



Project Team

Owner Profile

The owner of the New Science Facility is Episcopal High School. Episcopal is a very prestigious private college preparatory school. Episcopal was founded in 1839 and is the oldest high school in Virginia. Many of the countries most respected and well known leaders throughout history have attended Episcopal. The primary source of funding for the school is wealthy alumni and charitable donations.

Episcopal has grown considerably over the years to include over 420 students many of whom reside on campus. The increased enrolment necessitates the need for expansion. To attract new students Episcopal must keep up with the changing times and advancements in science and research facilities. The emergence of a strong science program strengthens Episcopal's position as one of the finest boarding schools in the nation and enhances students' academic experience

Due to the private funding of all buildings on campus Episcopal must follow a strict budget which is the driving force in this project. The initial estimate for the project came in close to \$500,000 over budget. Many value engineering ideas have since been explored and implemented to get the project under budget.

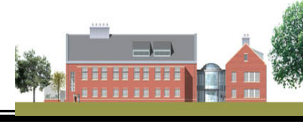
Construction of this project spans during the entire 2004-2005 school year. The safety of the kids and inconvenience to staff as well as wealthy alumni all play major roles in the planning of this project. Proper signage directing students and visitors safely around campus is critical. The appeal of the campus is critical to attracting new students to the high school, thus appearance of the site becomes a primary concern to the owner. One example is the demand that all construction trucks use the side entrance to the campus off of West Braddock Road and not the main entrance off North Quaker Lane. Discrete egress routes for construction vehicles as well as protection of the exiting roads and curbs from damage will be necessary considerations for this project. The schedule is also very critical to the owner. The scheduled completion date for this building is August 30, 2005. This is just in time for the beginning of the new school year. It is crucial to the owner that the building be operational in time for the school year.

Perhaps the most challenging requirement to meet the owner's requirements is the LEED rating and sustainability requirements for this project. This project is designed for a silver LEED rating and contains many sustainability features. LEED buildings bring many new challenges to a GC such as disposal of waste, erosion control and stringent material requirements.

Contracts

Contracts held between Owner and GC

The GMP contract held between the owner and the GC, as indicated in Figure 1, is currently being negotiated and has not yet been signed due to redesign of specific systems. The terms of the contract therefore can not be disclosed at this time; however, the draft being considered is based on the standard AIA Document A201. According to the senior project manager who is currently negotiating the GMP with the owner there are several unique terms being incorporated into this project.



First is there is a shared savings clause with the owner. Any savings to the GMP are shared 75-25 for the owner and contractor respectively. Secondly, there is a liquidated damages clause of \$500/day for late completion. Third, is the dominant role of the owner's CM agency (APM) defined by the contract. Lastly, is the unique LEED requirement of the contractor to ensure that the proper documentation is filed to provide a certified building.

Contracts held between GC and Subcontractors

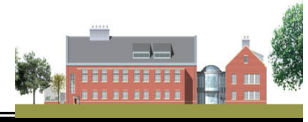
Contracts held between the GC and the subcontractors are Lump Sum contracts, as indicated in the chart above. This is due to the requirement in the contract with the owner that the design must be 100% complete before the bid process can begin. A subcontractor is selected based on the lowest bid number given to the contractor as well as their reputation for work with that owner. If a contractor has the lowest number they may not get the contract since they must be approved by the owner as well as the Vice President of the GC. The subcontractors are required to furnish payment and performance bonds by a surety acceptable by Forrester Construction. Forrester also reserves the right to issue change orders with out prior notice to the subcontractor's bonding company. If a dispute or discrepancy arises Forrester shall be notified immediately in writing and the most stringent requirements shall apply. Payment requisition for partial work must be in by the 25th day of each month. Payment to the subcontractor occurs only with payment to the contractor by the owner as a precedent. Full payment will be made to the subcontractor for complete scope of work will be made within 30 days of full approval of the owner. The subcontractor will provide at least one person with at least 10 years experience. The foreman is required to complete weekly safety meetings and submit a copy of the minutes with attendance records. All employees are required to wear hard hats and eye protection on site at all times. Insurance requirements for the subcontractor are as follows: Comprehensive General Liability, Workers Compensation, Auto Liability, Excess Umbrella (\$1 million).

Bonds and Insurance Required

The contract with the GC has with the owner requires the GC to have all of the following insurance and bonds:

