
AEI Team
#04-2013

February 22, 2013
**Innovative Construction
Management and
Construction Methods**



Team 04-2013



Our one true aim is to enhance the quality of the communities we work with through innovative ideas and an integrated design approach.

Ingenuity | Quality | Enjoyment | Integrity

Executive Summary

Our construction management team is excited to provide skills and expertise for the construction of the new Reading Elementary School. With our services, the Reading School District will experience an innovative construction experience which is both within budget and meets the schedule required by the Reading School District. Our preconstruction team has collaborated with the school's design specialists to ensure a high quality product. Planning and coordination has been broken into five main sections in this report. Below is a summary of construction measures and planning executed to guarantee a successful project.

Section I: Project Delivery – The state of Pennsylvania requires a CM Agency with Multiple Prime delivery method. A Design-Assist approach is being utilized to encourage collaboration between design professionals and CM/Contractor.

Section II: Building Information Modeling (BIM) - BIM will provide savings in both cost and schedule, and instill the owner with confidence in our team's dedication and ability to deliver a successful project. Revit has been used to create a virtual model. Clash detections were performed to discover building system interferences before construction begins, providing cost savings on wasted materials and maximizing field productivity. A 4D model was created to better understand construction sequencing and scheduling effects. A structural model was developed, making steel estimates detailed and accurate. Virtual mock-ups were created for constructability and architectural review, eliminating substantial costs, time and resources associated with the construction of an infield mockup.

Section III: Innovative Engineered Systems – Multiple innovative building systems were incorporated to create a high-performance product. Prefabricated insulated panels provide a high performance enclosure system, saving on construction costs and schedule. A Rammed Aggregate Pier foundation system will provide 20% cost savings, as well as schedule savings and greater bearing capacity. A light-weight green roof system will minimize storm water runoff and heat island effect, while also providing an integrative learning experience for students. A basement footprint modification is proposed to mitigate cost and performance issues associated with the original complex footprint. LEED Silver Certification will be achieved at minimal additional cost, largely in part to the multiple innovative engineered systems.

Section IV: Site Logistics, Phasing and Planning - Site logistics and phasing plans have been developed to guarantee worker safety and an efficient, effective, fast-paced schedule. Three dimensional logistics and phasing plans were created to aid and better communicate these developments. A crane location and associated pick visual was created to ensure efficient use of the crane during precast panel erection. A proactive commissioning plan was developed to save the owner long term operating costs.

Section V: Natatorium/Clinic Addition – The community pool, 24-hour clinic and administrative space requested by AEI have been proposed as an Add Alternate to the project. This work would include full demolition of part of the existing school for a community natatorium and interior demolition of the remainder of the building for the clinic and administrative space. Construction would commence June 2, 2014, with Substantial Completion September 5, 2014.

With this vast collection of innovative construction ideas and engineered systems, the Reading School District can expect a high performance building delivered within a \$19,000,000 budget and an aggressive yet confident schedule of 16 months for the Reading Elementary School new construction and renovation of the existing elementary school. Following is a more detailed breakdown of the five sections described above.