#### WAREHOUSE LAYOUT ARRANGEMENT IN CV. SANG TIMUR

A THESIS

Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Engineering in Industrial Engineering



**LUKAS WIDAYANTO** 16 14 08693

INTERNATIONAL INDUSTRIAL ENGINEERING PROGRAM

DEPARTMENT OF INDUSTRIAL ENGINEERING

FACULTY OF INDUSTRIAL TECHNOLOGY

UNIVERSITAS ATMA JAYA YOGYAKARTA

YOGYAKARTA

2021

#### HALAMAN PENGESAHAN

# Tugas Akhir Berjudul WAREHOUSE LAYOUT ARRANGEMENT IN CV. SANG TIMUR

## yang disusun oleh LUKAS WIDAYANTO 161408693

dinyatakan telah memenuhi syarat pada tanggal 13 April 2021

Dosen Pembimbing 1 : The Jin Ai, D.Eng.

Telah menyetujui
Dosen Pembimbing 2 : The Jin Ai, D.Eng.

Telah menyetujui

Tim Penguji

Penguji 1 : The Jin Ai, D.Eng. Telah menyetujui Penguji 1 : Yosef Daryanto, S.T., M.Sc., Ph.D. Telah menyetujui Penguji 1 : Timothy Rey Laheba, S.T., M.Eng Telah menyetujui

> Yogyakarta, 13 April 2021 Universitas Atma Jaya Yogyakarta Fakultas Teknologi Industri Dekan

> > ttd

Dr. A. Teguh Siswantoro, M.Sc

### **DECLARATION OF ORIGINALITY OF RESEARCH**

I certify that the research entitled "Warehouse Layout Arrangement in CV. Sang Timur" in this thesis has not already been submitted for any other degree.

I certify that to the best of my knowledge and belief, this thesis which I wrote does not contain the works of parts of the works of other people, except those cited in the quotations and bibliography, as a scientific paper should.

In addition, I certify that I understand and abide the rule stated by the Ministry of Education and Culture The Republic of Indonesia, subject to the provisions of Peraturan Menteri Pendidikan Nasional Republik Indonesia Nomor 17 Tahun 2010 tentang Pencegahan dan Penanggulangan Plagiat di Perguruan Tinggi.

Signature

METERAL TEMPEL BG 862AJX118838303

Student name

: Lukas Widayanto

Student ID

: 16 14 08693

Date

: April 14, 2021

#### **ACKNOWLEDGEMENTS**

The author expresses his sincere gratitude to his supervisor, The Jin Ai, D.Eng, for providing many precious advices, comments and suggestions during his study and the preparation of this thesis.

His appreciation is given to Ririn Diar Astanti, D.Eng who serves as Head of Industrial Engineering Department, Universiatas Atmajaya Yogyakarta for patiently conducting and educating the author how to have a good sense in making a report and how to be a good student. Her perspective on many different aspects of life, not particularly on the academic and research life, was broaden the knowledge of the author.

Many thanks are dedicated to all staff of CV. SANG TIMUR for supporting the author during the data collection.

The author also gives his thanks to all faculty members of Department of Industrial Engineering UAJY for helping him in various ways. The same appreciation is extended to his UAJY friends.

Finally, his gratitude is addressed to his beloved mother Mrs. Maria Wigati, his grandfather and grandmother Mr and Mrs. Ignanto and his sisters Rosa Maria Elena for their continuous support and prayers.

