Hospitable Framwork Essay, Research Paper

Time Is Money

Ohio’s Flexicore Building Systems make short work of hotel construction

When an amusement park operator decided to construct a new hotel to meet increased business, it faced challenges ranging from winter month delivery to a site with limited access. The solution came from Dayton, Ohio-based Flexicore Systems, Inc., a company specializing in precast hollow core products.

“The most challenging aspect of constructing the Breakers Tower entailed location and time constraints,” says Cedar Point’s Monty Jasper, vice president of maintenance and new construction. “The site is difficult to access and we stipulated that construction would be during the offseason-October through May.”

Located on Lake Erie in Sandusky, Ohio, the Cedar Point amusement park/resort boasts 13 roller coasters reportedly more than any other park in the world – and is ranked one of the largest seasonal facilities of its kind in the U.S. For 128 years, this park has attracted visitors from across the country and throughout the world. Each year, Cedar Point hosts 3 million+ guests.

As attendance increases so does the demand for additional hotel rooms. The amusement park is owned and operated by Cedar Fair L.P, the company currently has three hotels on or very near the park property, but there is still a need for more.

In 1997, architects began designing the Breakers Tower, a 10-level structure nesfled between the original Hotel Breakers, constructed in 1905, and Bon Air, a wing of the hotel that was added in 1924. The Breakers Tower was designed to replace an older wing of the hotel encompassing 170,000 sq. ft. of space that includes 230 guest rooms, a IG.I.Friday’s Restaurant, pool, and other amenities.

Since work on the new property would disrupt traffic and access to the amusement park, an overriding requirement was that the construction methods and material chosen allow the fastest possible installation without sacrificing quality. Work on the project was limited to the months when the park was closed.

After reviewing a number of alternatives, project designers and engineers from Cedar Point selected the Dyna-Frame Structural Precast Frame System and Flexicore Decks manufactured by Flexicore Systems. Dyna-Frame is a modular, factory-cast concrete column and beam system that offers design flexibility to meet specific project requirements. Fabricated in a strictly controlled plant environment, the columns and beams exhibit greater uniformity and durability than concrete columns and beams cast on site, company officials note. Since the components are made off site, there is minimal disruption and staging on site.

Flexicore decks are cast under controlled conditions and prestressed with high tensile strand. The slabs can be notched, beveled, cast with weld plates and in special widths. After applying a surface leveling material, the deck system can accept any floor finish normally specified by an architect to cover a concrete base, such as tile, wood, carpet and terrazzo. Because the decks feature a smooth underside, developers note, ceiling finishing is easy and cost-effective as well. When caulked and painted, the deck presents an attractive, panel pattern on the ceiling.

Both the Dyna-Frame column and beam systems and Flexicore decks offer the additional benefits of inherent fire resistance and improved sound and thermal insulation when compared to steel construction alternatives. Judged against castin-place concrete, these systems have the advantage of significantly faster and more flexible and controllable construction time requirements.

In construction of the Breakers Tower, engineers specified more than 500 columns, 12,500 lineal ft. of beam, 150,000 sq. ft. of deck, 46 stair and landing units, 69 precast walls, and 20 balconies and floor treatments from Flexicore Systems. There were alternative materials that could have been used, such as poured-in-place concrete or steel, but this system could meet all of their requirements and be erected in a matter of weeks, not months. And the cold weather window we were given would not affect installation.

Workers began construction of the Breakers Tower in the winter of 1997, demolishing the old wing of the Hotel Breakers. Contractors were not scheduled to begin putting up the DynaFrame structural system until September of 1998, but a window in the schedule allowed them to erect the first three floors of the Breakers Tower during April of that year. Construction was halted in May when the park opened to visitors, but crews returned to the site in September and in just 15 weeks completed the framework and decking for the 10-story structure.

Construction using precast components is less affected by adverse weather conditions than traditional alternatives, such as poured-in-place concrete, where expensive shoring and temporary heating may be required in low-temperature situations. Because the components are factory produced and shipped directly to the jobsite, the system is highly predictable and well-suited for tight construction schedules.

Another feature of the deck system is that it allows almost immediate access to other construction trades. Installation of stud and finished walls, electricity and HVAC apparatus proceeded for the most part just one floor below the construction. The Breakers Tower project was under roof by mid-December, allowing finishing trades and decorators to complete their work.

“The Dyna-Frame Structural System and Flexicore Decks appealed to us for a number of reasons,” says Cedar Point’s Jasper. “We liked the modular flexibility. It goes together like an erector set, allowing you to create and build to your specific needs. It is also extremely strong and versatile, and is cost-competitive because it has the significant advantage of going up very quickly and not being affected by cold weather.” The Breakers Tower opened to the public in late May 1999.

Excerpts and quotes taken from:

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