



**AREA OPTIMALIZATION WITH SYSTEMATIC LAYOUT PLANNING
AND CLASS BASED STORAGE METHODS TO INCREASE STORAGE
CAPACITY
(CASE STUDY AT PT. SIMATELEX FACTORY BATAM)**

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ABSTRACT

PT Simatelex Manufactory Batam (SMB) is engaged in Coffee Maker and Pizza Maker. In the manufacture of these products, they are divided into several buildings in the Batamindo Industrial Park area, the products produced are made based on orders from customers. The products produced by the company are mostly marketed abroad (exports).

In the production of Coffee Maker which is located on Jl. Beringin Muka Kuning, Lot 003, Batamindo Industrial Park Area, Batam. Finished products are then stored in the warehouse area on the ground floor of the building (Ground) which has an area capacity of 60%, so that all finished goods cannot be stored, in addition to using an area of 60%, another cause of finished goods not being able to be stored is all mismatched placement. finished goods include Finished Goods Fresh from the production line and Finished Goods to Shipping, so that there are no finished goods to shipping sequences that are not in accordance with CO (Create Order) and there is a buildup of products in the finished goods area.

Therefore, the authors are interested in conducting research by anticipating these conditions so that it is necessary to optimize the storage of the finished goods. Improvements made in the form of changes to the flow of finished goods moving, re-layout the optimal warehouse stock level using the Systematic Layout Planning method, and making verbal control monitoring in the warehouse using the Class Based Storage method. From these improvements, the results obtained are an increase in area use by 60% to 80%, and also ensure that the area capacity can meet the company's needs.

Keywords: *finished goods coffee maker warehouse, finished goods transfer process flow, re-layout optimal stock level, make verbal control monitoring*



PREFACE

PT Simatelex Manufactory Batam (SMB) is a company engaged in the manufacturing industry that produces Coffe Maker and Pizza Maker products, located on Jl. Yellow Face Banyan, Lot 332 - 334, Batamindo Industrial Estate, Batam.

PT Simatelex Manufactory Batam (SMB) is engaged in Coffee Maker and Pizza Maker. In the manufacture of these products, they are divided into several buildings in the Batamindo Industrial Estate, the products produced are made based on orders from customers. The products produced by the company are mostly marketed abroad (exports).

Warehouse storage is one of the things that is very important by the company for continuity in carrying out the supply of goods and laying of goods after they are finished. According to Handoko (2017: 335-336) the operational efficiency of an organization can be improved due to various important inventory functions. Inventories are physical products at various stages of the transportation process from raw materials to work in process and then finished goods. These supplies may remain in storage rooms, warehouses, factories, retail stores or are being moved around factories, in haul trucks, or on ships crossing the ocean.

In the production of Coffee Maker which is located on Jl. Yellow Face Banyan, Lot 003, Batamindo Industrial Estate, Batam. The finished products are then stored in the warehouse area downstairs of the building (Ground) which has an area capacity of 60%. The products stored in the warehouse also have the same CO (Create Order) from several finished goods.

With the use of an area of 60%, all finished goods cannot be stored, so it is necessary to optimize the storage of the finished goods. In addition to the use of 60% area, another cause of finished goods not being stored is the mismatch in the placement of finished goods, including fresh finished goods from the production line and finished goods to delivery, and also the unordered finished goods to shipments that are not in accordance with CO (Create Order), so that the product appears in the finished goods area.

Therefore, the authors are interested in conducting research on "Optimizing Areas with Systematic Layout Planning and Class Based Storage Methods to increase Storage Capacity (Case Study At PT. SIMATELEX MANUFACTORY BATAM)" to find out how the flow of the process of laying finished goods until the area capacity can be sufficient company needs.

FORMULATION OF THE PROBLEM

Based on the background of the following problems, the identification of problems in the researcher's observations are:

1. What causes the use of the Finished goods storage area which results in accumulation in the warehouse area?
2. What actions are taken to ensure that the finished goods storage area is adequate according to the company's needs?
3. How to design a work flow system (work flow) as well as process flow management that can accommodate activities that can provide added value from storage?

