

WAREHOUSE REDESIGN

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Submitted in partial fulfillment of the requirements for the degree of
Bachelor of Science

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1438 - 1439 H (2017-2018 G)

ABSTRACT

Our project is to redesign the Arab Cement Company warehouse to improve and develop the warehouse so that the storage capacity is increased and the time and effort are provided through the current design of the warehouse.

With reference to the Facilities Planning Book, we developed some solutions for receiving, drainage and storage by taking the daily total of the month and calculating the total shipping and receipt on a daily basis.

In order to improve the current design of the warehouse, first change two pathways which save time and effort for the warehouse entry method. Second, the main gate for the entry of spare parts is changed which saves time for forklift movement and the receipt of pieces. The forklift movement before improvement took about 3.45 minutes for the specified point and after changes, the movement was reduced to about 2.25 minutes. We have also enhanced the capacity of the warehouse using the available space inside the warehouse by increasing the floor shelves.

Another problem is that the workers put the old pieces in the last shelves and new ones in the first shelf. This causes the aging of the materials inside the warehouse. In order to solve this issue, we use the FIFO theory to put old pieces in the first shelves and put new parts at the back. There must be clear conditions between the warehouse and sections so that the approval of the parts request is not approved unless it is necessary to use them and if not used, the section shall bear all costs. Prepare the warehouse to keep the pieces so as not to be exposed to sunlight, dry air and soil as they lead to damage the spare parts.

Keywords: Facility Planning; Warehouse Redesign; Storage; Spare parts.

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INTRODUCTION

This project is conducted for Arabian Cement Company located in Rabigh, Makah, KSA. Our project team visited the company at the beginning of the academic year to take a tour of the company warehouses. Our team come to know some problems in the warehouses due to induction of the new production line. Our team requested the company manger to allow us study the warehouse problems as a senior project. He granted the permission.

The project satisfies several objectives in order to improve the operations at Arabian Cement Company . These include:

- Continue current functions of warehousing and distribution in current space although packaging space requirements are altered.
- Improve flow of employees and product throughout the facility.
- Decrease efficiencies in the current methods, including putaway, order picking and replenishment.

PROJECT OBJECTIVES

The goals of the project are:

- To study the main warehouse in Rabigh company and determine all problems.
- Recommend a layout and improve a process that would minimize the distance traveled by the material handlers, increase the safety of the warehouse by implementing visual controls, implement ergonomics to reduce chance of injury, and save money for the company.