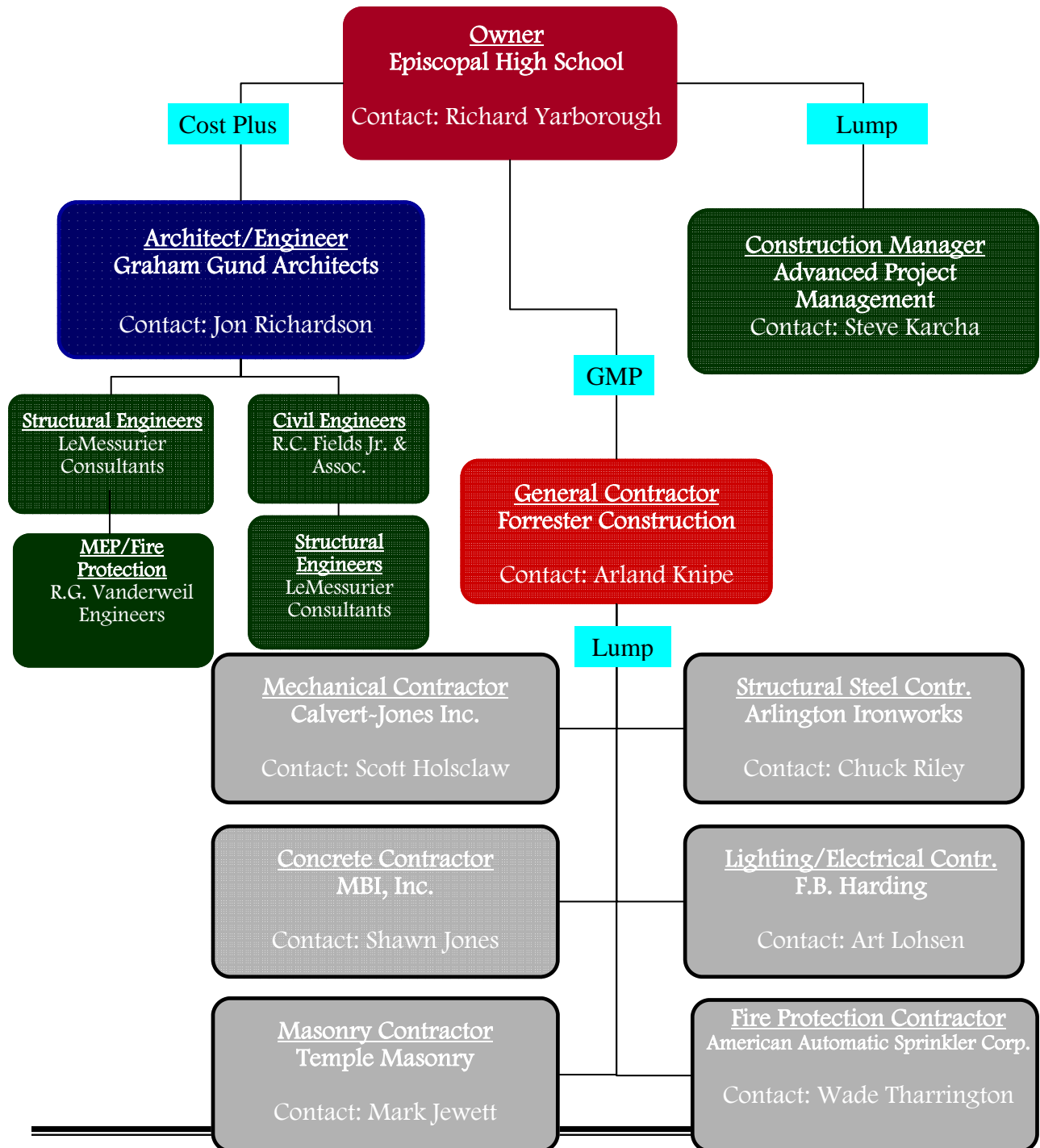
- Workers Compensation: Provide compensation to the maximum statutory limits in accordance with State requirements
- General Compensation:
 - Bodily Injury (\$5 million)
 - Property Damage (\$5 million)
 - Personal Injury with employment exclusion deleted
- Umbrella Excess Liability: \$5 million over original insurance

- Automobile : condensed single limit of \$1 million
 - Bodily injury
 - Property Damage



Forrester was not required to provide either a payment and performance bond or builder's risk insurance. The firm's reputation alleviated the owner's feelings for requiring this bond, and the owner is paying for the builder's risk insurance.

Figure 2: Project Organizational Chart





Existing Conditions

Existing Site/Soil Conditions

The site for the New Science Facility is located on the south eastern portion of Episcopal High School's 130 acre campus. The site is an undeveloped relatively flat grass field formally used for sports and recreation. It is located directly next to a brand new state-of-the-art composite track on the west side of the building and an existing gymnasium on the north end of the site. The soil on site is largely compacted clays with small deposits of silty-sands and limestone rock. The topsoil depth ranged from 4" to 8" below the existing surface.

Local Market Conditions

Episcopal High School is located in Alexandria, VA on the corner of North Quaker Lane and West Braddock Rd. The private campus isolates the site from any traffic or hazards of trespassers; however, construction will be going on during school and consideration of the students and their safety is of the highest priority.

Alexandria, VA is located directly across the Potomac River from Washington, D.C. and is only a 10 minute drive to the city center. The Washington D.C. market is an extremely large and prosperous market; however, at the moment labor is very hard to find. There are an extraordinary amount of projects under construction in the area and a full competent work force is very hard to find.



Figure 3: Aerial view of Episcopal High School

Virginia is a "Right to Work" state; therefore no union labor is required on this job. Subcontractors are over booked, and it is highly important both when scheduling and estimating to consider this. Scheduling must be done many months in advance in many cases and contractors are largely at the mercy of the subs when it comes to cost due to the high demand for work.

It is also important to consider the material costs of the area. Due to the world market right now steel is excessively expensive which highly affects this project due to its steel frame. This is one of the reasons fiber reinforcement was chosen in lieu of rebar for the slab on grade. The D.C. area is largely a concrete construction market and concrete is able to purchased quickly and cheaply.

Existing Site Plan

The site plan provided in Appendix A displays the site conditions as they exist before construction is to begin. As shown in the plan the site is not much larger than the building footprint. This will require careful coordination between the trades to ensure that a productive and safe environment is maintained throughout the duration of the project.