



**Peter Pan Peanut Butter**  
**Sylvester, Georgia Processing Plant**



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## **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 scattered bracing system with a system that uses less floor space and is more uniform. 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 look into the critical industry issue dealing with a declining interest in the construction industry today. Numbers show that there is a lack of interest in young people entering the industry, if the number of people leaving is greater that the number entering this will drive up the costs of buildings. With this research I hope to find a solution that would entice young individuals to pursue a career in a construction field of work.



## **Structural System Analysis (Breadth)**

The goal of this analysis is to change a portion of the structural system, which currently consists of scattered braces, to a system that would be more uniform and require less floor area. The ConAgra Foods 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 scattered 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 consist of replacing the scattered bracing system with one that is more uniform and does not take away from the valuable floor are that the current system does. I hope to find that the new system decreases the overall scheduled time for structural work and adds value by not taking away floor space that the individual scattered 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 existing system consisting of both frames and scattered braces, replacing the scattered brace frame with a more efficient steel bracing system.
- Design a bracing system that will allow for less congestion, take up less floor area, and allow for future expandability.
- Analyze the costs associated with the new design and compare to the original costs.
- Analyze the schedule impact, to ensure that project does not run over strictly set deadlines.
- Consult with members of the structural faculty as well as industry professionals to ensure the most feasible design of the uniform structural bracing system.

The benefits of the new system will be seen in the added value of useable floor space that was taken away from the scattered braces, the reduction of the overall project schedule and costs.

## **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. Possibly consider the use of solar panels.
- 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**

A current problem with the construction industry today is the lack of interest from people looking to start a career in it. This is due to a number of reasons, some of which are:

- Parents in the construction industry push their children to aim toward a career that is not as physically demanding as they are in.
- The industry is looked on in a negative view as being not glamorous, low paying, and dangerous.
- High schools do not push students in a direction that sparks an interest in the industry.

This lack of interest in the industry is becoming a concern. If the regression away from construction work continues it will lead to an eventual inflation in building cost and an increase of illegal immigrant workers.

### **Goals**

My goals for doing research are:

- To understand why parents are not pushing their children in a career path that was successful for themselves
- Learn what kind of programs are out there that companies have set up for recruiting young workers
- To understand what high schools are doing to promote the construction industry to young adults today.
- To understand why people pursue careers in other professions as opposed to one in the construction industry.

### **Research**

My plan of action to get information on the topic will include the following:

- Interview parents in the industry and understand why they would or would not want their children to pursue a career such as they have.



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Thesis Proposal (Revised)

- Interview some companies to get a feel of the recruiting efforts that they have for interested individuals.
- Receive and compare recruiting catalogues from different companies, comparing benefits and pay amounts, as well as reviewing them for effectiveness.
- Interview individuals in the industry with college degrees to determine how they knew that the construction was the best career choice for them.
- Interview and survey high school students on their views of the construction industry and see what possibly could be done to promote it more and give it a more positive view.
- Research the number of people entering the industry and compare this to number of people retiring or leaving the industry by reviewing certain company's numbers. This will help me get a better idea of the severity of the problem and how long before major action needs to take place.
- Finally, gathering the information and clearly organizing it so that is in a manageable format.

I believe that by doing this research it could lead to, if not find a clear solution to the problem of a declining workforce in the construction industry. I hope to find a solution to show that a profession in the construction can be fun, fulfilling, and high paying. Also to find a solution that would entice young individuals to pursue a career in a construction field of work.





## **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.

<b>Description</b>	<b>Research</b>	<b>Value Engineering</b>	<b>Construction Review</b>	<b>Schedule Reduction</b>	<b>Total</b>
<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%
<b>Total</b>	40%	15%	25%	20%	100%