



A. EXECUTIVE SUMMARY

The problem identification assignment identifies several areas for future analysis as part of my senior thesis project. These areas include value engineering analysis, constructability review, and schedule reduction / acceleration. Many of the value engineering items relate to the choice and/or use building materials. The items associated with the constructability review relate mostly to the problems associated with the building enclosure being constructed during the winter months in State College, PA. Because *Medlar Field at Lubrano Park* is a sport facility and the construction schedule for these types of projects are often very short, my schedule reduction focuses on the problems occurred during MEP system design and release of MEP drawings for bid.



PROBLEM IDENTIFICATION

Value Engineering

- EIFS vs. Brick Façade
- Playing field surface (proprietary vs. typical) – drainage overkill for this site
- Process rock for fill material
- Steel Procurement Act – US vs. competitive rest of world
- Metal Railings vs. Plastic Railings
- Alternate for brick pavers in the landscaping area
- SF allowance for finishes vs. design intent
- Tapered light & scoreboard columns - 200+ lbs/ft could be less than 100 lbs/ft
- Landscaping Quantity - minimize, but meet township & university requirements; caliber removed vs. replanted
- Field lighting system – 2 column versus 3 column along with lighting system
- Raise/Lower building – raise 1' or 2' to minimize rock excavation, trenching, processing, etc

Constructability Review

- EIFS façade construction occurring during winter months.
- Time of year for major building construction.
- Building Placement on site (cut/fill)
 - Raise Building 1'-0"
- Adhered roof construction in winter
- Structural system – L/B masonry versus structural steel; cost of steel versus cost of time
- Structural review – tube versus structural shapes
- Camber of steel members – remove or reduce
- Factor of safety of steel members (liability)
- Probing of foundation system versus geotechnical exploration and actual design
- Adequate geotechnical report in lieu of only boring log
- Personnel – strengths/weaknesses of project team during preconstruction

Schedule Reduction

- MEP system design did not reflect dates proposed by the construction manager.
 - Design team did not release an underground package and a above ground package.
- Type of Contract (DB versus GMP versus Hard Bid)
- Bidding/Purchasing
- Execution into construction

Construction Research Topic

Please see section B and C of Technical Assignment #3.