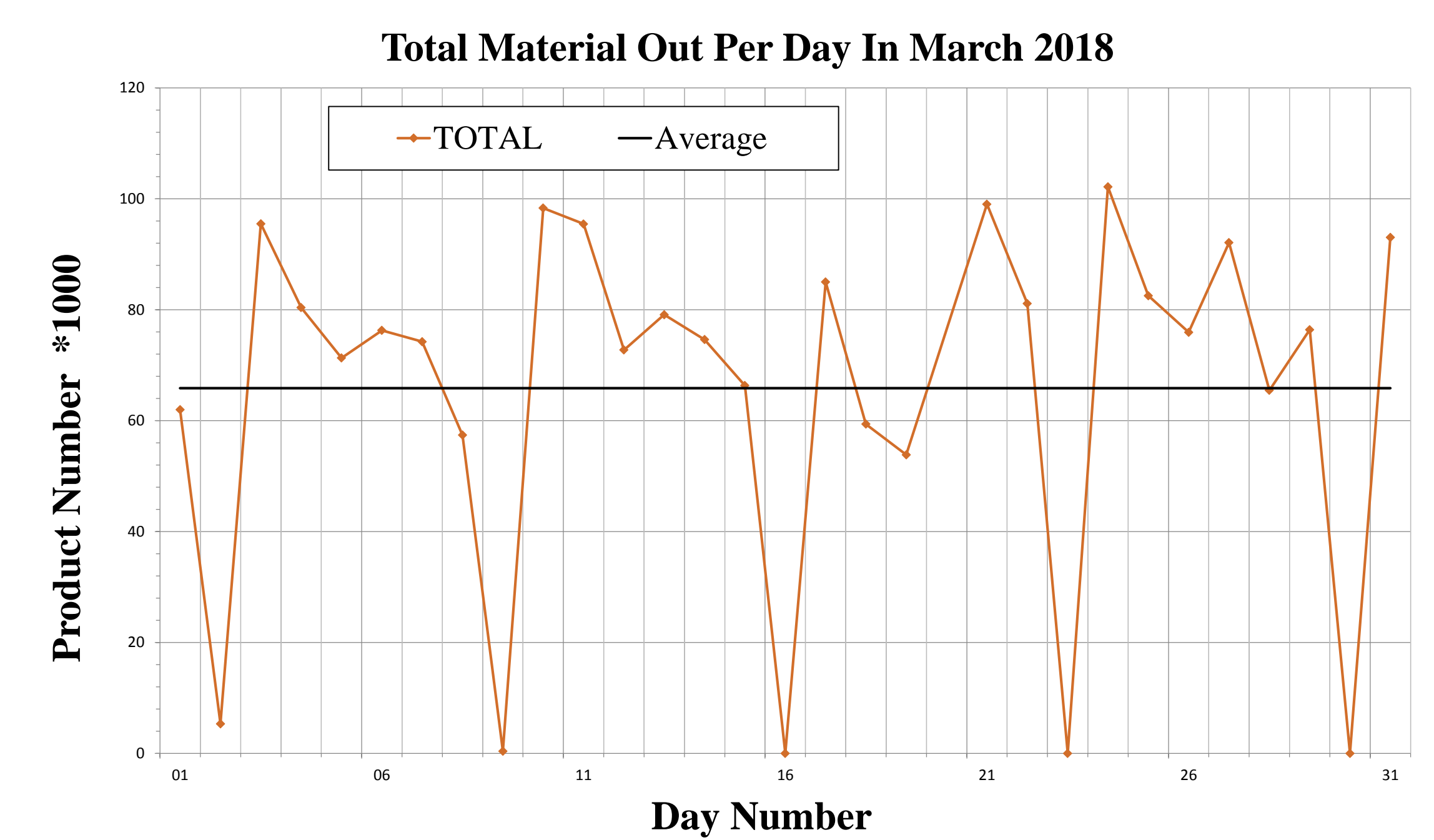
PROJECT METHODOLOGY

- Gather all the necessary data to understand the current system.
- Research ways to improve the current system.
- Find the space that will be adjusted in the improving system.
- Know the dimensions of the current system to create the recommended layouts.
- Finalize the layout to figure out the visual tools for the recommended layout.
- Write up the final report.

FIGURES / CHARTS



Cement Industry

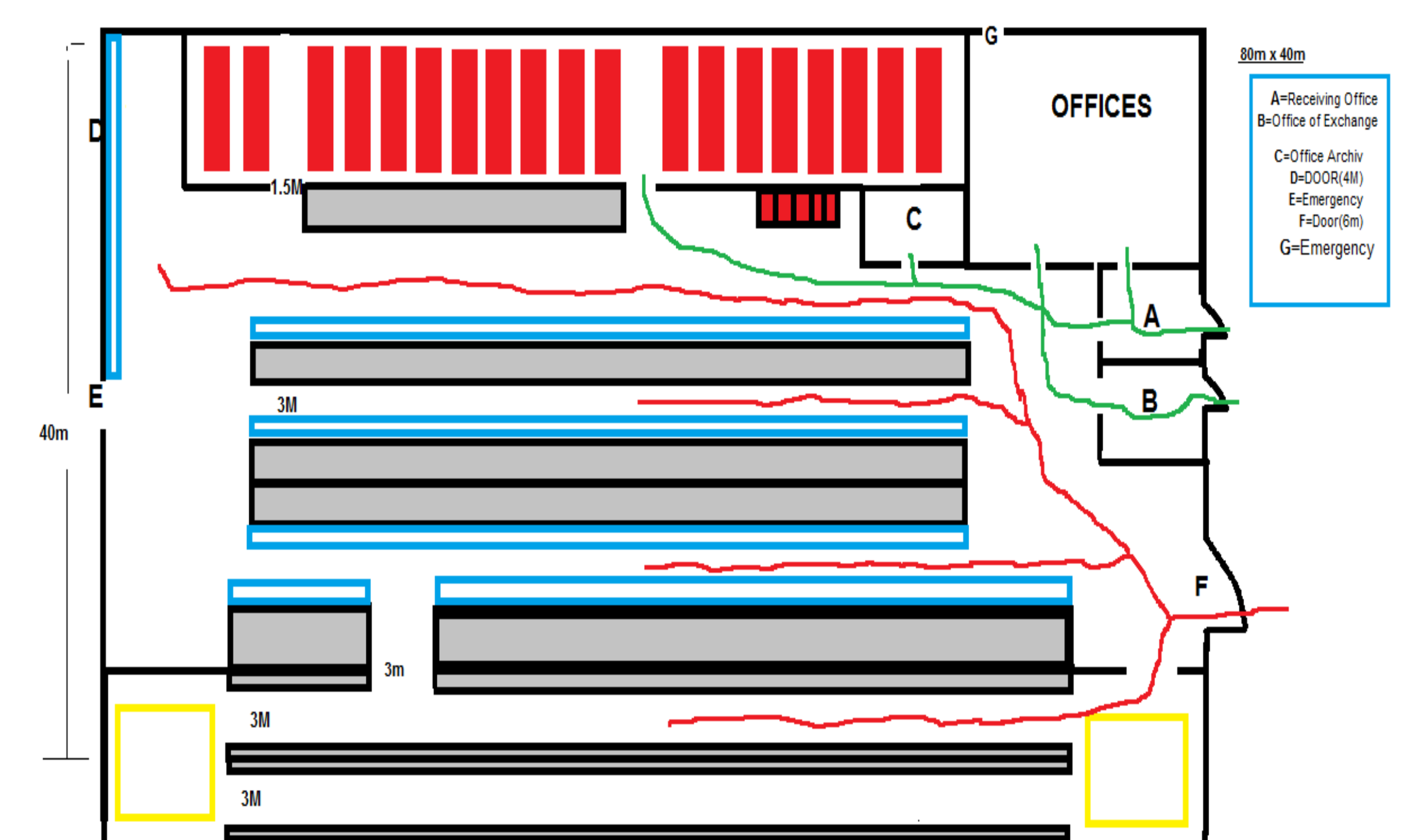


Total amount of material receiving per day.

RESULTS AND DISCUSSION

For current layout we measure a rough distance and use the collected data we find:

- Big section is used for useless materials, which are belonged to the old production line and can't be used for the new production line.
- Also, there are some sections inside the warehouse are closed.
- There are a difficulty in the material handling in the warehouse.
- Redistribute some sections and remove useless sections will save some storage space.
- Moreover, it is learnt that the old production line should be replaced with the new production to allow the latter complete operations.
- If deemed necessary, the old production line materials should be moved elsewhere for usage.



Warehouse layout after modification

CONCLUSION AND RECOMMENDATIONS

From our work we conclude that any industrial organization should have a good strategy for changing their production lines. This strategy should include the economic view considerations. In our case, the company has a new materials for the old production line costing it millions of dollars which becomes useless for the new production line. Also, it is concluded that the warehouse layout should be improved by adding some shelves. Finally, it is recommend that the company should have a study plan for how to minimize the money lost in the old production line materials.