RESEARCH METHODS

Types of Methode

This study uses a normative juridical approach (legal research) to obtain secondary data through a literature review obtained from scientific journals related to the research to be carried out. To obtain primary data through field research (field research) in the form of direct interviews with respondents.

Data Sources

Sources of data in this study are primary data and secondary data. Primary data obtained from employees, operators, and management related to the company's profile history and market objectives for the distribution of products produced by the company. As well as the data found by the library as material for writing the final report.

Method Of Collecting Data

Secondary data collection is carried out through library research by reviewing books, journals, research results, conventions and through internet media regarding matters related to research problems. Primary data was obtained by conducting field research by interviewing the informants and respondents related to the object of this research.

Data Analysis

The analysis used is using qualitative methods, namely analyze, improve, control data related to the problem under study and choose a representative based on deductive reasoning according to the ratio so that it will arrive at a conclusion that

is expected to be able to provide answers and a clear picture of the problems raised. there is.

RESEARCH PURPOSES

Based on the formulation of the problem, the objectives of the observations made include:

1. Calculating capacity and identifying problems and causes that occur in the warehouse storage area in Building lot 003 PT. Simatelex Batam factory in its present condition.
2. Make observations and repairs from the cause of the inflow to the outflow of finished goods to the warehouse deviation area.
3. Designing and making improvements to the work flow system and management process flow for current events by comparing future conditions with the Systematic Layout Planning method and classifying products using the Class Based Storage method.

LITERATURE REVIEW

Warehouse

Warehouse is an important component in the establishment of a company where we know that every company has a Warehouse area (Warehouse) which is very supportive of the company. Warehouse (Warehouse) is needed in the process of coordinating goods, which arises because of an imbalance in the supply and demand process that encourages the emergence of inventory (Inventory). Inventory requires space as a temporary storage area referred to as a warehouse (Lambert, 2001).

Systematic Layout Planning

The systematic and organized approach to layout planning that has been carried out by Richard Muther (1973) is "Systematic Layout Planning (SLP)". This Systematic Layout Planning (SLP) step is widely applied to various kinds of problems, including production, transportation, warehousing, support, service, assembly, office activities and others.

Class Based Storage

According to Heragu (1997) the Class Based Storage method is a method based on Pareto diagram research that states that have a population with the smallest percentage of millionaires.

RESULTS AND DISCUSSION

A. Improvements to SOP (Standard Operational Procedure)

Then the SOP (Standard Operational Procedure) was changed in the Warehouse area, by creating additional documents for the Finished Goods storage in the Warehouse area, namely the Finish Good Location Form document.

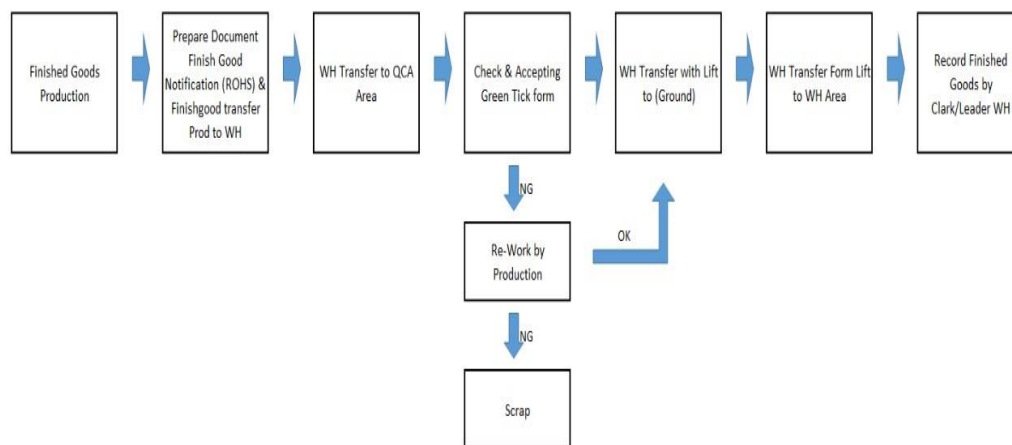


Figure Standard Operational Procedure for Finished Goods Changes

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So from this we make changes to the work flow from the previous one added to the Record Finished Goods by Clark/Leader WH process where the flow is strengthened by the Finish Good Location form.

