

# SENIOR THESIS FINAL REPORT

## SANTA ROSA JUNIOR COLLEGE STUDENT CENTER

### Executive Summary

This Final Report is the result of in depth analyses that were identified in the Fall of 2009 and have been conducted throughout the Spring 2010 semester. The subject of these analyses is the newly constructed, Santa Rosa Junior College, Bertolini Student Center located in Santa Rosa, CA. The student center is the most recent of an ongoing series of new buildings that have replaced outdated structures on the junior college campus in order to provide the best possible opportunities to students and faculty.

This final report includes four major analyses and two short “breadth” analyses. The first is takes a look at a critical industry issue, while the three following took to find ways to reduce the overall cost and schedule of the student center project. The critical industry issue looks at the growing popularity of renewable energy systems and how to implement such a system into the Student Center. This analysis is also supported by two “breadth” analyses which take a brief look into architectural and electrical features of the building.

The three technical analyses are aimed at finding ways to decrease the overall cost and schedule of the project. The first looks into the implementation of field welding instead of prefabricated shop welding. This study will look to decrease the schedule through quicker installation time and less rework and to decrease the cost through cheaper labor. The second analysis will look into alternative steel erection methods, particularly multiple cranes instead of the single crane used on the project. This study will aim to decrease the schedule through elimination of delays and to decrease the cost through having the cranes on site for a shorter period of time. The final analysis will focus on the prefabrication of precast concrete panels and will attempt to counter the delays and rework that occurred with the implementation of a design consultant who would be involved from the very beginning design phase. This study will aim to eliminate critical path delays and also costs associated with rework.

The main focus of the analyses above is construction management; however, the architectural and electrical breadth studies will take a look outside of construction management and be carried out in an attempt to provide the best solution for the student center project.