



Project of the Month: Stalco Construction proceeds with \$16.5 million, 20,000 s/f Long Beach High School expansion and renovation

July 16, 2012 - Front Section

Stalco Construction is proceeding with the \$16.5 million expansion and renovation of the Long Beach High School. The school is located at 332 Lagoon Dr. West and currently houses 1,400 students. New York City and Islandia, NY-based Stalco Construction, Inc. serves Long Beach City Schools as general contractor for the high school project. CS Arch is the project architect. Stalco is currently ranked as the 75th largest contractor in the nation by Building Design & Construction magazine.

"The expansion and renovations to the Long Beach High School comprise a large portion of the district-wide capital program valued at \$98.9 million," explained Long Beach School's Chief Operating Officer, Michael I. DeVito, Esq. "The existing structure suffers from deficiencies and has not received any significant updates or renovations since the early 1970's. Construction of the addition and interior renovations will address these issues and create a very modern, visually attractive school with state-of-the-art educational facilities that will serve the local community for years to come."

According to Stalco Principal Kevin G. Harney, "The Long Beach High School project encompasses construction of a new, three-story, 20,000 s/f addition to the main building, renovation and reprogramming of the existing three-story school structure, demolition of the separate pre-K building, and construction of new outdoor sports facilities, including six professional-grade tennis courts and a football field with FieldTurf synthetic sport surface, lighting and spectator bleachers."

The high school project is scheduled for completion in 2014 and will be completed in 10 phases. In addition to Stalco and CS Arch, the project team includes construction manager Savin Engineers, P.C.; structural engineer Ryan-Biggs Associates, PC; MEP (mechanical, electrical, plumbing) engineer Lewis Engineering, P.C., civil engineer The Chazen Companies; and athletic facilities consultant HMM Site & Sports Design.

"The construction crews face numerous logistical and technical challenges related to the location of the site and work taking place in and near an occupied school," added Stalco President Alan Nahmias, outlining the complexity of the project. "For example, the addition is located a mere 30 feet from Reynolds Channel, which causes a very high ground water level that needs to be remediated continuously during the excavation and foundation phases."

Architecture and engineering

"CS Arch began work for the Long Beach City Schools district in 2007 by developing a comprehensive needs assessment study. It encompassed a review of space deficiencies in existing facilities, future needs, and infrastructure upgrades necessary to address the long-term instructional, programming, spacial, technology, safety and environmental health needs of the district," explained

CS Arch Associate Dana Hochberg. "Although the district's enrollment remained stable, the existing school facilities were outdated and no longer supported current educational needs and programs." The study concluded in an initial overall capital master plan valued at \$378 million. However, following extensive consultations with the board of education and the local community, which assessed priorities and the timeline of necessary work, the district and the design team revised the plan and reduced its cost to \$98.9 million. In 2009, the voters approved a bond issue to finance the revised program, titled School Preservation Plan. Following the bond approval, the district is also eligible for up to \$38.1 million in New York State Building Aid program, paid over the term of the bond.

The expansion and upgrades to the existing high school will resolve numerous issues caused by the outdated design and poor physical condition of the original high school structure. The building's exterior is in need of repairs, the science classrooms are too small and don't meet current standards, and the administrative facilities are inadequate. The school lacks both a contemporary technology infrastructure and TV and media production facilities which would meet a high demand from students interested in pursuing media-related careers.

The existing school looks uninviting and heavy. Construction of the addition and exterior renovations will improve the aesthetics of the campus. According to Hochberg, "The idea behind the architectural design of the high school addition was the creation of a contextual, but distinct structure. The addition will present a similar massing and facade flow as the original building, but it will appear less monolithic and more contemporary than the old structure. The renovations to the original building's exterior will also improve the appearance of the complex. These will include replacing the deteriorated concrete shades with aluminum screens."

"The major engineering challenges included developing a structural design that would provide the necessary lateral force resistance at the new building's grade level that's very open and features limited exterior walls. The engineering team also had to address a poor soil condition at the addition's site," said Christopher A. Lesher, Senior Associate at Ryan-Biggs Associates. "We provided the lateral strength by designing 12-inch shear walls and two columns on the ground level. The higher floors feature bearing CMU walls and four concrete beams on each floor."

