

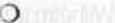
## POST-TENSIONING UNDERGROUND BEAMS

The Parkview Condominiums, a MCL Companies Development in Chicago, has post-tensioned concrete in the 48-story luxury tower, 4-level underground parking garage and "roof/lid slab" which supports a recreational park. Typically, the tower, with 587,000 ft of PT tendons, would be the focus of the project. However, the unique attributes of the garage and lid required superior customer service and technical capability from AMSYSKO, Inc.

The garage has post-tensioning in the beams only. Normally, PT beam tendons are stressed at the face of the beam. However, the 60-ft perimeter slurry wall was built ahead of the underground garage in order to support the soil's bearing loads and reduce mining costs. This eliminated exterior stressing access and meant beam tendons had to be stressed through the top of the beam. Consequently, AMSYSKO designed angled stressing pockets in the top of the beam. The criss-crossing tendons stressed near the interior columns met the required center-of-gravities.



The park rests on the "lid," which also acts as the garage roof. The heavy live load from soil and planters required heavy-duty post-tensioning beams. The lid level has 175,000-ft of tendons whereas the 4-level garage only has 220,000-ft. The design was unique because the slab and 60-ft beams were pitched to match the final contour of the park landscaping.

Power Construction used a "top-down" construction sequence for the garage that was dictated by the slurry wall engineer. The sequence was P1 Level, Lid, P2, P3 and the lowest P4. Dennis Poulos, Power Construction's senior superintendent, commented, "This large project has been an exciting challenge since its conception three years ago. During every project phase, the construction team (MCL, Chris Stefanos & Associates, Solomon Cordwell Buenz, AMSYSKO, Goebel Forming, Gateway Erectors, and Power) pulled together to solve complicated constructability issues." The parallel construction of garage/lid and tower went from October 2006 to December 2007. The tower and garage are occupied and the park is open to the public. 

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[www.amsyskoinc.com](http://www.amsyskoinc.com)

p. 630.296.8383

f. 630.296.8380

e. [info@amsyskoinc.com](mailto:info@amsyskoinc.com)

1200 Windham Parkway | Romeoville, IL 60446