

Focus of This Issue: Building Systems, Hollow Core

Systems Building Raises “L” In Student Housing

Raising ‘L’ in student housing (an L-shaped building, that is) may not surprise you, but using a systems building approach may, because visually, it looks like any other structure – but it isn’t. This 105,000 sf precast systems building has parking on 100% of the ground floor area, with four levels of housing above. Originally intended as an apartment building, it became a leased dormitory for Western Connecticut State University. Erection began in the late fall of 2005, and continued through difficult winter conditions. The pre-cast structural frame was completed in March 2006; the building will be occupied with the beginning of classes this month.



Brookview Commons, Danbury, CT

Photo by Oldcastle Building Systems



“Modern Student Living in an Urban Setting”



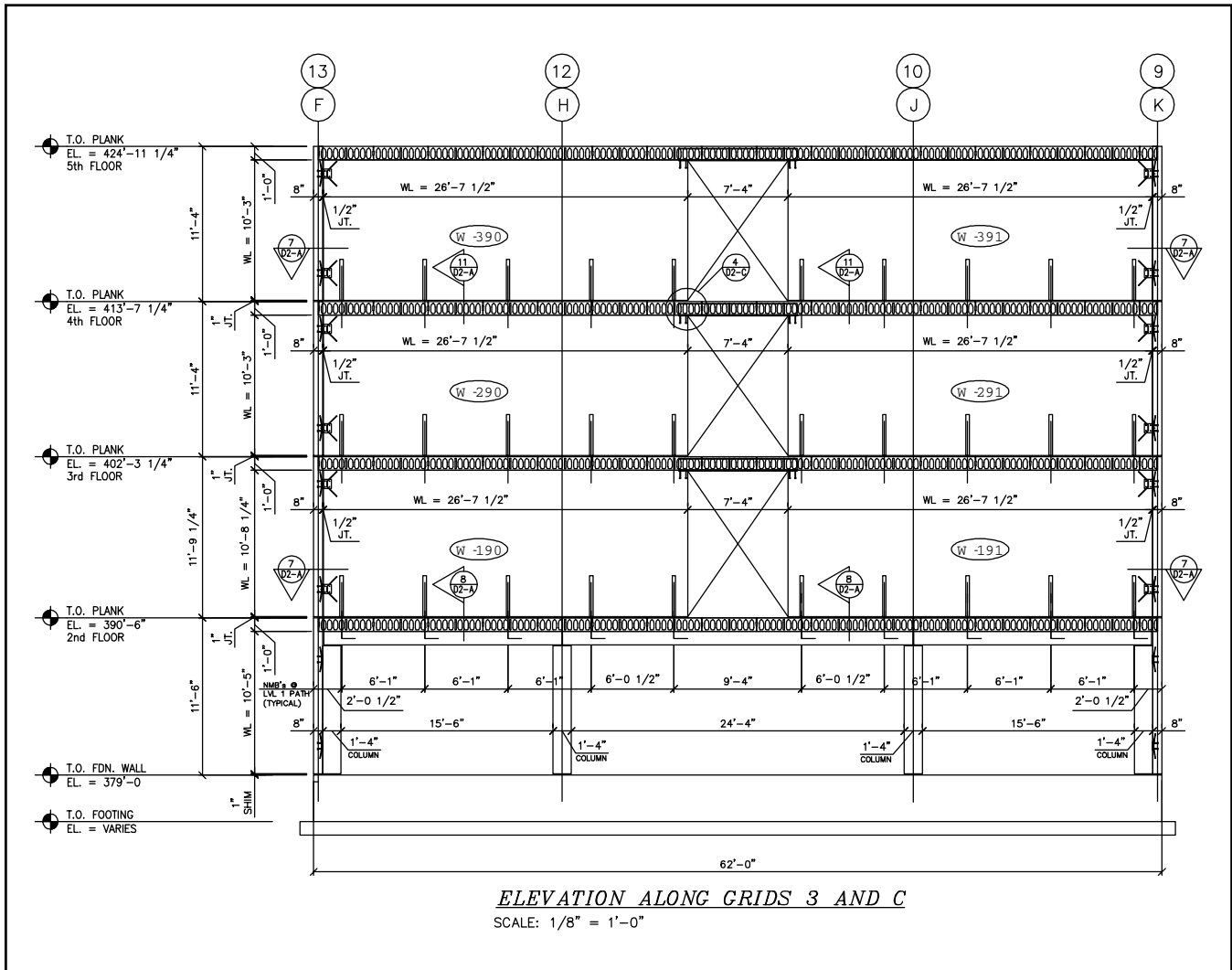
Entrance to first level parking areas

Photos and detail from Oldcastle Building Systems

Precast, prestressed hollow core plank (12” x 48”) at the 2nd, 3rd, 4th, and 5th levels typically span 40 feet. This reduces the amount of bearing walls required for the floor area, adding to the economy of precast, and at the same time, the wide open spaces provide maximum architectural flexibility. The structure is designed for seismic category C on site/soil class D. Precast shear walls connected with NMB splice sleeves provide the required lateral load resistance. The upper level 8” thick precast bearing walls are designed as

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Systems Building Raises “L” in Student Housing *(continued)*



Building Cross Section

deep beams to span over and cantilever between the supporting columns at the first level. The building cross section illustrates this structural arrangement.

