

Trinity's Lightweight Allows Parking Deck to Go to the Next Level

The parking deck at Costco's Issaquah, WA Headquarters

When Costco decided to add an eighth level, and some 290 more parking spaces, to the parking structure at their headquarters in Issaquah, WA -- already designed and under construction -- lightweight aggregate from Trinity Lightweight helped provide the solution.

The parking deck, scheduled for completion in April 2017, is being built using post-tensioned cast-in-place concrete. The initial design called for a seven-level structure. The first five levels were already completed using conventional, normal weight post-tensioned concrete before Costco decided to add an eighth level to the deck, according to Tom Whiteman, vice president of sales and marketing for Ferguson Construction in Bellevue, WA, the general contractor.

"Using lightweight, post-tensioned concrete on the last three levels of the parking structure allowed us to go from seven to eight levels on the original foundation," Whiteman said. He added that using lightweight concrete in a post-tensioning application is somewhat unique in the Northwest. "This is the first job in this area that I know of that has used post-tensioned lightweight concrete in this way."

Post-tensioning involves the placement of prestressing steel cables, or tendons, inside plastic ducts or sleeves in the forms before the concrete is placed. Once the concrete has gained strength, but before service loads are applied, the cables are pulled tight, or tensioned, and anchored against the outer edges, providing reinforcement.

"A consistent mix and workable slump are keys to making lightweight concrete work in a post-tensioning system," Whiteman said, adding that "early target strengths have to be achieved before post-tensioning can occur."

Cadman Inc., a company that has been supplying ready-mix concrete in the Puget Sound region for over 75 years, is the supplier for this project. "Our slumps have been dialed in from the start and we have exceeded our strength requirement for 3-day stressing," Whiteman said. "In addition, the concrete has been pumping great, and the finish is even better. Cadman and Trinity Lightweight have provided a very consistent and high quality product throughout the job," he added.



The parking deck is being built using post-tensioned cast-in-place concrete by Ferguson Construction in Bellevue, WA.



Ready-mix supplier Cadman Inc., says Trinity Lightweight provides a very consistent and high quality product.

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