Executive Summary

The following report is a technical analysis of the existing design for the Buffalo State College New Science Building Phase 1 addition. It consists of a focus on lighting and electrical redesign of four spaces, as well as detailed studies for a motor controller center design and electrical distribution system analysis through SKM software. In addition to satisfying the AE requirements for the option depths, associated areas or breadths have been studied with regards to daylighting (MAE), mechanical systems, acoustical performance, and LED luminaire performance.

Specifically, daylighting and mechanical systems were both addressed in the analysis of an open loop switching system for the atrium corridor lighting. Initial studies indicate proper daylight and electric light integration can reduce energy consumption associated with atrium lighting without having dramatic effects on the thermal loads within the space. The acoustical study is also situated in the atrium, to ensure the large volume and hard surfaces within the space do not detract from its purpose and evaluate an alternative flooring material.