

EXECUTIVE SUMMARY

This Final Report is intended to discuss the three analyses that were conducted for the final on the Paint Branch High School project. The three topics will include studies in Critical Issues Research, Constructability, Value Engineering, and Schedule Reduction. Along with the three analyses, two breadth analyses will be conducted in areas of structural and mechanical research.

Technical Analysis #1: LEED Certification

The new Paint Branch High School is said to be the latest state of the art facility for Montgomery County Public Schools (MCPS). The facility is currently pursuing a LEED Gold Certification. However, after reviewing the current LEED scorecard, the facility has the potential to attain a LEED Platinum Certification. After assessing the credits necessary to attain a LEED Platinum Certification, a cost analysis was conducted resulting in a **\$968,859** increase to the overall total project cost.

Technical Analysis #2: Brick Façade

The new facility will consume a mass amount of face brick for its façade. With a 350,000 square foot facility, there will be a lot of manpower and time required to manually lay the face brick. This analysis evaluated an alternative prefabricated brick panel system in order to eliminate site congestion and reduce manpower and schedule. With the use of a prefabricated masonry panel system, the total project cost would increase by **\$4,591,404**. This dollar value includes the cost of the alternative gypsum board finish calculated in the Mechanical Breadth. However, this system will save the project six months in schedule and eliminate site congestion. This analysis also contributed to the Mechanical Breadth showing a total savings of **\$16,016** a year in energy costs with the use of the prefabricated masonry panel system. The prefabricated system is also a lighter system compared to the originally designed façade, showing a possibility in reducing the member sizes of the structural system.

Technical Analysis #3: BIM Coordination