

Executive Summary

The systems chosen for the Reading Elementary School were analyzed for constructability, initial cost and life cycle cost by the construction team. Below are some features and findings of the systems and areas which are explained in detail throughout this report.

Site Analysis

The building site was analyzed for asbestos, lead soil and sinkhole possibilities.

Building Enclosure

In order to have an efficient schedule, utilizing a precast exterior wall system was chosen to enclose the building quickly. This lets interior work start sooner and speeds up the overall project schedule while maximizing quality. Air leakage savings of approximately \$2,500 per year cause a 10 year payback of additional initial costs.

Pool Area

By putting the pool and related facilities underneath the gym area, the project team was able to save \$510,825 compared to creating a separate building, while integrating the space into the elementary school and creating a community garden for Reading to enjoy.

Classroom Spaces

Using a radiant floor and ceiling system with 100% outside air maximizes indoor air quality for students and faculty. This system draws a \$22,000 in yearly savings to mitigate its higher initial cost; giving a payback period under 7 years. Quality control was essential to the planning construction of this system.

Energy Source

The project team has decided to utilize natural gas cogeneration of electricity to keep the elementary school's energy costs minimal. A major cost analysis was performed to ensure that using this system would save energy and be cost efficient over its life cycle. Using this system boasts \$56,125 in energy savings and payback period under 3.5 years.

Construction Means and Methods

The logistics plan utilizes space efficiently and phasing led to choosing a single-direction flow of work throughout construction. Safety and sustainable construction practices and system had effect on the construction team as well.

Schedule and Cost

The Reading Elementary School project has been determined to take 14 months to complete and will cost \$203.15 per square foot for a total cost of \$21,344,312.

Community Involvement

The project team is committed to improving the Reading community through the implementation of educational programs for students and the public. A belief of giving back has spurred the team to commit themselves to 200 hours of service to Reading. During the project, members of the construction team plan to teach classes at the local schools, and sponsor trade school scholarship for high school students and community members. Service will be done on the first Friday and Saturday of every month.