POST-TENSIONING LEADS TO AIRPORT MODERNIZATION

The trend of replacing existing structures with modern post-tensioned facilities has increased dramatically nationwide. The City of Indianapolis had to replace its aging airport terminal in order to meet modern requirements for security, parking and communications. The $1.1 billion project includes a new terminal, concourse and garage. An unbonded post-tensioned system offered material savings and scheduling benefits which reduced costs without sacrificing quality.

In 2006, Indianapolis International Airport began constructing the new cast-in-place garage. Post-tensioning was chosen for the 5-story structure with 7,100 parking spaces. 4.6-million ft of PT tendons were installed in the beams, girders, slabs, two helical ramps and one curved speed ramp. According to Ramey Durbin, Ter Horst, Lamson & Fisk, Inc.'s structural engineering project manager, "Post-tensioning allows for longer spans, fewer beams, and thinner slabs which translate to reductions in concrete, dead load and building height. The material cost savings was significant for 2.5-million sq ft of parking area. PT also controls deflections and cracking, which increases the structure's durability while reducing life-cycle costs."

Wilhelm Construction, the contractor, chose AMSYSCO, Inc. to supply the post-tensioning material, stressing equipment and to assist in design development. To meet the late-2008 grand opening, Wilhelm implemented a 2-day pour cycle and concurrent installation on multiple pours. Jason King, Wilhelm's project executive, commented, "Wilhelm and AMSYSCO stayed in close contact throughout the design and shop drawing phase until the final delivery. PT material for this massive project had to be delivered within a window when tower cranes were available. We were very pleased with AMSYSCO's performance and realized AMSYSCO is first in class within the post-tensioning industry. We will continue working with them on future projects due to their technical knowledge and commitment." The first delivery of tendons was made in July 2006 and the 160th pour was finished 16 months later.