Due to the low bearing soil, the addition's foundation system incorporates 128 auger cast piles. The design calls for piles to be topped with reinforced concrete caps, which vary in size from 6 by 6 feet and 3 feet 3 inches deep to 9 by 23 feet and 3 feet 3 inches deep. Concrete grade beams will then span the caps, with the bearing shear walls and concrete columns resting atop the beams. The depth of new caps matches the depth of caps below the existing high school building. The structural system also includes pre-cast concrete plank floors and pre-cast concrete plank roof structure as well as concrete columns and concrete beams. The masonry walls on the second and third floors will be constructed of concrete masonry units (CMUs).

The Chazen Companies developed the civil engineering design, including new site and roadway layouts, parking areas, retaining walls, ramps, stairs, drainage and, in collaboration with HMM Site & Sports Design, landscaping. HMM designed the athletic fields.

"One of our goals was to create a pedestrian-friendly area within the campus," explained Chazen's Director of Landscape Architectural Services, James 'Andy' Rymph. "We reconfigured the roadways within the high school's campus, relocated the main entrance from Laguna Drive West to Blackheath Road, and revised the layouts and locations of surface parking spaces. These changes allowed us to create a mall-like, pedestrian area on the former roadway running between the main high school

structure and the gymnasium building. The mall will feature decorative pavement elements, including stamped and colored asphalt areas, and new sidewalks. The only mechanical traffic allowed on the former roadway will be school buses during drop off and pick up times."

Another area intended to encourage interaction among students will be located near the new entrance to the athletic fields. Designed in a plaza setting, it will feature benches and bicycle racks.

One of the civil engineering challenges was the low elevation of the entire campus site. This called for developing a creative drainage system design and increasing the elevation of the sports fields.

Chazen designed a new, shallow drainage system for the majority of the site. It incorporates new piping, a hydrodynamic storm water separator, a new underdrain system beneath the athletic fields, and a six-inch deep, 170 feet long and 10 feet wide wet swale for collection of runoff water from the handball courts batting cages. The wet swell pool is landscaped with low maintenance grass and provides inexpensive, natural storm water retention without excluding the area from other uses.

Chazen designed all elements of the storm water control system for H-20 rating, calculated to withstand traffic of heavy construction vehicles above. In order to reduce the extent and cost of earthwork, all above ground components such as covers will feature low profiles.

The new Downstream Defender vortex storm water separator, manufactured by Hydro International, removes sediment and trash from storm water runoff prior to discharge into Reynolds Channel through an existing bulkhead. The separator provides treatment flow of 4.5 CFS (cubic feet per second), flow capacity of 18 CFS and a minimum sediment storage capacity of 2.5 cubic yards.

The underdrain system in the athletic fields' area collects the water runoff through composite trench and collection drains, which eventually connect to the remainder of the campus' drainage infrastructure. In addition, the system features over 1,000 linear feet of French drains composed of perforated pipes placed in gravel-filled trenches along the berms on the western and southern edges of the site.

The current elevation of the southernmost perimeter of the campus is only two feet above the northern end's grade level near the drainage system's termination point prior to discharge into Reynolds Channel. The storm water outfall for the site's southern edge is approximately 800 feet. In order to achieve the minimum 5.5% slope required for the gravity drainage, a section of the sports fields' area will be elevated as part of the on-going construction project.

The most extensive landscaping work will take place along the western and southern edges of the campus in order to eliminate the light pollution and screen off the nearby residential properties. The area will feature extensive earthen berms three to five feet in height as well as 75 large evergreen trees. The trees, to be planted at a minimum height of twelve feet, will include fir and blue spruce species.

Construction

"The existing school, adjacent to the new addition's site, remains fully occupied and functional as the construction work proceeds. In the coming months, renovations will also begin inside the existing high school. Our team is undertaking very extensive measures to ensure the safety of the students and staff as well as to prevent interruptions to education activities," said Stalco Vice President Joseph M. Serpe.

On school days, all noisy and disruptive work takes place only after 3:00 pm. The entire construction site is extensively fenced and protected. The security personnel patrol the site 24/7 and access to both the school and the construction area is very closely controlled. All crews and team members, including the architects, are required to wear ID badges at all times and are not allowed to enter the

school without prior notification to the school's management. Smoking is banned on the school property.

