DESIGN AND FABRICATION OF FOLDING TABLE

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A report submitted in fulfilment of the
requirement for the award of the Diploma
of Mechanical Engineering

Faculty of Mechanical Engineering
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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this project report and in my opinion this project is satisfactory in terms of scope and quality for the award of Diploma in Mechanical Engineering.

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STUDENT'S DECLARATION

I hereby declare that the work in this report is my own except for quotations and summaries which have been duly acknowledged. The report has not been accepted for any degree and is not concurrently submitted for award of other degree.

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ABSTRACT

Manufacturing process is a process of converting raw material into product. It can be described the transformation of materials into terms of greater value by means of one or more processing and/or assembly operations. The study of manufacturing was very important in order to carry out this project to ensure that student understand on what are needs to do. This project is focused on designing and fabricating the Folding Table. The main objective in this project is to design and fabricate the Folding Table which can be fold easily and can be store into the small space. This project involves the process of designing the Folding table by considering the shape, functionality, portability for people to use it and the manufacturing cost. The material of this design is easy to gain it, because it only using rectangular hollow steel and aluminium. So that the method joining that can be compatible in assembled this Folding Table is welding process and joining the aluminium to the frame is by using rivet. This project also required analysis to ensure the strength and safety of the product meet the user need. After all processes had done, the development of this Folding Table may help us to understand the fabrication and designing process involved in this project. The manufacturing process included in this project is marking and cutting of material, machining, drilling, rivet , joining and finishing.

ABSTRAK

Pembuatan adalah proses penukaran daripada bahan mentah kepada sesuatu produk. Ia diklasifikasikan perubahan bahan kepada bahan yang lebih baik yang bermaksud melibatkan satu atau lebih proses penyambungan. Pembelajaran dalam pembuatan penting dalam projek ini untuk pelajar mengatahui sesuatu yang dikehendaki. Projek ini mengfokuskan mereka cipta dan mereka bentuk model meja lipat.Objektif utama mereka bentuk meja lipat yang yang boleh dilipat dengan mudah dan boleh disimpan walaupun dalam sudut yang kecil Projek ini melibatkan proses mereka bentuk meja lipat dengan mengambil kira bentuk, fungsi, kemudahan-alihan, dan kos pembuatan bagi pengguna. Bahan untuk membuat produk ini senang didapati kerana menggunakan besi segi empat tepat yang berongga dan aluminium. Oleh itu proses penyambungan yang sesuai untuk meja lipat ini adalah proses kimpalan dan juga untuk menyambungkan aluminium pada rangka meja menggunakan kaedah penyambungan menggunakan rivet. Projek ini juga memerlukan analisis bagi memastikan kekuatan produk dan memastikan keselamatan pengguna dipenuhi sebetulnya. Selepas semua proses yang dijalankan siap sepenuhnya, dan proses mereka bentuk meja lipat siap boleh membantu sesiapa sahaja untuk memahami proses penghasilan dan rekabentuk yang berkaitan dengan projek ini. Pembikinan projek ini dihasilkan menggunakan proses pemotongan bahan, pemesinan, menebuk lubang, rivet,penyambungan dan proses pengemasan.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS

X	Multiplication
Mm	Millimeter
Kg	Kilogram
KW	Kilowatt
V	Voltage
A	Ampere
Hz	Frequency
W	Watt
Rpm	Revolution per minute

LIST OF ABBREVIATIONS

UMP	Universiti Malaysia Pahang
FKM	Fakulti Kejuruteraan Mekanikal
SMAW	Shield Metal Arc Welding
MIG	Gas Metal Arc Welding / Metal Inert Gas
CAD	Computer Aided Design
Etc	As / So on
e.g.	Example
3D	Three Dimension
BOM	Bill of Material

CHAPTER 1

INTRODUCTION

1.0 PROJECT SYNOPSIS

1.1 GENERAL PROJECT SYNOPSIS

The project involves designing and fabricating a folding table. As the Diploma final year project allocates the duration of 1 semester, this large man-hour project therefore requires significant efforts of the students to participate. Basically the entire table could be divided into three stages, which are concept review and development, designing and fabrication. The folding table is equipped by using stainless steel 304 2B material which include, rectangular plate steel, rectangle hollow steel, and hinge in manufacturing process by perform MIG welding to joint the parts and etc.

