

Executive Summary

The following is a comprehensive analysis for the George Mason University Student Union Building I, located on the Fairfax, VA campus. There are four main Technical Analysis Issues with a construction management emphasis in each topic. Also included in this analysis are Project Background Information, Client Information, Architecture, Site Information, and Structural Information. This analysis will consist of a general theme focusing on the students/general public.

Critical Industry Issue – BIM in Design-Build/IPD

For the first analysis, an investigation will be conducted on the impending impacts of building information modeling. Research will be done through various interviews and case studies. Another topic that will be assessed in this segment will be Integrated Project Delivery. This section will also address the topic of the tight site conditions that are experienced on the GMU SUB I project through recommendations specifically for BIM Execution Plan.

In-Depth Safety Plan

As a construction manager it is imperative to provide a safe, accident-free, and healthy work environment for everyone. Due to the difficult site condition and occupied facilities surrounding the SUB I project, developing in-depth site specific safety plan will be very beneficial to both the project team and the university. The safety plan will address risks and hazards associated with the project site. This section will include a Site Specific Safety Plan Rubric section (includes Reasons for Further Development) and a Site Specific Safety Plan proposed additions section.

Electrical Breadth – Emergency Power Analysis

The Existing Student Union Building that will connect to the SUB I project has a Student Health and Wellness Center located on the third floor. Electrical shutdowns to this building were a critical issue expressed in the interview with the project management team. Health care facilities are highly dependent on reliable sources of electrical power. Based on the mechanical breadth topic criteria, a load design analysis of the current emergency power generator will be conducted. This section will also include a Contingency Plan Rubric section (includes Reasons for Further Development) and a Contingency Plan proposed additions section.

Structural Breadth –Building Envelope Analysis

During the project management interview conducted with Greg Ramirez of Hess Construction + Engineering Services, value engineering (VE) had been considered on the GMU SUB I project. One of the first VE items considered was the addition of metal panels. Through value engineering, the amount of brick was reduced to make way for more metal panels. This analysis will consider three options for the SUB I project, Metal-Faced Composite Panels, Pre-Cast Architectural Panels, Aluminum Storefront System. The results show an additional cost of \$15,579.94 with a schedule reduction of one day. The reason for the addition is because of a survey given to students comparing the aforementioned building envelopes.