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Stalco and Urbahn celebrate opening of \$27.6 million SUNY Farmingdale project; School of business aiming for LEED Silver certification

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Farmingdale State College (SUNY Farmingdale) president Dr. Hubert Keen, representatives of general contractor Stalco Construction and Urbahn Architects, NYS assemblyman Chad Lupinacci, faculty members, and hundreds of students celebrated the opening of the new School of Business. The building will serve 2,200 students and 40 professors of the rapidly growing undergraduate business program.

"Part of a \$185 million construction project, this is the most technologically advanced building on campus," said Keen. "We are so pleased to see the final result. The campus revitalization is thrilling for all of us."

"The new, three-story, \$19.3 million School of Business is one of the most architecturally prominent and technologically advanced higher education structures in the northeast," said Stalco Construction principal Kevin Harney. "The building, which is aiming for LEED Silver certification, features a striking, modern façade, expansive glass curtain wall, and a high number of environmentally responsible design and engineering solutions. The school's energy efficiency performance exceeds New York State's requirements by 30%. The construction cost of the project was \$19 million." The overall development cost is \$27.6 million.

"Since its founding in 1912, Farmingdale State College has built a strong reputation for workforce development, consistently fueling the Long Island economy with talented graduates in high-demand careers," said SUNY chancellor Nancy Zimpher. "The new School of Business is an outstanding addition that will benefit students and employers alike. Congratulations to president Keen and all of those on campus and in the community who had a hand in seeing this project through."

The new SUNY Farmingdale School of Business building is a part of the college's \$185 million campus improvement plan aimed at accommodating the college's increasing enrollment, which recently reached 8,474. There are 2,228 undergraduate students currently enrolled in the School of Business programs that include applied economics, business management, computer systems, urban horticulture and design, sport management, and visual communications. The college is a part of the State University of New York (SUNY) system. Construction of the School of Business began in fall of 2012.

"Despite being the fastest growing program on the campus, the School of Business lacked a defined physical location and identity," said Farmingdale State College Facilities Contracts & Procurement Manager Erika Wachter. "The new building was needed to consolidate all programs into one location and was included in the college's 2008-2013 five year capital plan. The financing was obtained through New York State University Construction Fund."

In addition to Stalco and architect and interior designer Urbahn Architects, the project team included

construction manager Jacobs, structural engineer Consulting Engineers Collaborative; civil engineer BET Engineering Consultants; mechanical, electrical and plumbing (MEP) engineer Vanderweil Engineers; lighting designer Domingo Gonzalez Associates; and landscape architect Starr Whitehouse Landscape Architects.

The building features a concrete foundation and a steel frame structure with concrete slab on metal deck floors. According to Stalco Project Manager Kevin Sypher, "The building includes a partial cellar level and a section supported by a slab-on-grade foundation with footings that extend three feet down below the grade. The site work encompassed excavation of an area 120 feet by 85 feet to the depth of 20 feet for the basement. During the excavation, the team removed an old steam pipe tunnel running across the site. The concrete footing foundation system includes concrete piers with steel base plates and anchor bolts for the building's 44 columns."

"The Stalco team employed several technological and material solutions that allowed the crews to accelerate the construction schedule. For example, Stalco utilized the National Gypsum Mold and Moisture gypsum wall panels and compound, typically used on exteriors of buildings, for interior construction. This allowed the interior work to continue through winter months inside a structure that was still open to the elements, while the complex glass and rain screen building enclosure was still being installed," added Stalco Assistant Project Manager Kimberly Klein Chappina.

Architecture

"The new School of Business is designed as a three-story, rectangular 'bar' building with program spaces on either side of an efficient, double-loaded corridor," explained Urbahn Architects Senior Associate and the project's lead designer Peter R. Verne, AIA, LEED AP. "The west side of the corridor, facing the campus mall, primarily houses faculty offices and lounges. To the east of the corridor are the classroom spaces."

In the early pre-design phase, Urbahn performed an extensive analysis of the business school's and the entire college's spatial needs, patterns and frequency of use of various spaces throughout the college, enrollment forecasts, overall campus master plan, traffic patterns, and architectural history. The architects collaborated extensively with the college's leadership, physical plant management, Dean of the School of Business, and faculty in order to define the school's philosophy and technological needs.

This analysis, as well as the available budget, guided the architects during the development of the new school's architecture, interior programming, design approach, and engineering. It also helped in the selection of the location for the new structure.