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by Clark/Leader WH process where the flow is strengthened by the Finish Good Location form.

B. Improvements to the Warehouse Area Using Systematic Layout Planning and Class Based Storage Methods.

From here the author makes changes by arranging the flow of moving and placing Finished Goods in the Warehouse area with planning from the beginning to the end of the incoming goods. Here are some stages of changes with Systematic Layout Planning and Class Based Storage:

1. Enter Finished Goods Fresh production from the elevator down to the bottom with Lifting in the warehouse area and then place it in the Prepare Area Waiting Stacking to carry out the process of preparing Finished Goods Shipping.
2. Fill in the Finish Good Location document form and submit it to the Shipping team
3. The Shipping Team performs the Stacking Finished Goods process and wraps the machine.
4. The Shipping Team moves the Finished Goods that have been stacked according to the Creat Order and the capacity of the Container on the Row that has been set as many as 21 pallets with 2 stacks.
5. For POs (Purches Orders) that already have a delivery schedule, they are placed according to the Moving Class with the colors listed as shown in Figure 5.3, following the color groups for each Row
 - a) White (A6 Qty 98 Pallet, A5 Qty 112 Pallet)
 - b) Pacific Blue (C13 Qty 57 Pallet, C12 Qty 114 Pallet, C11 Qty 39 Pallet)

- c) Blue (A5 Qty 7 Pallet, A4 Qty 102 Pallet, A3 Qty 102 Pallet)
- d) Gray (C11 Qty 95 Pallet, C10 Qty 115 Pallet)
- e) Red (A3 Qty 17 Pallet, A2 Qty 96 Pallet, A1 Qty 96 Pallet)
- f) Black (C10 Qty 5 Pallet, C9 Qty 100 Pallet, C8 Qty 84 Pallet)

6. After the Shipping team places the completed Finished Goods pawa Row and fills in the Finish Good Location form, where is it located and submits the form to the Clerk Warehouse for data collection.
7. Clerk Warehouse records the incoming and outgoing Finished Goods into the system.

This study also regulates the displacement distance with the Class Based Storage method so as to classify Finished Goods from urgent needs where Finished Goods that already have a previous PO (Purches Order) are to be placed in a class according to the Moving Class.

CONCLUSION

From the results of the observation "Optimization of Areas with Systematic Layout Planning and Class Based Storage Methods to increase Storage Capacity (Case Study At PT. SIMATELEX MANUFACTORY BATAM)", the authors can draw several conclusions:

1. With the use of an area of 60% (1,188 pallets) all finished goods cannot be stored. In addition to the use of an area of 60%, another cause of finished goods cannot be stored all is a mismatch in the placement of

finished goods, including fresh finished goods from the line. production and delivery of finished goods that are not in accordance with CO (Creat Order).

2. Increased storage capacity in the Warehouse warehouse area by 1,290 pallets from 1,188 pallets so that the previous change became 2,478 pallets with the Systematic Layout Planning and Class Base Storage methods.
3. Changed the SOP (Standard Operational Procedure) in managing the settings of the work system (Work Flow) of finished goods from production to the warehouse storage area.

SUGGESTION

There are some suggestions that researchers can give to companies and suggestions for further researchers as follows:

1. System is provided for storing and recording finished goods to record for a more balanced balance between exit and entry of finished goods in the warehouse area of the warehouse.
2. In order for the delivery results to be more effective, an analysis is carried out on other factors including the time and how long the finished goods are in the warehouse area.
3. Companies must also look at the Traceability of the product to track down problematic products when there are Quality Problems or Customer Complaints.

4. Analysis is also carried out for other models besides the OPP model if there is another model road in Building 003 lot C at PT. Simatelex Batam Factory.

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