The advantages of the folding table to be developed can be seen to be brought easily to another size because the shape can be fold to the small size and easily to store after using session finished into the small place. The process of development is initiated from designing the shape of the folding table by considering the function as well. In order to produce user friendly product that is suitable to the consumer, consideration to the ergonomic factor is taken into account. It involves the measurement process before the materials are cut into pieces before joined together.

1.2 PROBLEM STATEMENT

The design process enabled us to follow a systematic approach to design. The most important step of the design process is identifying the customer need. As we know, there already had so much table on the market but there are many customer desirer on the folding table because they need such flexible table which can be fold easily, portable and only one person to carried out the table. For example when the customer had a picnic no need for more than one person to carried out the table from then van, and lastly why customer need a folding table we can see when customer need to store table but the table big and not enough space to store it and it make a space in home of customer became smaller and limits. So, the folding table as a solution to this problem because no need big space to store this type of table.

1.3 PROJECT OBJECTIVE

Project objective is main things in project which a objective need to be achieve through the project. Basically, the project objective depends on the title of project .below shown the objective of this project folding table are:

i. To design new concept of the folding table
ii. To fabricate folding table

1.4 PROJECT SCOPE

The scope of the project is a one of the most important thing in project. The scope as a guidelines to achieve the objective which the scope made their line to fix to make sure over scope not involve with other scope. The scope totally makes sure followed the line of the project what the project need to achieve. Below is a scope of this project:

i. To applied the process of engineering design in making a product.
ii. To fabricate folding table which can hold load 30kg
iii. To fabricate a folding which can be fold easily and brought easily.

iv. To fabricate the folding table this can be store into the small space

1.5 PROJECT FLOW CHART

From the flow chart, this project started with the objective of the project. The objective of the project must follow the title. The objective must fulfill the title Then follow up with design review about folding table and then study a lot of investigation about folding table. This is including study about several of table, type of table, types of material which suitable to make a table. These tasks have been done through study on internet, books and others resources.

After all information had been collected and gathered, the project continued with the design process. All the knowledge and lessons had been applied to make a suitable design for the project. After several design sketched, design consideration have been made and one of the design have been chosen by using Pugh's concept selection. The solid modeling and engineering drawing by using Auto Cad software the fabrication process progress use drawing as a reference. The process consist fabrication to all parts that have been designed by the dimension using various type of manufacturing process.

The manufacturing process includes welding, drilling, bending, cutting and etc. During the fabrication process, if there have error occur, such as fabrication error, so the process need to modification the process need to go back to the previous step and the process flow again, until no error occur the process can been continued smoothly until the final product finished. Then, the draft report need to be submitted to the supervisor for double checking if there had an error.

