



Cutting a Building Down to Size

Memphis VA Reduces Floor Levels to Meet Earthquake Specifications

Since Memphis, Tennessee, is located on the New Madrid Fault Line, many of the city's bridges and buildings are being built or renovated to meet certain earthquake specifications. The Memphis Veteran's Administration Medical Center is one of these buildings, and officials determined that they needed to reduce the height of the building by six stories in order to strengthen the structure's integrity. A new building was constructed in a separate area to replace the space lost by the renovation.

General contractor Asset Recovery Contracting, LLC (ARC) was hired to demolish and remove the concrete top of the Medical Center Tower, from the 11th floor Penthouse level down to the 6th floor. The ceiling of the 5th story would then become the new roof of the hospital. Constraints on this job were obvious. Since the hospital was to remain operational, noise reduction was necessary as was no dust, dirt and debris. Also, vibration had to be kept to a minimum and the structural integrity of the building had to be maintained.

Above: The concrete support columns were cut flush with the floor with a slab saw.

CSDA members True-Line Coring and Cutting of Tennessee and Memphis Concrete Cutting, both part of The Coring and Cutting Group (TCCG), were contracted by ARC to perform the concrete cutting portion of this job. They were responsible for removing the concrete structure — slab, columns, beams and shear walls — from the 5th floor ceiling to the 6th floor slab.

When the 5th floor became the new roof, and prior to demolition, a temporary roof was installed that could not be damaged during demolition. ARC decided that removing the concrete structure using TCCG's concrete cutting services was the best method to remove the columns, beams and 6th floor slab without damaging the temporary roof and without causing unacceptable levels of noise, vibration and dust.

Concrete cutting was required on the 6th floor because the 5th floor remained fully occupied by doctors, patients and hospital staff throughout the job. The walls on the 6th floor of the building were concrete panels. The first step was removing the cantilevered floor to be able to gain access to the concrete panels underneath so they could be safely raised out. Sections of the floor were cut out leaving the outer column to support the cantilevered beam. The 7-foot by 14-foot sections of floor were removed. Next the wall panels were cut and removed with a slab saw. After the panels were taken out, the beams were wire sawed from each side simultaneously and lifted away with ARC's tower cranes to trucks. When the beam was cut away from the column, the column was then flush cut with the lower floor. The connecting pieces were then sawed away with wall saws because there was no access for a slab saw.

The slurry had to be contained and hauled off site. Operators had to use extreme caution to ensure no debris landed on the floor below as they were working. Wire sawing was the only method accept-

able for use on the last floor because it caused the least amount of disruption and prevented debris falling on the roof directly above the doctors and patients.

ARC's field supervision coordinated all activities and directed all cutting sequences because shoring, debris mobilization/rigging, slurry clean-up, load-lift engineering and crane lifts were all directed and performed by ARC and its other trades.

Once a structural item was ready to be cut, TCCG operators would set up their equipment and make applicable preliminary cuts. When all rigging was attached to the crane, final cuts were made. This was done to eliminate the possibility of dropping structural items. Once an item was removed, TCCG set up the next item.

Because of the tight time frame, the concrete pieces had to be constantly lifted



Above Top: The first step was to remove the cantilevered floor to be able to gain access to the concrete panels underneath.

Above Bottom: Operators worked in the rain to remove one of the last remaining wall panels on the 6th floor.

off the roof. Operators had to quickly remove the pieces of concrete as soon as the crane was hooked to them.

A variety of equipment was used to accomplish the job. Operators used a Hydrostress FZ wall saw, 50-HP RDS units, a Hydrostress wire saw, a Diamond Products FS-25 wire saw, a Diamond Products 6560 turbo diesel flat saw and a Dimas 360 wall saw.

Several factors complicated the job. There was constant rain and thunderstorms moving through the area, many of them severe and causing delays. Also, asbestos was found under the tile and dust masks had to be worn at all times. Because much of the job was suspended-slab sawing, full body harnesses and lanyards were to be worn and perimeter netting was used.

Operators cut 5,600 lineal feet of slab 4 inches deep, with a 16-inch beam on 2-foot centers. Operators also cut six columns measuring 30 inches by 36 inches with 24 vertical rebars. 120 lineal feet of 12-inch-thick wall sawing was performed to remove the shear walls. On outside beams, operators performed 80 wire pulls approximately 18 inches by 24 inches.

The project was completed within

the time frame. Though the aggregate in Memphis is very hard river rock, the power of the Hydrostress wall saw along with the proper blade spec allowed TCCG operators to complete the job on time.