The campus was historically developed on the traditional quad plan with a well-defined mall area. It originally housed a dorm structure that completed the quad plan. However, the dorm was demolished over a decade ago, which removed a part of the original campus concept and distorted the mall experience. Following a site selection analysis of several alternative locations for the new School of Business by reviewing their impact on the pedestrian traffic flow, vehicular access, utilities availability and distance, and compatibility with the overall campus development plan, the college leadership and the architects eventually selected the site previously occupied by the demolished

dorm. This solution not only restored the completeness of the overall quad plan, but also provided LEED credits in the sustainable site category.

During the design phase, the architects also strived to reflect the historic architecture of the campus in the new school. The new building's façade features a modern interpretation of the traditional elements, materials and colors. The selected exterior materials of brick, glass-fiber-reinforced concrete panels (GFRC), composite metal panels, and glass relate in texture and color to the brick, cast stone, and slate traditionally employed on the core campus buildings. The use of this familiar palette also helps define sections enclosing individual program areas.

The new building's front, facing the mall, is clad in 5,100 sq. ft. of ivory colored TAKTL ultra high performance concrete (UHPC) rain screen panels, with staggered vertical window openings expressing the multiple individual offices within. Larger areas of glass indicate the locations of mini-lounges between offices. The atrium's exterior features an expansive Kawneer 1600 glass curtain wall intersected by the elevator's shaft enclosed in horizontal, charcoal colored Alpolic aluminum composite material (ACM) rain screen panels by Mitsubishi Plastic Composites America, Inc. The freestanding elevator shaft, expressed as a strong, independent element on the lobby's curtainwall, visually punctuates the entrance and anchors the main entry vestibule. The charcoal colored panels are also installed on two stair towers located at two ends of the building and on a separate enclosure that hides cooling towers. The Alpolic panels' color and iridescence reflect the look of slate on the nearby Knapp Hall's roof. EFCO manufactured the building's windows.

The opposite side of the building is clad in Redland red brick, with a two-story expanse of glass curtain wall emerging from the southeast entrance, defining the outdoor seating area and emphasizing the "pass-through" nature of the building's lobby. This curtain wall extends along the second floor to highlight the form of the building. Lighting in the soffit below the cantilevered third floor lights the plaza below. The classroom and administrative spaces on this side of the structure are equipped with punched windows of various widths. The windows in the brick façade feature 3 1/4" frames (75% fixed and 25% casements projecting out) and 1" double-glazing with high efficiency, low-e glass.

"In order to maximize the energy efficiency, the building features a 'tight envelope,' an exterior wall and roof design that minimizes energy losses through the structure's exterior," explained Stalco Construction Superintendent Michael Marchese. "The tight envelope includes ultra high efficiency glazing, energy efficient exterior panels and insulation, and a roof with reflective properties that reduces the heat gain from the sun exposure," he added.

The structure features a high albedo (solar reflectivity) membrane roof system on steel structure pitched at one-inch-per-foot to drains located on either side of the rooftop air handlers. A high number of drains is provided to facilitate positive drainage and eliminate the possibility of leakage. Rooftop mechanical equipment is placed on higher than typical curbs, located near drains, to address snow build-up. Toilet exhaust fans are combined to reduce the number of roof penetrations.

The building occupies the northern side of a triangular site. The southern section, located near the residence halls, experiences a high pedestrian traffic. The landscaping design harmonizes the area with the overall campus plan and accommodates the high volume of students walking through the area. The landscaping features include earth berms created from the soil excavated from the new building's site. The berms direct the storm water run-off to the newly created water gardens and planted areas, which eliminated the need to construct a sprinkler system, thus significantly reducing water usage. The site is planted with local, draught tolerant species to minimize the maintenance needs and expenses.

Interior design and programing

"One of the programming challenges was the wide user group with varying needs and expectations as well as an extensive educational technology infrastructure to be incorporated into the interiors," explained Wachter. "The architectural team has very successfully accommodated these diverse needs into the final interior design."

The new structure houses educational spaces, administrative and management offices, public areas, conference rooms, and support facilities of the School of Business, which were previously located at several buildings spread out throughout the campus. The new building features the most technologically advanced classrooms and auditoriums of the college, which will be also used by other schools and for business events and meetings. The building is designed to accommodate 482 full time equivalent students and up to 532 people at peak occupancy times.

