

Executive Summary

The following proposal serves as an outline for the research and analyses that I plan to conduct during the spring of 2010. The three analyses described below are a result of complications identified during the design and construction of the New Moon Area High School and District Administration Offices.

Analysis 1: BIM Planning with Multiple Primes

The first analysis deals with the use and coordination of a Building Information Model. As a critical industry issue, the use of BIM can be very beneficial if properly executed. Research for this analysis will include the development of a strategy for the implementation of several BIM uses through a multiple prime contract scenario. This research will be completed with the guidance of the recently developed BIM Project Execution Planning Guide from the CIC Research Group at Penn State along with input from industry members.

Analysis 2: Concrete Foundation Wall Bracing Design (Structural Breadth)

As a result of the buildings split-level design there is a foundation wall that separates the ground floor of Areas C&E from the soil under the first floor. The installation requirements of the wall have forced the building to be constructed in a way that delays the overall progress of the building structure. The goal of this analysis is to design an alternate foundation or bracing system for this area of the building that will help to accelerate the schedule and result in a more efficient construction sequence.

Analysis 3: Architectural Precast vs. Traditional Brick Veneer (Building Envelope Breadth/M.A.E Study)

The final analysis requires investigation into the use of a precast building façade to replace the current cavity wall design. Since the design of the New Moon Area High School incorporates the use of a large amount of structural masonry and exterior brick the schedule relies heavily upon the ability of the masonry contractor to stay on schedule. Unfortunately, changes in the construction sequence delayed the installation of the exterior brick. The use of a precast wall system will eliminate the dependence on the masonry contractor and should also improve the overall construction schedule. This analysis will incorporate information gathered from AE 542: *Building Enclosure Science and Design*, to determine if the new design meets the standards of the initial design.