PRECAST'S FLEXIBILITY BOOSTS

MEDICAL Office Building

Total precast concrete structural system allows designers to efficiently combine offices, medical facilities, and parking on a tight site

— Craig A. Shutt

Photo: Blakeslee Prestress.

STAMFORD INTEGRATED CARE PAVILION/MEDICAL OFFICE BUILDING

LOCATION
Stamford, Conn.

PROJECT TYPE
Mixed use (office, medical center, parking)

SIZE
247,046 square feet

DESIGNER
WHR Architects Inc., Houston, Tex.

OWNER
Stamford Physicians LLC, Stamford, Conn.

STRUCTURAL ENGINEER
Walter P. Moore, Houston, Tex.

CONSTRUCTION MANAGER
Suffolk Construction Co., Boston, Mass.

PCI-CERTIFIED PRECASTER
Blakeslee Prestress Inc., Branford, Conn.

PCI-CERTIFIED ERECTOR
Blakeslee Prestress, Branford, Conn.

PRECAST COMPONENTS
Double tees, girders, columns, shear walls, spandrels, stairs, slabs, wall panels

Planners working on the design for a new physicians' center in Stamford, Conn., needed to provide a number of services, including parking, on a tight footprint. To achieve all the programming for space, economy, and scheduling, designers created an integrated plan that took full advantage of a precast concrete structural framing system. The project features five levels of parking with three levels of medical offices above them.

"The significant advantage that precast concrete provided was that it offered a consistent and uniform structure and appearance throughout the medical and parking levels," says Robert Koenig, senior project manager at Suffolk Construction, the construction manager on the project.

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The new Stamford Integrated Care Pavilion/Medical Office Building is located adjacent to the Stamford Hospital and will provide ambulatory and specialty-care services that create a coordinated health service, officials say. The facility contains 247,046 square feet of offices and parking on a 120- x 300-square-foot footprint. "The hospital campus space was very tight. Rather than create a low-rise medical building with separate parking alongside, we decided to build both facilities in the same system."

Such a design is being considered more often as owners look to provide their own parking within their buildings but must do so on small footprints, especially in downtown areas. Being able to use the same structural material for several levels of parking and continue into the remaining building functions offers significant benefits. Precast concrete aids that plan in additional ways, by offering long-span capability and the ability to create any signature look desired.

The design-assist format aided the fast erection, which took less than 4 months to complete in early 2016.

DESIGN-ASSIST FORMAT USED

Blakeslee Prestress was brought in on a design-assist basis, with the precaster's engineers providing input during the design phase to plan the most efficient sizes and panelization options. The company fabricated 912 components for the project, comprising double tees, girders, columns, shear walls, spandrels, stairs, slabs, and wall panels.

"We looked at cast-in-place concrete and steel, as well as hybrid systems," before deciding on the precast concrete system, Koenig says. "None of them provided the benefits of the precast concrete system. It offered the most effective system and could be erected quickly to keep us on schedule."

The design features embedded thin brick in the panels at the office levels along with curtain wall at the entrance to create a distinctive welcoming design. Parking levels feature tall spandrels that reflect the design of the ribbon windows used on the office levels above. "The look is differentiated between the functions, but it has a similar language and is complementary," Koenig explains.

The structure features a long-span prestressed concrete double-tee framing system, offering 60-foot clear spans with minimal floor construction depth. A topping was used on the floors of the office levels to provide fire separation from the parking levels, and they were outfitted with interior corridor walls and an elevator core.

"Long-span construction along with inherent durability and fire resistance are key common advantages for both parking and office uses," notes Chris Zarba, director of sales and project development at Blakeslee.

Erection moved quickly on the congested site, with the contractor coordinating with local traffic officials and police to smooth access for the delivery of the precast concrete components. "There were a high number of trailers carrying precast elements coming through, but everything moved quickly and efficiently," Koenig says. Each piece was delivered in the proper sequence required, picked from the back of the truck, and set, with no staging area required.

COMPLEMENTARY SPANDRELS
Parking levels feature tall spandrels that reflect the design of the ribbon windows used on the office levels above. Photo: Blakeslee Prestress.

The erection took less than 4 months to complete in early 2016. Blakeslee provided all aspects of the precast concrete design, manufacturing, and field operations, creating a single point of contact to keep the process efficient.

Blakeslee worked with the owner's design team to develop a unique lateral-bracing system that addressed the functional and operational needs for the two occupancy uses. On the parking levels, the lateral design utilized precast litewalls, which are shear walls cast with openings in them to aid visual continuity and allow daylight to enter further into the space. Used in key locations on each level, they integrated with the sloping, ramped, floors needed for vehicular circulation.

The litewalls would have been a hindrance in the office space, so Blakeslee suggested a precast moment-frame system for these upper levels to provide large open floor plates with minimal columns and no shear walls.

On the office levels, the insulated, loadbearing spandrel exterior panels provided multiple cost efficiencies. The components combined all of the elements of a conventional 'built-up' exterior system, with separate structure, insulation and exterior finish components.

"That resulted in a huge reduction and compression overall of the project schedule," says Zarba.

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The precast concrete structural solution achieves the objectives of lowest cost and fast schedule, which can be attributed to making use of its inherent 'off-site construction' techniques, he notes.

"When coupled with the advantages of integrated mixed-use occupancies not readily attainable by other construction methods, the precast system provides an excellent choice for many projects."

Koenig agrees the design offers benefits that other projects can use. "There aren't a lot of these types of projects done these days, in which the parking and office space are combined," he says. "But it's a system that works very well, and I expect it will catch on."