The early analysis of the usage of classrooms and auditoriums throughout the campus pointed to the highest demand for spaces housing 35 to 45 students. The School of Business' leadership also strongly supported the concept of maximizing interaction between students and faculty as well as among students. These two factors have influenced the interior programming and design of the new building. The classrooms included in the new building include both traditional and collaborative classrooms, which promote an increased interaction among the students and provide a flexible setting that encourages an exchange of ideas during lectures.

The main entrance to the building is located on the north side, opposite the entrance to the Whitman Hall across the mall. The soaring entrance lobby atrium doubles as a reception space for evening lectures and business seminars. To support this functionality, all of the largest classrooms of the new building are located on this floor.

The most interesting architectural feature of the first floor is an informal gathering space of tiered seating, located immediately opposite the atrium glazing. This interior amphitheater offers views of the Mall and marks the beginning of the main ceremonial stair, which wends its way up the atrium. Visible from the Mall, the stair animates the façade. Its visibility also creates a continuity of gathering and pedestrian circulation from the exterior to the interior. The amphitheater features bamboo veneer seating and a sculptural, three-dimensional wall of natural color bamboo.

Rather than just providing simple vertical circulation, the stair is designed as a series of visual experiences. At the upper landing of the tiered seating, users are oriented toward the building's

southeast lawn and student housing beyond. Proceeding up, a pedestrian turns and crosses the second-floor corridor bridge toward a cantilevered stair adjacent to the front facade. Ascending this upper stair to its middle landing, one is suspended in the void of the glazed atrium. From here, the Mall is experienced again, this time from a new vantage point. The stair then leads up to the third-floor corridor.

"From the beginning of the project, it was the goal of Farmingdale State College for the building to promote a casual interaction between students and faculty," added Verne. "We reflected this concept in our design approach by locating the faculty offices immediately across the main corridors from the classrooms." In addition to promoting interaction through proximity, this arrangement serves the efficient structural design of the building by grouping the relatively short-span office spaces separate from the longer-span classrooms. Faculty offices feature glazed doors and generous borrowed light infiltrating from the exterior windows to both promote interaction and to increase energy-saving daylighting in the corridor.

Mini-lounges, dispersed among the offices, further promote interaction between students and faculty. In addition to these dynamic public spaces, two quiet main lounges are located in spaces cantilevered off the northwest end of the building. These treetop-level lounges orient students toward the Circle, providing a contemplative and quiet learning space away from the building's main avenues of traffic. Clad in angled bamboo veneer, quiet lounges reflect the look of the amphitheater on the first floor.

In addition to the three-story lobby atrium and the dramatic architectural stair/amphitheater, the first floor houses two 64-seat auditoriums; two 44-seat classrooms; faculty rooms; two small hallway lounges; bathrooms; and support spaces. The first floor classrooms are the largest in the building. In order to promote active discussion and learning, each of these classrooms is tiered on each side around a centrally located teaching stage area with multiple large screen displays suspended from ceilings. One 64-seat classroom features a central folding partition, allowing division into two smaller, traditionally laid out lecture halls.

The second floor features a central corridor; 13 faculty offices; one quiet lounge at the eastern end of the building; one active lounge; a 44-seat classroom; two collaborative, 1,050-square-foot, 36-seat classrooms; one traditional, 900-square-foot classroom; and one 24-seat classroom,

The third floor houses a main corridor; 11 faculty offices; a management and administrative office suite; three active lounges; one quiet lounge at the eastern end of the building; a 1,050-square-foot computer lab; a 36-seat collaborative classroom; a 44-seat collaborative classroom; and the main, 600-square-foot conference room.

The classrooms and lecture halls are equipped with the lecture capture, outside source feed, and Cisco Webex conference and collaboration capabilities, smart boards, and audiovisual presentation systems designed by Shen Milsom & Wilke. The new school is the most technologically advanced building on the Farmingdale campus.

"With lecture capture, the instructor can give a presentation, hit a button and record the lecture or stream it to people watching online," explained School of Business Dean Richard Vogel.

The hallways, stairs, and public gathering spaces feature an innovative poured Sherwin Williams epoxy terrazzo 1100 flooring. Other interior finishes include carpet flooring, acoustical and gypsum board ceilings, and gypsum board walls.