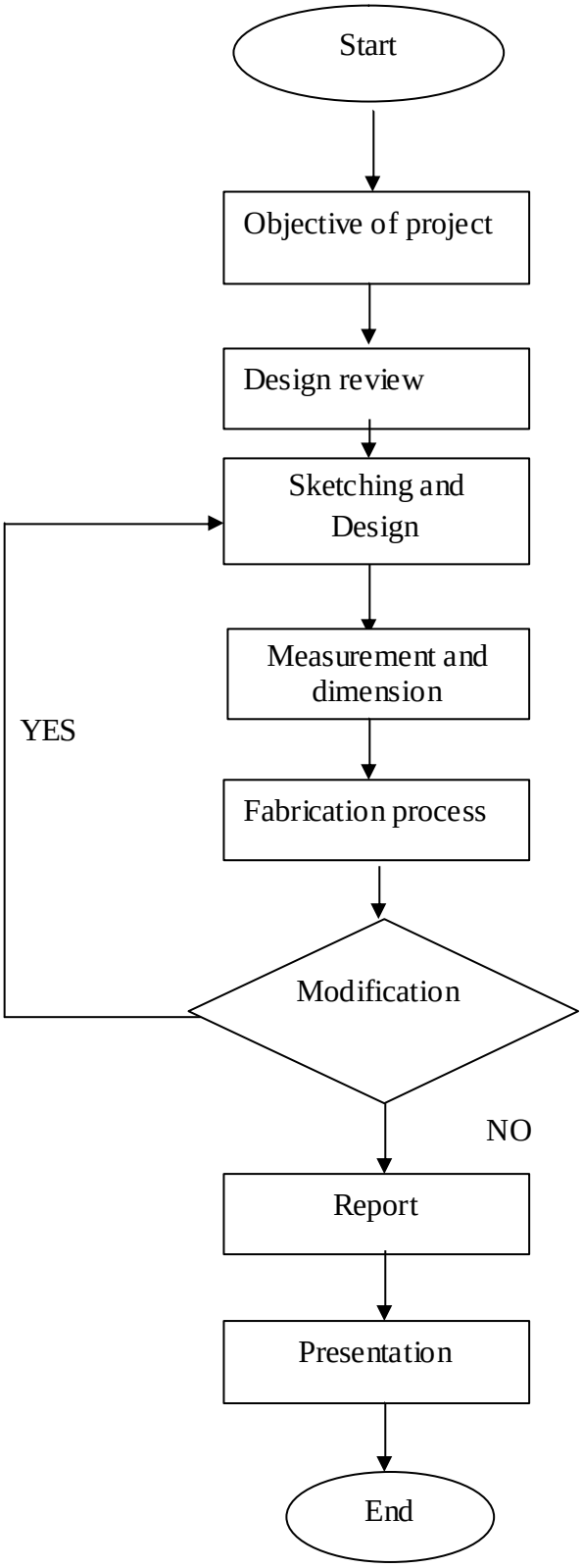


Figure1.1: Project Flow Chart

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter explains about literature review about the folding table which can be found in this chapter on the current market. In this chapter will show the types of the folding table. In the market already had a such a folding table which can been seen like a layer table, wood folding table, the aluminum table and etc. this table has a mechanism which can be fold suit into the environment. Besides that, in this chapter also will shown about the fabricate process which, involved in the process to fabricate the folding from the beginners and the final product or folding table complete as a one product. In the folding table also the factor of safety also need to be consideration as a one important thing to make sure the product save to be use and know the limit of the project then can afford the damage

2.2 TYPES OF FOLDING TABLE

Below were types of folding table which already can be found on the current market.

Figure 2.1.: The flip table

Figure 2.2: layer table

Figure 2.3: Wooden folding table

Figure 2.4: Metal table

Sources: Wikipedia 2009

2.3 BASIC PARTS

2.3.1 Table

Usually made from wood or aluminum. The process to joining for aluminum with the frame body by rivet

2.3.2 Hinge

The hinge joined the frame body and the table leg and the hinge function to make sure the leg of table can be fold .the hinge was joined to the two parts of table by using welding process

2.3.3 Legs and body frame

The legs of table made by the steel will joined to the body frame or bas Frame of table

2.4 JOINING METHOD

2.4.1 Shielded Metal Arc Welding (SMAW)

Shielded metal arc welding (SMAW), also known as manual metal arc (MMA) welding or informally as stick welding, is a manual arc welding process that uses a consumable electrode coated in flux to lay the weld. An electric current in the form of either alternating current or direct current from a welding power supply, is used to form an electric arc between the electrode and the metals to be joined. As the weld is laid, the flux coating of the electrode disintegrates, giving off vapors that serve as a shielding gas and providing a layer of slag, both of which protect the weld area from atmospheric contamination.

Because of the versatility of the process and the simplicity of its equipment and operation, shielded metal arc welding is one of the world's most popular welding processes. It dominates other welding processes in the maintenance and repair industry, and though flux-cored arc welding is growing in popularity, SMAW continues to be used extensively in the construction of steel structures and in industrial fabrication. The process is used primarily to weld iron and steels (including stainless steel) but aluminum, nickel and copper alloys can also be welded with this method. Figure below show the shielded metal arc welding machine.

Figure 2.5: Shielded Metal Arc Welding Machine

To strike the electric arc, the electrode is brought into contact with the work piece in a short sweeping motion and then pulled away slightly, with a movement like lighting a match. This initiates the arc and thus the melting of the work pieces and the consumable electrode, and causes droplets of the electrode to be passed from the electrode to the weld pool. As the electrode melts, the flux covering disintegrates, giving off vapors that protect the weld area from oxygen and other atmospheric gases. In addition, the flux provides molten slag which covers the filler metal as it travels from the electrode to the weld pool. Once part of the weld pool, the slag floats to the surface and protects the weld from contamination as it solidifies. Once hardened, it must be chipped away to reveal the finished weld. As welding progresses and the electrode melts, the welder must periodically stop welding to remove the remaining electrode stub and insert a new electrode into the electrode holder. The actual welding technique utilized depends on the electrode, the composition of the work piece, and the position of the joint being welded. The choice of electrode and welding position also determine the welding speed. Flat welds require the least operator skill, and can be done with electrodes that melt quickly but solidify slowly. This permits higher welding speeds. Sloped, vertical or upside-down welding requires more operator skill, and often necessitates the use of an electrode that solidifies quickly to prevent the molten metal from flowing out of the weld pool.