In the initial phase of the project, Stalco is undertaking the ground-up construction of the new addition, including the auger piles. The construction process for the piles calls for grout corks to be installed at the bottom of each auger-drilled, 60-foot-deep hole. Corks are attached to the augers prior to the beginning of the drilling of each hole. Once the auger reaches the desired depth, a #10 rebar is inserted through the auger's central tube in order to disconnect the cork from the auger and provide reinforcement for the entire pile. Following installation of the corks and central rebars, the crews pump in a 5,000psi compressive strength grout mix to create 12-inch diameter piles. With the grout in place, the crews drop re-bar cages 30 feet deep into the piles, installing them around the central rebars. The rebar cages will later provide lateral force resistance on the grade level by ensuring rigid connections between the addition's structure and the piles below. The cages, fabricated onsite, consist of four vertical #4 rebars and approximately 40 horizontal perimeter stirrups spaced at eight-inch intervals throughout the entire length of the cage.

"The proximity of the addition's site to Reynolds Channel requires the crews to continuously dewater the excavated areas," explained Stalco Superintendent Christopher Caulfield. "In order to address this obstacle, we divided the site into smaller areas within which the water level is easier to control. The excavation and construction of piles proceeds in stages, which encompass sections of approximately 30 by 30 feet. Once construction of piles and caps in each section is completed, the area is refilled with soil and the work begins in the next section."

The addition's second and third floors will house regular and special education classrooms, media and audio-visual facilities and offices. Parking spaces will occupy the first floor. The addition's facade will feature colored architectural cement board panels as a rain screen and high efficiency curtain wall and windows with anodized aluminum frames. On the building's roof, the crews will install the EPDM (ethylene propylene diene monomer) membrane.

In the following phase, Stalco will replace the deteriorated three-foot-wide concrete outriggers with sunshade panels installed on the south and east sides of the existing high school. The renovations will involve cutting 14 inches off the existing outriggers, repairing the remaining concrete, and anchoring new steel supports in the repaired concrete outriggers. New, clear anodized aluminum shade panels will rest on the steel supports. The color and look of the sunshade aluminum will match the color of the new window frames for architectural consistency. The sunshades, custom manufactured by Atoms Architectural Products, will feature extruded aluminum, airfoil-shaped blades with bullnose fascias. In total, Stalco will install in excess of 1,400 linear feet of new sunshades.

The two buildings will be connected through expansion joints on the second, third and roof levels. Concrete sunshade outriggers on the west side of the existing building, adjacent to the addition, will be removed prior to the construction of the new structure. The crews will install new steel framing anchored in the concrete wall of the original building's second and third floors. The framing will support new concrete slabs, protruding out by two feet and eight inches. The concrete protrusions will allow seamless internal connections between the two buildings.

Once the addition is completed, a number of classrooms and offices will be relocated from the original building and the crews will begin interior renovations inside the old high school. The work will be phased in order to allow the school to continue its educational programs despite the on-going construction activities.

The renovations and functional re-programming to the existing school will include the conversion of the math department facilities and classrooms into chemistry classrooms; renovations to the special education rooms; and conversion of the 12 existing general science rooms into four biology, four earth science, and four physics classrooms.

Stalco will also refit the administrative, guidance counselor's and nurse's offices within the existing structure. The work will encompass a complete renovation the entire administrative section that will result in a significant improvement of the school staff's working environment. Despite being located near the building's core, the new offices will provide daylight access throughout the entire space. This will be achieved through installation of glazed corridor and divider walls. Occupancy sensors will control the lighting in the office area.

The science rooms will feature custom-fabricated millwork cabinetry and lab stations with epoxy tops, data connections and water, power, gas and dedicated chemical waste lines. The waste lines will terminate in a new acid waste tank filled with limestone chips. The administrative area will feature pre-manufactured cabinetry and furniture systems.

In the upcoming phases of the project, Stalco will demolish a freestanding former pre-K building, which originally served as army barracks. Once the structure is demolished, Stalco will proceed with construction of the sports facilities, including six professional grade tennis courts and a full-size football field. The field will feature the FieldTurf synthetic sport surface and new, 50-yard-wide, 30-foot-deep spectator bleachers. The bleachers' structure will consist of micro piles and reinforced concrete columns.

To ensure the uninterrupted operations of the school and safety of the students during renovations inside the existing building, Stalco will institute strict safety measures. These will encompass demolition and other noisy activities performed only after 3pm, erection of extensive dust barriers and temporary walls, extensive dust control measures such as protection of air ducts, and strict access control procedures.