## **TABLE OF CONTENTS**

CHAPTER	TITLE	PAGE
	Cover	i
	Identification Page	ii
	Declaration of Originality	iii
	Acknowledgement	iv
	Table of Content	٧
	List of Table	vii
	List of Figure	viii
	List of Appendix	ix
	Abstract	Х
	ATMA JAKA	
1	Abstract Introduction 1.1 Background	1
	1.1 Background	1
	1.2 Problem Formulation	2
	1.3 Objective	2
	1.4 Scope and Limitation	2
2	Literature Review and Theoretical Basis	3
	2.1 Literature Review	3
	2.2 Theoretical Background	7
3	Research and Methodology	11
	3.1 Research Preparation	11
	3.2 Research Methodology	11
	3.3 Conclusion	18
	3.4 Report	18
4	Company Profile and Data	20
7	4.1 Company Profile	20
	4.2 Company Facility	21
	4.3 Organization Structure and Job Description	25
	4.4 Business Process	25 27
	4.4 Business Frocess  4.5 Data Collection and Analysis	30
	T.O DAIA OUIICUIUII AIIA AHAIVAIA	JU

5	Analy	sis and Discussion	47
	5.1	Problem Analysis	47
	5.2	Solution	47
	5.3	Implementation Plan	73
6	Concl	lusion	75
	Refer	ence	76
	Appei	ndix	78



## LIST OF TABLE

Table 2.1	Literature Review Summary	5
Table 3.1	List of Question	15
Table 4.1	Warehouse Area	32
Table 4.2	Goods Type In CV Sang Timur	33
Table 4.3	Sales Table	37
Table 5.1	Example Total AQO Volume	49
Table 5.2	Warehouse Volume and Goods Volume	50
Table 5.3	Goods Placement Policy	53
Table 5.4	Unit Conversion	55
Table 5.5	Sales Analysis	58
Table 5.6	ABC Analysis	65

## LIST OF FIGURE

Figure 3.1 Research Methodology	12	
Figure 4.1 CV. Sang Timur		
Figure 4.2 Packaging Area		
Figure 4.3 Company Floor Plan	24	
Figure 4.4 Company Organization Structure	25	
Figure 4.5 Company Business Process	28	
Figure 4.6 Receiving Business Process	44	
Figure 5.1 Contribution Calculation	46	
Figure 5.1 Contribution Calculation	63	
Figure 5.2 Size Calculation of Item Placement	69	

### **LIST OF APPENDIX**

Appendix 1	Example of AQO volume calculation	78
Appendix 2	Example of Total AQO Volume Calculation	78
Appendix 3	Area 1 (Existing Layout)	79
Appendix 4	Area 2 (Existing Layout)	80
Appendix 5	Area 3 (Existing Layout)	81
Appendix 6	Worker Rest Room (Existing Layout)	82
Appendix 7	Second floor (Existing Layout)	83
Appendix 8	Area 1 (Proposed Layout)	84
Appendix 9	Area 2 (Proposed Layout)	85
Appendix 10	Area 3 (Proposed Layout)	86
Appendix 11	Worker Rest Room (Proposed Layout)	87
Appendix 12	Second floor (Proposed Layout)	88
Appendix 13	Area 1	89
Appendix 14	Area 2	90
Appendix 15	Area 3	91
Appendix 16	2 <sup>nd</sup> Floor	92

#### **ABSTRACT**

Warehouse is one of the most important parts of a company. Without a warehouse, buying and selling activities can only be limited. So that consumer needs cannot be fully fulfilled.

The purpose of this research is to provide input to solve one of the problems that occur in the warehouse. This thesis is discuss about warehouse arrangement layout. The use of an ineffective layout can cause several risks to the company. These risks are a time of picking goods increase, harder process for picking goods, new worker found difficulty finding goods. Then without a neat layout, the risk of lost items will be even greater.

To overcome this problem, research was carried out. Then the process of solution creation is carried out. ABC analysis is used to determine the priority level of each goods. Warehouse condition calculation is carried out to determine the comparison between the warehouse capacity and the number of goods owned by the company. By calculating the warehouse condition, it can be seen whether the warehouse status is overstock or not. Placement policy is used to set the strategy for placing goods. To arrange good in the company three method of goods placement policy are combined.

From the results of the research carried out, a proposed layout can be formed which functions as input to organize the company's warehouse.