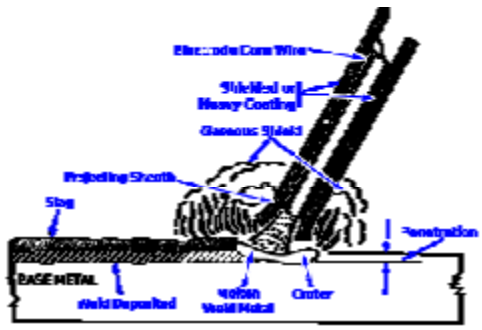


Figure 2.6: Shielded Metal Arc Welding Diagram

Source: Weld cop 2009

2.4.2 Metal Inert Gas (MIG) Welding

Figure 2.7: Metal Inert Gas (MIG) Welding

MIG (Metal Inert Gas) or as it even is called GMAW (Gas Metal Arc Welding) above figure uses an aluminum alloy wire as a combined electrode and filler material. The filler metal is added continuously and welding without filler-material is therefore not possible. Since all welding parameters are controlled by the welding machine, the process is also called semi-automatic welding. The MIG-process uses a direct current power source, with the electrode positive (DC, EP). By using a positive electrode, the oxide layer is efficiently removed from the aluminum surface, which is essential for avoiding lack of fusion and oxide inclusions. The metal is transferred from the filler wire to the weld bead by magnetic forces as small droplets, spray transfer. This gives a deep penetration capability of the process and makes it possible to weld in all positions. It is important for the quality of the weld that the spray transfer is obtained.

There are two different MIG-welding processes, conventional MIG and pulsed MIG:

a) Conventional MIG uses a constant voltage DC power source. Since the spray transfer is limited to a certain range of arc current, the conventional MIG process has a lower limit of arc current (or heat input). This also limits the application of conventional MIG to weld material thicknesses above 4 mm. Below 6 mm it is recommended that backing is used to control the weld bead. (Sources: Wikipedia 2006)

b) Pulsed MIG uses a DC power source with superimposed periodic pulses of high current. During the low current level the arc is maintained without metal transfer. During the high current pulses the metal is transferred in the spray mode. In this way pulsed MIG is possible to operate with lower average current and heat input compared to conventional MIG. This makes it possible to weld thinner sections and weld much easily in difficult welding positions.

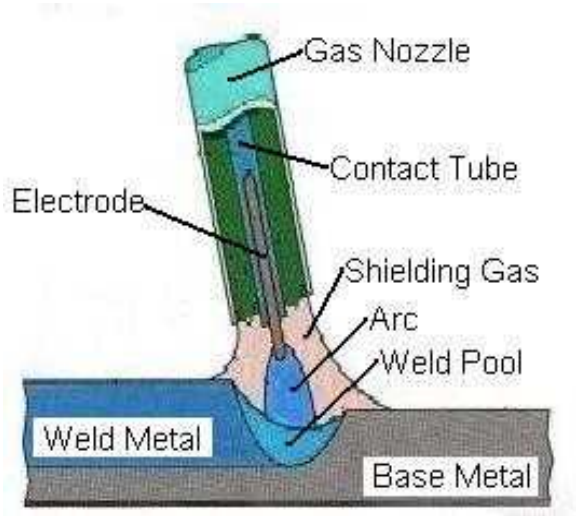


Figure 2.8: Schematic of Metal Inert Gas (MIG) Welding

Sources: Wikipedia 2006

Gas Metal Arc Welding (GMAW) is frequently referred to as MIG welding. MIG welding is a commonly used high deposition rate welding process. Wire is continuously fed from a spool. MIG welding is therefore referred to as a semiautomatic welding process.

2.4.3 Drilling

Drilling is easily the most common machining process. One estimate is that 75% of all metal-cutting material removed comes from drilling operations. Drilling involves the creation of holes that are right circular cylinders. This is accomplished most typically by using a twist drill, something most readers will have seen before. The chips must exit through the flutes to the outside of the tool. As can be seen in the figure, the cutting front is embedded within the work piece, making cooling difficult. The cutting area can be flooded, coolant spray mist can be applied, or coolant can be delivered through the drill bit shaft (sources: Wikipedia 2006)

2.4.4 Drill Press

A typical manual drill press is shown in the figure below. Compared to other powered metal cutting tools, a drill press is fairly simple, but it has evolved into a versatile necessity for every machine shop.

