.

The second project was also a two-story house with a basement, which was raised ten feet. All the exterior walls of the original home consisted of eight-inch thick brick. The home was raised and supported with new ten-inch thick concrete masonry block walls.

The basement was also filled in with a new concrete slab. In the front of the home, five large arches were created using steel beams and masonry columns. Clearance restraints around the elements used to lift the home made it necessary to give special consideration to the construction of these arches. A sequencing procedure was created to aid the contractor in the construction of this frame. In addition, steel beams were used to reframe the floor and distribute the load to the exterior walls, creating a more open space at the first floor. A deck was added, and the front entrance was transformed into a cantilevered balcony with a new canopy above.

**By Jason Van Zelst, P.E.**