

PROJECT SPOTLIGHT

High opens LEED silver building

In July 2008, High Concrete Group LLC dedicated a new maintenance building for its precast concrete headquarters facilities in Denver, Pa.

The new 16,200 ft² (1500 m²) building is designed to meet the standards of the Leadership in Energy and Environmental Design (LEED) rating program of the U.S. Green Building Council at the level of silver.

The all-precast concrete building features thermally efficient sandwich wall panels fabricated by the company's Springboro, Ohio, plant. With insulating foam sandwiched between two wythes of concrete, the panels provide an *R*-value of 25 and are reinforced with carbon-fiber shear trusses that make them structurally composite for load bearing. The roof is composed of carbon-fiber-reinforced double-tees manufactured by the Denver plant. Also used for the driving surfaces in parking garages, the double-tees are made with non-corrosive, carbon-fiber flange reinforcement and weigh 10% less than traditional double-tees.

"This is the first LEED-designed building for High, and we're proud that it's precast," says High Concrete Group executive vice president Tom McEvoy. Precast concrete can contribute to 20 or more LEED-certification points, and the carbon-fiber reinforcement can qualify for innovation and design credits. Precast concrete components are expected to contribute toward 15 of the 37 credits for the maintenance building, including two innovation and design credits.

High Concrete Group collaborated on the project with sister companies High Construction Co., which acted as the design-builder, and



High Concrete Group's new maintenance facility for its headquarters in Denver, Pa., is designed to achieve a silver rating from the Leadership in Energy and Environmental Design program. **Courtesy of High Concrete Group.**

Greenfield Architects Ltd., which developed the design and prepared the documentation for LEED submission. At an estimated cost of construction of \$4.1 million, the building will be used by the company's maintenance department to service heavy trucks, pickup trucks, cars, and other plant equipment. High Concrete Group is also currently collaborating with High Construction and Greenfield Architects on the \$5.2 million Millersville University parking facility in Millersville, Pa., and the \$11.4 million Lancaster Newspapers parking facility expansion in Lancaster, Pa.

—Source: High Concrete Group

Tindall, Walker partner for award-winning parking in Florida

The Destin Commons West parking structure in Destin, Fla., along with precaster Tindall Corp. and engineer of record Walker Parking Consultants Inc., was recently honored with the Florida Parking Association's 2008 Award of Excellence.

This facility serves one of the upscale lifestyle centers in the area. It is a six-level, precast concrete parking structure with a pretopped and field-topped double-tee system and precast concrete facade that replicates the area's seaside resort architectural style with embedded brick panels at various locations.

A main advantage of the total-precast concrete system for the parking structure was the speed of construction required to meet the aggressive project schedule. Erection of the 1103 precast concrete components was com-

pleted in four months. This allowed the parking facility to be operational before Thanksgiving, by the start of the heavy holiday shopping season.

The parking structure provides 855 parking spaces and more than 20,000 ft² (1800 m²) of office space at the top level of the structure. Design requirements were a challenge due to increased loads of the office space. The additional live load from the office had to be supported on the precast concrete double-tees, which increased their depth. This did not cause any headroom issues given the increased floor heights that were provided by using a total-precaster system.

The lateral framing design of the office space was also quite challenging. At the office level, a combination of uniquely designed lateral precast concrete moment frames in one direction and cantilevered precast concrete columns in the other direction is used to transfer wind loads down to the lower parking levels and the main lateral-load-resisting system. At the top level, 4-ft-deep (1.2 m) precast concrete girders with spans over 60 ft (18 m) are provided along all of the north-south gridlines to provide intermediate column support for the lateral frames at the office. At some locations, these frames are supported at the tops of precast concrete bearing walls along the weak axis of bending of these walls.

The framing of the typical parking levels includes 63-ft-span (19 m) double-tees that are supported by inverted-tee beams and walls at the interior bays and load-bearing panels at the exterior bays. Using all-precaster framing worked well with combining the short-span framing requirements of office space with the long-span framing at the parking structure.

Because of its mixed-use occupancy, the entire structure is designed for a two-hour fire rating. Using precast concrete framing, this fire rating was easily achieved with thicker double-tee flanges and additional reinforcement in precast concrete floor members to satisfy the requirement.

The typical floor height of 11 ft 8 in. (3.6 m) is provided at the parking deck to match with the floor elevation of the adjacent office building. At the top level of the parking deck, precast concrete double-tees with field topping create a level office floor and reduce vibration caused by moving vehicles.

—Source: Walker Parking Consultants Inc.



Parking deck wall panels support the precast concrete office frames of the Destin Commons West parking structure in Destin, Fla. *Courtesy of Walker Parking Consultants Inc.*



The Destin Commons West parking structure received the Florida Parking Association's 2008 Award of Excellence. *Courtesy of Walker Parking Consultants Inc.*