Engineering

Many of the building's environmentally responsible features are related to the mechanical, electrical and plumbing systems. According to Vanderweil Engineers Associate Principal Gregory Sibley, "The building incorporates high efficiency heating, cooling, and lighting systems that significantly reduce the energy use. The entire building is managed by the Johnson Controls DDC (Direct Digital Control)-controlled Building Energy Management System, which optimizes the energy use based on occupancy, air quality, natural lighting levels and other variable factors. The college's facility management team can monitor and control the building's systems remotely from the campuses' central control room."

"In order to develop the operationally optimal structure, the architectural and engineering team performed multiple modeling tests for the entire building's design, including walls, ceilings, roofs and MEP systems," added Sibley. "This analysis has led to the development of an extremely efficient building that features high efficiency fenestration and exceeds the code requirements for thermal resistance R-value for wall and roof insulation. The structure will serve as an example for future higher education facilities across the nation."

The cooling system includes two high-efficiency, water-cooled, 135-ton York chillers in the basement as well as two Marley cooling towers, tied to the basement chillers, installed on the grade level outside of the main building, inside a masonry enclosure with a metal panel cladding. The chilled water is distributed through piping networks to custom manufactured air handling units with multiple fans for an increased redundancy and reliability. The units feature internal service corridors for easier maintenance.

The chilled air is distributed into the building through ducted supply and return systems, which harvest cold outdoor air for free cooling when possible. The air quality controls feature carbon dioxide sensors, which continuously control the air composition and adjust the amount of outside air injected into the system. Both outside and recycled indoor air flowing into the building is reconditioned through a high-efficiency filter system. The continuous monitoring of the air quality reduces the volume of outside air intake and the amount of energy necessary to cool it down. It also reduces the energy use during low occupancy periods, when the demand for air-conditioning is lower. On average, the air-conditioning system utilizes 80% of re-circulated air and 20% of outside air. Exhaust fans were manufactured by Greenheck.

The heating system relies on the campus-wide steam network. It includes four Thrush water heating exchangers located in the basement, which transfer the heat energy from steam to water. The hot water is then distributed through multiple piping systems with variable volume controls that save

energy by adjusting to the demand levels. The building features several types of heating elements, including heating coils in the air handling units, reheat coils in the supply volume boxes at each space, perimeter radiators, and cabinet unit heaters.

The plumbing system's design focused on decreasing the water use. It features low-flow plumbing fixtures, such as sinks, water closets, urinals, and lavatories.

The design team of Vanderweil Engineers and the lighting designer Domingo Gonzalez Associates has focused its creativity on creating a highly efficient lighting system as well. The system accommodates the architectural and aesthetic requirements while significantly reducing the energy use. The building features approximately 30% of innovative, extremely efficient LED fixtures, with the remainder of low energy use fluorescent lighting. Occupancy sensors further reduce the energy use.

The chillers, heat exchangers, Paco HVAC pumps, ITT A-C fire pumps, an Atlantic Power Systems emergency generator, a transformer, and an IT service room are all located in a partial basement. A.O. Smith manufactured the domestic hot water heaters and Schneider Electric supplied the switchgear. At each floor, building support spaces, including electrical, telecom/data, and janitor's closets, as well as toilets and major HVAC shafts are located between classrooms and the main corridors. Three rooftop air handlers are by York.

A machine-room-less hydraulic elevator serves the basement and three above ground floors. In addition to the centrally located architectural stair, the building houses two regular stairs. The south stair extends from the third floor to a bulkhead that opens to a screened enclosure on the roof. The north stair will span the basement and all three floors.

Stalco Construction, Inc.

Headquartered in Islandia, NY, with a regional office in New York City, Stalco Construction, Inc. is a full-service general contracting and construction management firm active in the Greater New York area and on Long Island. In 2014, Building Design & Construction magazine ranked Stalco as the 101st largest general contractor in the United States. ENR New York magazine ranks Stalco as the 52nd largest contractor in the NY/NJ/CT Tri-state area.

Established in 1992, the firm builds commercial and institutional facilities for office, retail, educational, healthcare, governmental, entertainment, sports and worship clients. Stalco's personnel include professional engineers, architects, project managers, superintendents, and support staff. The value of the firm's on-going ground-up, interior, and capital improvement projects totals approximately \$140 million.

Stalco's affiliate, Stalco International Group, designs and erects custom engineered buildings for developers and architects of commercial, office, institutional, public, and industrial structures. Stalco works in a partnership with Varco Pruden Buildings, a division of BlueScope Buildings North America, a world leader of the pre-engineered buildings industry.