Stalco will also perform site work that will include extensive landscaping and new sewer and water utility connections.

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 2011, Building Design & Construction magazine ranked Stalco as the 75th largest general contractor in the United States. ENR New York magazine ranks Stalco as the 22nd 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 exceeds \$90 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, LEED Platinum-targeted Battery Park City Community Center and the \$15-million restoration of the landmark Pier A, which aims at LEED Silver certification, both in Manhattan; the \$24 million exterior renovation and sound abatement program at the Vaughn College of Aeronautics and Technology in Queens, NY; the \$19 million, 30,000 square-foot new Elmhurst Community Library in Queens, NY, which targets LEED Silver rating; the \$5.2-million Emergency Department expansion and renovation at the Lincoln Medical and Mental Health Center in the Bronx; 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 landmark Erasmus Hall High School in Brooklyn, NY; the on-call Construction Management contract for the 778,000 square foot CA, Inc. Global Headquarters in Islandia, NY; the \$1.2 million Dental Hygiene Laboratory and Knapp Hall at SUNY College in Farmingdale, NY; the \$30 million expansion and renovation program for the Three Village Central School District in Suffolk County; The \$2.5 million Hicksville Fire Department Station 2 in Hicksville, NY; and the \$2.7 million Holy Sepulchre Cemetery Administrative Building in Coram, NY.

CSArch

CSArch, formerly known as Collins + Scoville Architects, has been active in the design and construction industry since 1991. The firm is recognized as one of the leading school district architects in New York State, bringing outstanding results to both new construction and renovation projects. Headquartered in downtown Albany, NY, with offices in Newburgh, Malone, and Melville, NY, CSArch services clients throughout the state as architect, MEP engineer, sustainable designer and construction manager.

By offering architectural design and construction management services under the same roof, CSArch has the ability to take public projects seamlessly from concept to construction completion. This approach distinguishes the company from other professional service firms and earns it high marks from the many clients who appreciate this extremely effective model of project delivery.

As architects, engineers and construction managers, the company plays a pivotal role, not only in the future of buildings, but also in the lives of the people who use them. Ultimately, the CSArch team's collaboration with clients results in places where children, teachers and communities can learn, grow and thrive.

Savin Engineers, P.C.

Savin Engineers, P.C. began serving clients in the NY/NJ/CT Tri-state area in 1988 and today operates nationwide and internationally. The firm provides environmental engineering, construction management and planning services in the public, commercial and private markets that include educational facilities, airports, roads, bridges, tunnels, railways, harbors, water and water wastewater systems and landfills. Savin also provides circuit television, flow metering, and physical conditions assessments of collections systems, with clients including the cities of New York, Boston, Philadelphia, Syracuse and Baltimore.

Savin Engineers is a recognized leader in the sectors it serves. Consistently ranked in the top 100 construction firms in Engineering News Record's annual poll, Savin's offices in Pleasantville, NY, Hauppauge, NY, Syracuse, NY, Jericho, NY, Rochester, NY, Bridgewater, NJ, Hartford CT, and Baltimore, MD continue to meet and exceed the needs of governmental and commercial clients.

Ryan-Biggs Associates

Ryan-Biggs Associates is a consulting firm specializing in structural engineering services. Headquartered in Clifton Park, NY, the firm was founded in New York's Capital Region in 1973, and added an office in Skaneateles, NY in 2000.

For nearly four decades, Ryan-Biggs has been providing structural engineering services to public and private owners, engineers, architects, and developers. The firm offers a broad range of services organized into eight core areas: structural building design; renovations; investigations, studies and reports; historic preservation and masonry restoration; bridges; contractor support services; nondestructive testing; and special inspections

The Chazen Companies

Founded in 1947, The Chazen Companies is a mid-size, multi-specialty engineering firm active in New York State and throughout the Northeast. The firm is headquartered in Troy, NY and maintains two branch offices in Poughkeepsie, NY and Glens Falls, NY.

Chazen's services comprise civil, structural, transportation and geotechnical engineering; land surveying; planning; environmental consulting; infrastructure management; landscape architecture; and construction inspection services. The firm's clients include municipalities, governmental agencies, commercial developers, private institutions and industries, and preservationists.

New York Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540