Allan Chandler, Structural Engineer with Szewczak Associates, Avon, CT, acknowledged the advantages of the precast building system: it provides excellent sound control and fire rating between floors, it was feasible to construct during winter conditions, it provided a reasonably efficient structural framing system while providing enough flexibility to accommodate parking below and apartments above. He said the modularity of the system fits well with apartment layouts – walls 40' center to center and a center corridor. He also said that since the elevator and stair towers are all precast, as are the stairs themselves, the structure goes up quickly.

Floors typically received a thin, self-leveling topping, and then are covered with carpet and pad. Plank bottoms are exposed and painted as finished ceilings. However

the second level was unique, because it spans over the parking space below, which is fully open to the weather. Here, 2x6 wood framing was placed on the floor and insulation added between. Then hardwood was placed on top as the finished floor. Precast structural elements include: 105,000 sf of 12" thick hollow core plank; 43 pcs 16" square single story columns; 32 pcs 32" wide by 23" deep inverted tee beams; 170 pcs 8" thick bearing and shear walls; 30 pcs ground floor exterior walls with large 9' x 30' openings designed to allow flood waters to pass through; and 48 pcs precast stairs and landings.

Project credits: Architect – CH²K Architecture Interior Design; Structural Engineer – Szewczak Associates; Precast Design Consultant to Oldcastle – Reigstad Associates; General Contractor: BRT Corp. Special thanks to David Wan, P.E., Systems Engineer, Oldcastle Precast for submitting the photos, details, and story.

Hollow Core Plank Used in Ithaca, NY Housing

The new Gateway Commons building includes 25 units of housing and two retail units, and is situated in an exceptional location between downtown and Six Mile Creek, one of Ithaca's gorges. This six-story structure utilizes reinforced concrete masonry walls for gravity and lateral loads and precast hollow core plank for the floor and roof structures. The project received a Silver LEED rating from the United States Green Building Council. Credits to HOLT Architects, plus thanks to Paul Rouis, PE, Ryan-Biggs Associates, Structural Engineers, for this article.

Congratulations and Best Wishes to Bob Shields

Bob was the L.C. Whitford Company's most senior employee, having worked for them since September 1956 (then earning \$1.87 per hour, paid in cash). Starting as a laborer on building projects, next driving a ready-mix truck, he moved up to labor foreman on countless projects. Eventually Bob was asked to be superintendent on a bridge job. Understanding the construction and design of bridges helped him tremendously in the area of manufacturing bridge beams, which he was responsible for until retirement. PCANY values the contributions Bob has made to the precast/prestressed concrete industry. We wish him much happiness in his well-earned retirement.



Gateway Commons, Ithaca, NY

Photo submitted by Ryan-Biggs Associates

Systems Buildings for Cornell University



Using precast stairs and landings for safe access

Oldcastle Precast

Oldcastle recently started erection on House 5, the 7th building provided for Cornell's West Campus New Student Housing. Each building has a 5-story total precast structure. 8" exterior walls support 12" planks spanning 40' across the entire width of the building, providing maximum design flexibility for the architect. Precast was chosen to maintain schedule with erection continuing through the harsh upstate NY winter. A shortage of local skilled workers was also a factor in choosing precast. Besides the plank and bearing walls, the stairs and landings were precast, allowing fast and safe access for workers to each floor as the erection continues. The exterior is finished with insulation and local brick to blend with the other campus buildings. Architect: Kieran Timberlake Assoc., Structural Engineer: CVM Engineers, Precast Consultant: IECS, General Contractor: Welliver McGuire, Precast supplier: Oldcastle Building Systems. This information was also supplied by David Wan, P.E., Oldcastle Precast. *This is a great project — watch for more information in another issue.*

Precast Concrete Association of New York, Inc.
2829 East Avenue
Rochester, NY 14610
Tel: 585-249-9564 • Fax: 585-381-0945
Email: pcany@aol.com • Web: www.pcany.org

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PCANY Meetings

Save October 9 for a morning Board/General Meeting at the AGC Headquarters, and an afternoon Joint Meeting with both the Materials Group and Structural Section of the New York State Department of Transportation, which will be at 50 Wolf Road, Albany. Agendas and specific times will be e-mailed to members.

ACI Field Testing Technician Grade I

If you need to certify someone, the Certification Exams will be given at ACI Headquarters, Skokie, IL, September 21.

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