Since the firm's inception, its leadership and employees have been involved in supporting the local community through responsible corporate citizenship and charity work. The company's principals, Kevin G. Harney and Alan Nahmias, co-founded Contractors For Kids (CFK), a not-for-profit organization supported by nearly 300 Long Island-based construction and real estate organizations. CFK provides assistance to children and their families impacted by health-related crisis.

Stalco's current and recent work includes the \$8.4-million Battery Park City Community Center and the \$15-million restoration of the landmark Pier A in Manhattan; the \$24-million renovation of the Vaughn College of Aeronautics and Technology in Queens, NY; the new, \$5.2-million Emergency Department at the Lincoln Medical and Mental Health Center in the Bronx; the \$16.5-million renovation and expansion of the Long Beach High School in Lido Beach, NY; the \$1.4-million Home Fair store at the Atlas Park Mall in Queens NY; the Ultra Diamonds jewelry store in Riverhead, NY; the \$11.3-million renovation of the landmarked Erasmus Hall High School in Brooklyn, NY; the on-call Construction Management contract for the 780,000-square foot CA, Inc. Global Headquarters in Islandia, NY; and the \$30-million expansion and renovation program for the Three Village Central School District in Suffolk County.

Urbahn Architects

Urbahn Architects is a full-service planning and design firm based in New York City. Since 1946, the firm has designed projects for organizations and institutions that engage the public in the healthcare, education, justice, science, transportation, and infrastructure sectors. Urbahn designs projects valued at over \$500 million annually, both in the United States and abroad.

Urbahn's design and management teams work closely with clients to ensure that its projects enhance the built environment and achieve functional and performance excellence, while always adhering to cost, schedule and regulatory requirements. Urbahn's staff of LEED accredited professionals continually seeks to develop designs that are sustainable in their very concept. The firm employs several Building Information Modeling (BIM) platforms to enhance visualization and coordination during the design process. It also brings real-world experience of many project delivery systems, including design/build, modular, and fast-track construction.

Vanderweil Engineers

Headquartered in Boston, MA, Vanderweil Engineers offers a broad array of engineering services focused on sustainable MEP systems for buildings, power generation and distribution, chilled water and steam generation and distribution, and electrical transmission systems. The firm provides MEP building systems' design for commercial, institutional, industrial, and government clients. Vanderweil's regional offices are located in New York City; Syracuse, NY; Princeton, NJ;

Photo credits and captions:

FILE: 2015.05 Stalco SUNY Farmingdale opening group 1 med.jpg

Philadelphia, PA; Washington, D.C.; and Los Angeles, CA.

Farmingdale State College, political leaders, contractor Stalco Construction, Urbahn Architects, and construction manager Jacobs celebrated the opening of the new three-story, 39,000-sq.ft. School of Business in Farmingdale, N.Y. Left to right: Farmingdale State College Senior Vice President and CFO Finance George P. Larosa, School of Business Dean Richard Vogel, Farmingdale College Council Chair Patricia Hill Williams, New York State Assemblyman Chad A. Lupinacci, Farmingdale State College President Dr. W. Hubert Keen, Urbahn Senior Associate Deborah Verne, Urbahn Principal Nat Barranco, Stalco Principal Kevin G. Harney, and Jacobs Project Manager Collin Cunningham.

Photo by Ola Wilk/Wilk Marketing Communications

FILE: SUNY Farmingdale School of Biz 5462 med.jpg

Built by Stalco Construction and designed by Urbahn Architects, the new three-story, 39,000-sq.ft. Farmingdale State College School of Business in Farmingdale, N.Y. will serve 2,200 students. Photo by Tom Sibley/Wilk Marketing Communications

FILE: SUNY Farmingdale School of Biz 5425 med.jpg

Quite student lounges at the new School of Business offer expansive views of the central mall and other buildings of Farmingdale State College campus.

Photo by Tom Sibley/Wilk Marketing Communications

FILE: SUNY Farmingdale School of Biz 5321 med.jpg

The dramatic, sculptural bamboo-clad seating stair serves as the gathering and event space.

Photo by Tom Sibley/Wilk Marketing Communications

FILE: SUNY Farmingdale School of Biz 5429 r med.jpg

The classrooms and lecture halls are equipped with the lecture capture, outside source feed, and remote conference and collaboration capabilities, smart boards, and audiovisual presentation systems. The new school is the most technologically advanced building on the Farmingdale campus.

Photo by Tom Sibley/Wilk Marketing Communications

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