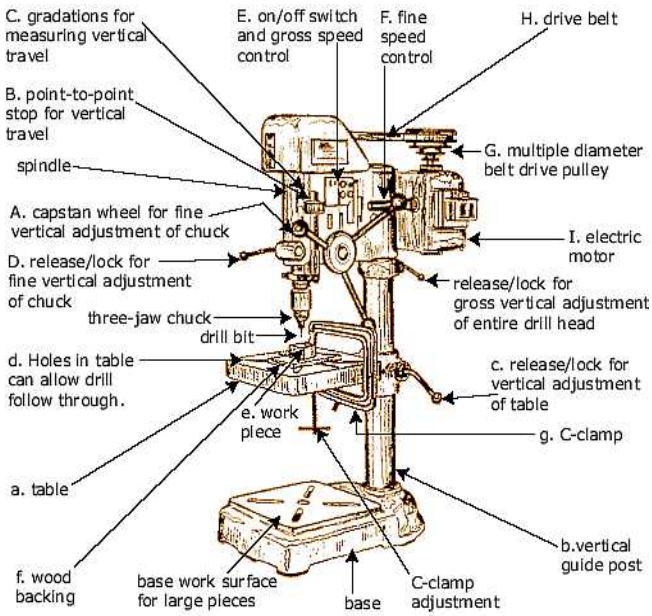


Figure 2.9: Drill Press Machine

Sources: Wikipedia (2006)

2.4.5 Rivet Process

Rivet is a permanent mechanical fastener. Before it is installed it consists of a smooth cylinder shaft with a head on one end. The end opposite the head is called the buck-tail. On installation the rivet is placed in a punched or pre-drilled hole. Then the tail is "upset" (i.e. deformed) so that it expands to about 1.5 times the original shaft diameter and holds the rivet in place. To distinguish between the two ends of the rivet, the original head is called the factory head and the deformed end is called the shop head or buck-tail.

Because there is effectively a head on each end of an installed rivet it can support tension loads (loads parallel to the axis of the shaft); however, it is much more capable of supporting shear loads (loads perpendicular to the axis of the shaft). Bolts and screws are better suited for tension applications.

Figure 2.10: rivet

Sources: Wikipedia/rivet (2006)

2.4.6 GRINDING PROCESS

Grinding is a finishing process used to improve surface finish, abrade hard materials, and tighten the tolerance on flat and cylindrical surfaces by removing a small amount of material. Information in this section is organized according to the subcategory links in the menu bar to the left.

In grinding, an abrasive material rubs against the metal part and removes tiny pieces of material. The abrasive material is typically on the surface of a wheel or belt and abrades material in a way similar to sanding. On a microscopic scale, the chip formation in grinding is the same as that found in other machining processes. The abrasive action of grinding generates excessive heat so that flooding of the cutting area with fluid is necessary.

FIGURE 2.11: Grinder

Sources: Wikipedia 2006

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

Project methodology is a body of practices, procedures and rules used by those who work in a discipline or engage in an inquiry and a set of working methods. In this chapter will explain about the process that involved during the fabrication process. This chapter also will explain about the design and analysis that had been chosen to be as the final idea to be producing or fabricate. All the fabrication process in this project is going to be explained in details.

3.2 DESIGN

The design of the folding table must be compliance to several aspects. The design consideration must be done carefully. So, the design can be fabricated and the parts are all function in .the aspects that must be considered in designing the folding table are:

i. **Strength**

The folding table must have certain strength to ensure it can load heavy items

ii. **Suit To The Environment**

The folding table must be suitable to use in home area

iii. **Safety**

The folding table must fulfill the safety factor to ensure did not bring any hazard to the user.

iv. **Material**

Availability of material is one of aspect that has been considered. The material can be used depend on their purposes.

v. **Cost**

The cost of whole progress project must been exceed from budget and reasonable

3.3 DRAWING

The drawings are divided into two categories:

i. Sketching

All the ideas for the folding table fabrication are sketched on the piece of the paper to ensure that idea selection can made after the selected design is choose.

ii. Auto Cad software

The selected design or concept sketched is transfer to the solid modeling and engineering using Auto Cad software

3.4 SKETCHING AND DESIGN

3.4.1 Concept A

Figure 3.1: concept A

Figure 3.1 show the concept A of folding table. This design made from wood and steel. The frame body of table made from steel and the table made from wood. This concept applied the spring mechanism. The leg of table joined with the spring to make sure the leg can be fold. This design fabricate with joining process join the frame body and drilling to make a hole on the frame body which joined with wood table by using screw.

