

## Patient Protection

### Safety and Health Main Priority During Hospital Expansion

by Natalie Keith



New York-Presbyterian Hospital's \$140 million Vivian and Seymour Milstein Family Heart Center will provide medical services including diagnostics, ambulatory surgery, cardiac catheterization and critical care.

**Due to the risk** of exposing patients and others to harmful fumes and debris, the construction of any hospital addition poses challenges for the project team. This was particularly true during construction of the \$140 million, 120,000-sq-ft Vivian and Seymour Milstein Family Heart Center.

Not only did the job require the demolition of 16 escalators inside the existing hospital facility, it also required the excavation of dense rock next to it. The resulting dirt, noise, vibration and other complications could have wrecked havoc with patients, not to mention the sensitive

equipment used to treat them. To address this challenge, the project team instituted a strict infection control program, which included measures such as pre-testing blasts to determine their potential impact. "It's a painful process," says New York-Presbyterian Hospital senior vice president Louis F. Reuter, IV. "We did test blasts while CAT scans were being used so we understand what the impact would be."

Communication was also an important part of addressing the challenge. Numerous meetings were held with hospital administrators, department heads and oth-

ers to ensure that everybody involved with the hospital was aware of the scope of the work and project schedule. Signs were placed throughout the hospital to inform hospital personnel of the work being done. "Communication was critical. We had to make sure that everybody knew what we were doing," Reuter says. "This involved a large number of meetings with a large number of people."

New York-based Bovis Lend Lease is the construction manager on the project, which broke ground in March 2006 located on 165th Street and Fort Washington Avenue in the Washington Heights section of Manhattan. The new six-story cardiovascular center at New York-Presbyterian Hospital's main campus is an addition to the existing Milstein Hospital building. The building will include a four-story glass atrium above the lobby and three glass bridges that will connect the existing Irving Pavilion to the Milstein Building. "The purpose of the project is to house all heart-related services in one place," Reuter says.

The project is being completed in three phases. The first phase, the make ready phase, lasted from March 2006 to March 2007. Phase one work included foundation work, rock removal, excavation, steel engineering and coordination activities. The second phase is scheduled to occur from October 2006 to October 2008. Phase two will include the general construction of the addition, work that will include architectural components, MEP components and medical and public spaces. It will also include coordination of the slab penetrations. The last phase, renovations to existing space, will occur from January 2010 to April 2010. In an interview in late August, Bovis Lend Lease senior vice president Joe Maraia said about 15% of the steel erection had been >>

### Key Players

**Owner:** New York Presbyterian Hospital, Washington Heights, N.Y.

**Construction Manager:** Bovis Lend Lease, New York, N.Y.

**Architect:** Pei Cobb Freed & Partners, New York, N.Y.

**Associate Architect:** daSilva Architects, New York, N.Y.

**Hospital and Ambulatory Planner:** Medical Planning Research International, Pelham, N.Y.

**Structural Engineering:** Thornton-Tomasetti Group, New York, N.Y.

**MEP Engineering:** Syska Hennessy Group, New York, N.Y.

**Demolition:** PAR Wrecking and PAR Environmental, Suffern, N.Y.

**Concrete/Masonry:** Harbor Island Contracting, Mount Vernon, N.Y.

**Structural Steel:** Empire City Iron Works, Long Island, N.Y.

**Electrical:** Lowy & Donnath, Long Island City, N.Y.

**Plumbing:** Taggart Associates Corp., Long Island City, N.Y.



Work on the 120,000-sq-ft facility includes two phases of new construction and one phase of renovations to existing structures.

completed and the project was scheduled to top out in November. Maraia is overseeing the project for Bovis along with senior project manager Adam D'Auguste, senior project manager Mark Maraia and senior superintendent Brian Ammerman.

The center, which will expand the functional capacity of the cardiology department, will provide medical services including diagnostics, ambulatory surgery, cardiac catheterization and critical care. It will include eight operating rooms, 26 prep/recovery beds and 20 intensive care unit beds. Public spaces consist of an education conference center with a 200-seat auditorium with four meeting rooms.

MEP components will include stand-alone medical air, vacuum, a medical gas alarm system and fire alarm. There will be variable air volume units, climate-wall

control, atrium smoke purge and shade systems controls. A central electrical room will be located on the cellar level with two electrical closets per floor.

To make room for the addition, project officials determined that the escalators – which had been underutilized by hospital personnel in the past – would be removed. The demolition and removal work was done by PAR Environmental and PAR Wrecking, of Suffern, N.Y. To prepare for the demolition work, a shaft was constructed from the first to the tenth

floor. The shaft has an exhaust system that provides negative pressure inside to ensure that dirt, smoke and other contaminants do not leave the work site. The escalators were dismantled by hand and the parts removed from the building using the elevators. “The nuisance dust alone that comes with doing demolition work is something we take very seriously,” said PAR Wrecking and PAR Environmental president Patrick Mahoney.

Maraia agreed with Reuter's assessment that a particularly challenging >>

aspect of the project involved the excavation of rock and dirt. "We had to excavate a lot of rock to get the building down to the street level. The rock is very hard and it was located adjacent to existing buildings with patients in them," Maraia said. "Trying to minimize the noise and vibration while we were doing the work was a big challenge."

Yet another challenge involved the relocation of HVAC equipment that serves the hospital's existing CAT scan and MRI machines. "The work was particularly challenging because the equipment is very sensitive and costly," Maraia said. "We provided protection for the equipment and worked with hospital personnel to ensure no damage was done."

Those involved with the project agree that among its unique features is the building's design by Pei Cobb Freed &

Partners of New York City, which Maraia called "the cherry of the project."

Ian Bader, one of the architects on the project says that one of the challenges of designing the building was that it connects with two existing structures. "The building transcends many levels vertically, so finding the right connections was both a challenge and opportunity," he says.

The most prominent architectural feature – the multilayered, curved glass wall – "suggests the forward-looking nature of the new center," according to a Pei Cobb description of the project. The seating areas behind the glass wall have sweeping views of the Hudson River and the Palisades beyond the river. "One side of the building enjoys views of the Hudson River so we celebrated this opportunity with a curving glass façade," says Bader. "A substantial part of the use of the building


is ambulatory care so patients can sit in this area while they are waiting to receive treatment."

NewYork-Presbyterian director of major projects Angela Rios adds the glass wall serves an environmental purpose. Project officials are seeking silver LEED certification. The glass wall will have double panes that allow the movement of air between them and maximizes energy efficiency. At night, strategically deployed lighting refracts through the glass envelope, which is suspended from the uppermost floor by a web of stainless steel cables.

Electronically-controlled vertical blinds track the movement of the sun, maintaining a temperate internal environment and presenting a constantly changing façade. "The blinds are like little flowers, they respond to the light," Reuter says.

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