



Peter Pan Peanut Butter
Sylvester, Georgia Processing Plant



Table of Contents

Executive Summary.....	2
Structural System Analysis (Breadth).....	3
Mechanical System Life-cycle Analysis (Breadth).....	5
Critical Industry Topic: Workforce Development	6
Weight Matrix	8

Executive Summary

This report is an outline of the research and procedures that I plan on taking to complete my thesis in the spring. Outlined are three industry topics, two that related specifically to my project and another that has ties to my project but goes into detail pertaining workforce development. The first technical issue will focus on the redesign of the structural system. The second will focus on the mechanical life-cycle analysis. Finally the third, workforce development will focus on the lack of unskilled labor and the lack of youth moving in to the industry today.

Breadth 1: Structural System Analysis

This Breadth study will include technical research on replacing a designed brace system with a system that carries the entire load without the use of the braces. I will analyze load calculations, cost information, and schedule impacts with this breadth.

Breadth 2: Mechanical System Life-cycle Analysis

The technical research involved with this breadth will include finding alternative solutions for a more efficient mechanical system. I will do this by using requirements to select more efficient mechanical equipment, evaluate alternative fuel sources, do a life-cycle analysis of the two systems, and review feasibility due to schedule impacts and higher first costs.

Critical Industry Issue: Workforce Development

This research will include why there is such a lack of skilled workers in the construction industry and why young people are not considering work in the construction labor industry. I hope to find answers that could lead to increased productivity and lower construction costs.

Structural System Analysis (Breadth)

The goal of this analysis is to change the current structural system, a system of metal building frames and structural braces, to one system consisting of only heavily reinforced frames. The building is a metal building renovation project where overloading of the structure with equipment overtime lead to structural members coming close to failure. The designed fix was a system of floor mounted braces that would remove the load from the existing structural frames, while repairs were made to the frames, restoring them to their original potential. The proposed solution will leave the equipment attached to the structural frames removing the need for the braces. I hope to find that decreases the overall scheduled time for structural work and adds value by not taking away floor space the braces require.



Figure 1, shows the repairs made to structural frames.



Figure 2, shows the braces that were added to remove load from the structural frames.

The following steps will be taken to complete this analysis:

- Analyze the designed structural system consisting of both existing frames and braces, replacing the braces with a more heavily reinforced frame.
- Consult with members of the structural faculty as well as specialized metal building designers to design a frame that will replace the structural braces.
- Analyze schedule and cost issues that deal with the removal of the braces versus the additions of creating a more heavily reinforced frame.

The benefits of the new system will be seen in the use of the floor space that was taken away from the braces and in the reduction of the overall project schedule.

Mechanical System Life-cycle Analysis (Breadth)

The goal of this analysis is to change the designed mechanical system to a more efficient system saving the owner money in the long run. The designed mechanical system was chosen on time constraints due to a tight schedule. I hope to find that the feasibility of choosing a more efficient system versus the longer duration of the schedule will save the owner money in the long run.

Brief Overview

The mechanical system added to ConAgra Foods: Project Stallone was a series of Make-up Air Units (MAUs) to pressurize the building from positive to neutral to outside pressure. This was done so that the migration of dust would not be possible from the packaging area to the raw product area. Each of the 14 exterior MAUs move approximately 20,000 CFM of air and are equipped to heat during cold conditions with propane natural gas. The system was chosen solely on the tight time constraints of the project.

The following steps will be taken to complete the analysis:

- Analyze the current system looking for efficiency flaws, changing inefficient MAUs to more efficient units.
- Consult with members of the mechanical faculty and specialized industry professionals finding more efficient equipment for the application.
- Perform heat and energy loss calculations for the existing and proposed systems.
- Complete a full analysis of the costs and schedule changes due to the changing of the units.
- Analyze alternative fuel sources other than propane to see the most efficient and cost effective solution for the future. Also keeping in mind the inflation of price for fossil fuels and their limited availability in the future.
- Perform a life-cycle evaluation of the designed and changed more efficient system, showing comparison between the two.

The benefit of the more efficient system will be seen in the overall life-cycle cost savings for the building.

Critical Industry Topic

Workforce Development

The current problem with the construction industry today is the lack of skilled labor to adequately build the building. This is due to the increasing number of young people that are turned off by the hands on mentality that they have of the industry. This was seen during the renovation of ConAgra Foods: Project Stallone when dealing with the structural steel workers. There was approximately two weeks of work lost due to the incompetency of steel workers welding. With the extreme tight conditions of the schedule, two weeks is a substantial amount of time to lose to redoing steel welds.

The issue needs addressed because of the eventual cost implications that will come with loss of productivity. The lack of young people coming into the industry could eventually also drive the cost for construction up due to the fact of supply and demand.

Goals

Understand why there is such a shortage of unskilled individuals in the construction industry and its effects by:

- Looking in to losses of time in my project, as well as other projects from The Haskell Company due to the unskilled labor.
- Looking in to why the individuals are not skilled by researching their training programs

Understand why young people coming from high school are turned off from the industry by:

- Visiting local high schools to evaluate the technical programs offered and how they are promoted by the school.



Dr. Messner

Thesis Proposal

- Talking to students of both technical programs and regular curriculum programs to get an overview of their opinion on the matter.
- Talking to students' parents to see why they do or do not want their children going into the construction industry.
- Doing an analysis of the numbers of students coming into the industry versus the numbers retiring.

Through the research done I hope to find crucial information that could help promote the youth into the industry as well as find information on why current workers are not as skilled as they need to be. This could lead to increased productivity and lower overall labor costs on many projects.



Weight Matrix

The following weight matrix shows how I plan to spend reviewing critical issues in the construction industry as well as analyzing the topics that I have brought up with Project Stallone.

Description	Research	Value Engineering	Construction Review	Schedule Reduction	Total
<i>Workforce Development</i>	25%	-	5%	-	30%
<i>Structural System</i>	5%	10%	10%	5%	30%
<i>Mechanical System Life-cycle</i>	10%	5%	10%	15%	40%
Total	40%	15%	25%	20%	100%