"TCCG was awarded the job based on our reputation — the customer knew we were capable of completing the job in a timely fashion," said Ron Dailey, owner of True-Line Coring and Cutting of Tennessee. "Also, the customer was aware of the versatility and safety benefits of our equipment, such as remote control saws and wire saws. The customer is very safety conscious and liked the idea of cutting columns and beams free with either a remote control saw or a wire saw so the operators were not close to the piece being lifted."

Matt Bunchek at Asset Recovery Contracting, LLC said he was pleased with The Coring and Cutting Group's performance. "Field personnel operated professionally and safely, and all services provided were well-done," he said. The cooperation and combined skill of Asset Recovery Contracting, LLC and The Coring and Cutting Group made for a successful job.

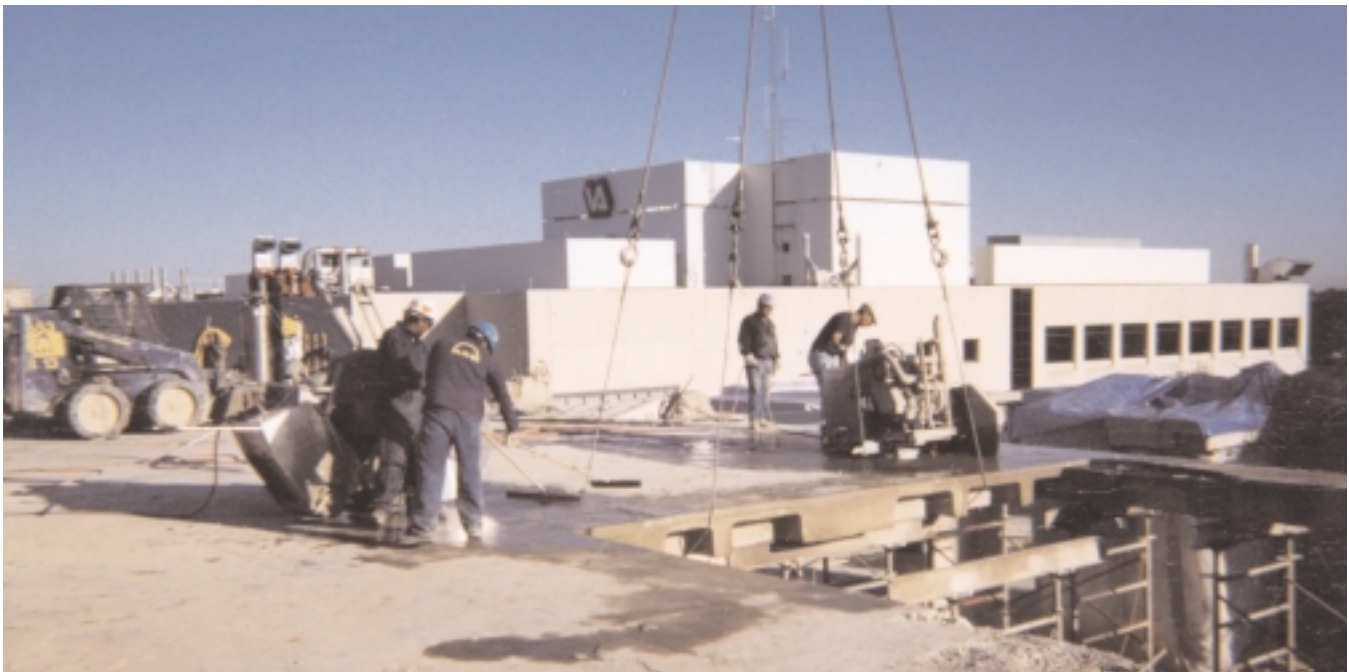
True-Line Coring and Cutting of Tennessee and Memphis Concrete Cutting, part of The Coring and Cutting Group, are CSDA members providing services in slab sawing, wire sawing, wall sawing, core drilling, grinding and confined-space remote-controlled breaking and excavating. They have CSDA certified operators on staff. The Coring and Cutting Group has 13 locations throughout the Midwest and Southeastern U.S. ●

Resources:

General Contractor: Asset Recovery Contracting
Sawing and Drilling Contractors:
True-Line Coring and Cutting of Tennessee,
The Coring and Cutting Group
Nashville, TN
Tel: 615-255-2673
Fax: 615-255-9685
Web site: www.sawconcrete.com

Memphis Concrete Cutting,
The Coring and Cutting Group
Memphis, TN
Tel: 901-365-9331
Fax: 901-365-9411
Web site: www.sawconcrete.com

Methods: Flat Sawing, Wall Sawing,
Wire Sawing



Above: The beams are cut simultaneously to be lifted out and removed. Sections of the floor had to be removed so that concrete cutters could get at the wall panels.