

Vanguard Classical School K-12

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CATEGORY 3: Meeting the Challenge of a Difficult Job – General Contractor

Overview Statement:

Every place has a story. By looking at Vanguard Classical School's East Campus today, one would never know the structure was formally an industrial building manufacturing hats. With extensive work, the adapted building is now a healthy and modern k-12 school. The transformation required rezoning the site and facing design and construction challenges that come from making a manufacturing building into an educational facility.

The project began with the school's dream of expanding their enrollment capacity and to be able to offer high school – before the East Campus opened, the school only provided education up to 8th grade. Unfortunately, their limited budget and difficulty finding property in a desired location made building a second brand new school unattainable.

The design-build team H+L Architecture and Adolfson & Peterson Construction (A&P) provided cost solutions and feasible design and construction services to transform an existing building instead of building a ground-up school.

The chosen 115,000-sf structure was structurally unsound and leaning with walls beyond repair. The 2-story building was plagued with mold, asbestos, leaking walls, and without as-built drawings. From needing to expand areas to meet code, fitting in an elevator for ADA requirements, and changing the roof structure due to the change in occupancy, converting an industrial site to a school-zone required more work than just permitting and municipal coordination. With a massive delay in the project of obtaining the property and stormwater permits, the project's schedule was condensed from 8 months down to 5.

The team was able to maintain their commitment and finished the project on-time for students to arrive for the school year.

Why This Project Should Win an ACE Award:

- A skilled team in both the educational and industrial markets was needed to take on this project and overcome numerous challenges.
- This project acts as a showcase example of using out-of-the-box thinking to meet a condensed schedule, a project budget, and the client's goals.
- The completed school is an example for the community of how buildings can be transformed.

Solutions of Special Problems:

The expected challenges with an adaptive reuse project became tenfold with owner delays of purchasing the property and a slow city permitting process.

The building was leaning because of soil piled next to the structure but the team could not relieve the dirt until final city approval. The ground issues caused ground shifting so the roof could not be finished. In addition, opinionated stakeholders decided to relocate groundhogs on the site, which added to the delays in starting construction. After these delays, the originally planned 8-month schedule was down to 5.

Mold, asbestos, leaking walls, rotted-out studs, and unsalvageable walls left one third of the length of the building open after selected demolition. Simultaneous construction was performed for this exterior side and the interior renovation side. Six weeks before the school was opening, the interiors were finished on one side while the other side was still open.

There were major structural concrete slab issues that had to be solved to fit an elevator into the building, add new stairs, and create a new site entry for a drop-off wing. The change in occupancy required a structural change for roof snow loads. Adding to the level of challenges, the need to re-pipe plumbing since the roof drain overflow was found to be tied back into the main building.

Excellence in project execution and management/team approach:

The team exceeded expectations and achieved extraordinary results by embracing the advantages of the design-build method delivery and committing to the schedule. Key subcontractors were chosen early and based on a best-value basis decision. Their specialized capabilities and experience to provide quality services while adhering to the advanced schedule was a key differentiator built on trust.

Pull-planning and lean construction methods were used to establish key milestone dates, which kept the project on schedule. The team's leadership toward adversity and the ability to be flexible and creative led to readjusting the sequence of work to save time where needed. H+L was able to turn in city review drawings in under 2 months, a normal 6-month process, because of the team's full understanding of the project and collaboration.

From day one, identifying streamlining strategies for both design and construction activities, the team's collaborative approach is seen in the elements of quality throughout the school. In areas such as the kitchen that was formally a distribution area in the warehouse, the ground slope was significant – almost a 2-foot drop from one side to another. However, evidence of walking the school and seeing the finishes, the hard work of addressing an unlevelled facility with not plumb components isn't experienced.

Construction innovations/state-of-the-art advancement:

The team elevated industry standards by working hard even when the project was on hold. During the waiting prior to construction starting, the team developed prefabricated exterior walls and bathroom pods offsite so in a matter of four days, the offsite work was trucked in and installed. This allowed for a lean installation process, saving time, money, and site congestion during a narrow construction window.

Because of needing to relieve the ground and the sloping site, the team used an innovative technique of moveable studs that could shift up to 6 inches and be locked in with only 6 weeks left in the project.

Both of these solutions supported the schedule challenges without losing quality.

The team 3D scanned the building to create accurate documentation for planning since there weren't any record drawings on the warehouse, which allowed planning ductwork, interior components, and the prefabricated work.

Environmental/Safety:

Project safety was a top priority and as a result there were no safety incidences. All on-site employees were required to have OSHA certification and first aid/CPR training. A site-specific safety plan and a job-hazard analysis were developed in addition to A&P's routine safety protocols and rules. Specific to this project, special safety training addressed:

- Congested site and street coordination: A separate major construction zone was underway across the street and businesses next to both sites were staying open. This led to busy and congested areas where deliveries and parking required safety coordination and planning. With a construction site filled with numerous working personnel, vehicles and equipment, tight and congested spaces become a safety and logistical concern.
- Asbestos abatement
- Safe Demolition Practices
- EPA guidelines for hazardous material remediation
- Occupied renovation safety practices during phase II: once the school was open, the work had to be positively separated from students, staff and the public. During this time, noise control and dust control were also a priority.

Excellence in client service and/or contribution to community:

This project represents to other schools and the construction industry that adaptive reuse buildings can be an economical solution instead of ground-up work.

Being client-focused, the team stretched the owner's budget to add scope and value, such as using a higher acoustically-rated ceiling that saved the client \$80k. The client was then able to use the funds to replace their entry storefront windows.

The project brought to the community a redesigned area more fitting to the location. The site is surrounded by apartments and small commercial shops, but was originally zoned as industrial. The school and rezoned site is now more appropriate with the surroundings.

The finished school was designed with efficient and sustainable functionality. The team conducted a “Choosing by Advantages” session with the owner and users to prioritize systems that will be the most functional to the owner despite costs. From this, a heat-pump system was chosen even though it isn’t a typical system, because it is quiet, requires limited maintenance, and would maintain the existing ceiling heights of the school – all of which were priorities to the client. The team engaged Xcel Energy’s Design Assistance Program and was able to qualify the client for 2 rebates saving \$117k through energy-saving incentives.

The design is based on student-centered experiences and includes a series of flex-use spaces designed to accommodate external events for community use. The building is wired for technology and classrooms feature Mimio-Boards, which are sensor-activated smart boards. Daylighting was incorporated to allow external light to penetrate deep into the building.

By incorporating school zone ceiling tile with a higher NRC rating for sound transmission, corridor non-bearing walls remained open at the top for mechanical systems. This component decreased the cost of the original scope of work by 32% in reduced time and materials. This equated to the owner a savings of more than \$100k.

Most importantly, the project met the needs of the client by providing them with a new school, within their budget, to address their growing enrollment. Instead of having their 8th grade students pushed to a new school for high school, Vanguard Classical Schools can continue their services and programs through high school. The overall design is developed with the future in mind by planned zones for facility expansion, such as steel-framed classrooms that allow for easy expansion and adaptability, to accommodate the school’s growth over future decades.









