

Focus of This Issue: Parking Structures

Day or Night, It Doesn't Look Like a Parking Garage...



Reservoir Woods Parking Garage
Photos by: Capobianco & Associates

Given that this parking structure would be seen on a hill, and larger than some parts of the adjoining building connected via a pedestrian bridge, the architect, engineer, and owner didn't want it looking

like just a plain, boxy garage. By chamfering the building's corners and adding an exterior stainless steel screen, highlighted by soft lighting, the visual is very appealing. Working into the hill, part of the structure is essentially added basement parking. And taking further advantage of the site, all the stonework seen in the foreground was built with the rock excavated during the construction.

Sal Capobianco, P.E. said the design team evaluated many different competing structural systems and material types. But one of the primary reasons for going all precast was the



Screen and lighting attach directly to precast exterior Photo by: C & A

very aggressive construction schedule achievable with it, since it could be erected in nearly all weather conditions – which it was, being completed in about 10 months. The basement level and four elevated parking levels contain 923 parking spaces, totaling approximately 280,000 square feet. Load bearing “light walls” are visible in the construction photo, along with the load bearing exterior spandrels and supporting columns.

As the prime consultant for the project, Capobianco & Associates, Boston, MA, coordinated architectural, structural, civil, mechanical, electrical, plumbing and fire protection disciplines, including construction administration services. Precast contractor was Wm. E. Dailey Precast, LLC, Shaftsbury, VT.

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All Parking Structures Are NOT Rectangular



Liberty Mutual Corporate Campus, Dover, NH

Photo by: William E Dailey Precast, LLC

Following the local topography, the graceful curve of the single story parking structure presents a flowing façade in front of Liberty Mutual's new corporate campus in Dover, NH. Totalling 550 spaces, this non-typical shape was a joint design by the architect and the civil engineer, complimenting the four-story curved glass structure behind it. Originally designed based on 30 foot column spacing, the precaster, William E. Dailey Precast, LLC, Shaftsbury, VT value engineered a change to 36-foot bays to module with the structural double tees. Of course, the arch/curve to the structure required all pre-topped double

tees to be cast wedge shaped. The exterior spandrels feature an exposed aggregate finish, framed with a narrow plain concrete band which ties visually into the flush columns.



Inside of Liberty Mutual Corporate Campus Parking Garage

Photo by: William E Dailey Precast, LLC

Day or Night *(continued from page 1)*



Construction of Reservoir Woods Parking Garage Photo by: C & A

Additional project credits: Gorman Richardson Architects Inc, Hopkinton, MA; McNamara Salvia, Inc., Engineer; Wm. A Berry & Sons, Inc., General Contractor. Story help given by Gwen Erskine, who handled the architectural design development right through to the construction administration, and Eric Shaffrick at Wm. E. Dailey Precast.

Make Room for Parking



Bayshore Town Center Mixed Use Facility

Photo by The Spancrete Group, Inc.

Located just north of Milwaukee, the nearly 50-year-old Bayshore Mall recently underwent a \$150 million renovation, transforming from a 500,000 sf shopping mall into a million sf commercial, office, and residential complex. The revitalized Bayshore Town Center required more parking spaces than previously achieved with surface lots; a focal point in early planning was finding the best way to incorporate sufficient, eye-pleasing parking accommodations. It was determined that two distinct, multi-story parking decks would provide more than 1,500 parking spaces.

The multi-use facility included retail space at the ground level with parking, two parking deck levels, as well as three stories of residential space built atop the parking deck. The skeleton of the north parking structure used Spancrete® hollowcore plank, double tees, inverted tee beams, columns, load bearing and non-load bearing spandrels, shear walls, light walls, and wall panels. There was over 365,000 sf of architectural and structural precast utilized in this space.

The parking levels of the project were a standard pretopped double tee system with ramping between levels accomplished via a centrally located speed ramp. To span the 62 ft. bay size, 12 ft. wide by 30 in. deep double tees with 4 in. thick flanges were used. An interesting challenge for the structure was the inclusion of the residential space built over the parking. A transfer level was required to support the residential construction which had a dead load of approximately 80 psf per level. In order to provide the open parking bays below, the transfer

level had to also span the 62 ft. bay size. Double tees up to 52 in. deep with flanges up to 6 in. thick were used for the 62 ft. span. The double tee widths varied from 8'-5" to 12 ft. and weighed up to 106,000 lbs. Inverted tee beams supporting the double tee system were 40 in. wide by 5'-6" deep spanning up to 44 ft. and weighing as much as 87,000 lbs.

Among the many reasons Spancrete was selected to provide precast components was its ability to quickly adapt to rapidly changing design specifications. For instance, while the team was designing the structure and the foundations were started, the top three floors of apartments doubled in size, thereby changing the scope of the project. Further into the project, the front façade changed significantly. Thanks

to a highly responsive design/build team, each change was handled quickly and efficiently. The use of Spancrete precast products also permitted on-site construction to continue throughout winter. A tightened construction window demanded a fast-paced construction cycle without weather-related interruptions or delays. While the design process began in July 2005, precast production began in late 2005. By July 2006, both parking decks were completed.

Thanks to Roger Becker, PE, of The Spancrete Group for this story and the photos, which also appeared in the October issue of *Structure Magazine*.



Precast parking structure being erected

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PCANY Meetings of October 9

PCANY members can access the notes from the morning association meeting and the afternoon joint session with the NYSDOT materials and structures representatives on the PCANY website.

ACI Concrete Field Testing Technician

The Eastern New York ACI Chapter will conduct training and testing for Grade I under the ACI Certification Program. Training is scheduled for December 20, 2007 from 6 pm to 9 pm, and a Review and Examination will be held on December 21 between 8 am and 12:30 pm, all at the Hudson Valley Community College, Troy, NY. Call Ron Vaughn, 518-283-8637, for an application or with questions.

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