3.4.2 Concept B

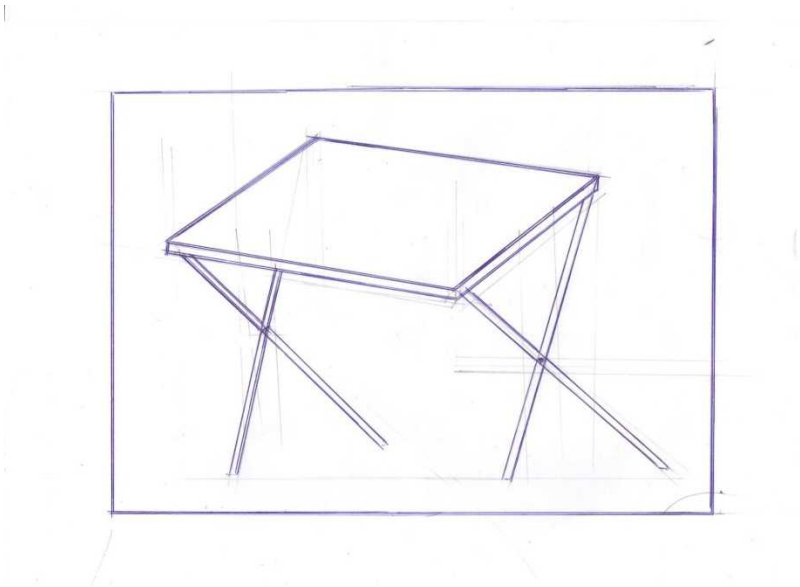


Figure 3.2: Concept B

Figure 3.2 show the concept B of folding table. This design look like very simple which leg across to another joined with the bolt. When the bolt pulls out or loose the leg of table can be fold and the table closed to the leg. To fabricate this design the joining process applied to joined the frame body and also use the drilling process to make a hole on the place where the leg across on another one

3.4.3 Concept C

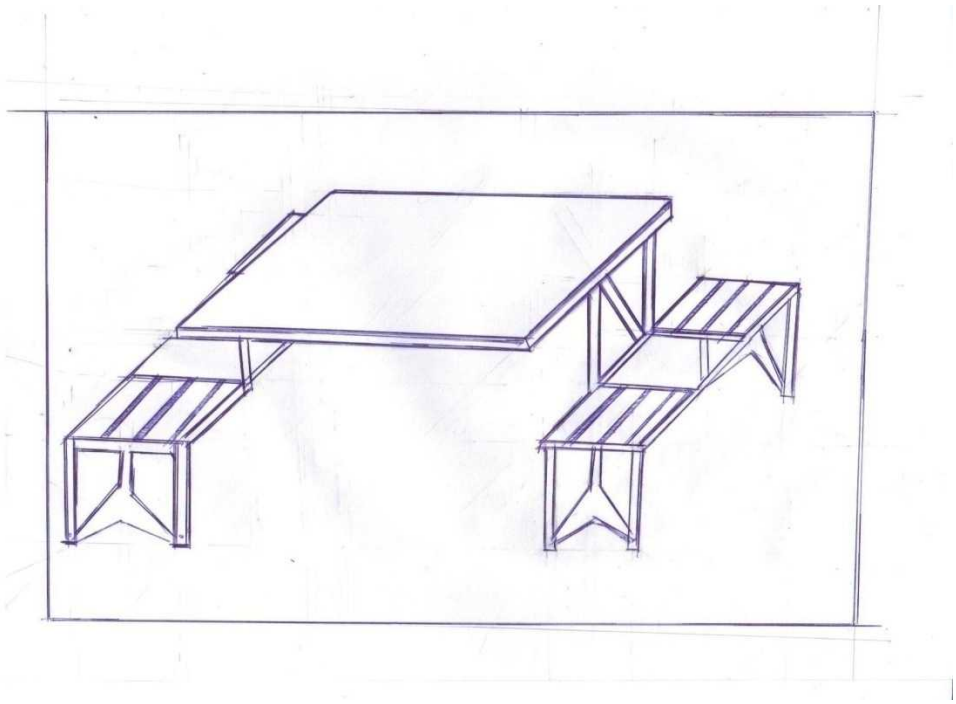


Figure 3.3: Concept C

Figure 3.3 show the concept C. The concept C most the complex folding table. This table so big and also continued with the chair. To fabricate this folding table need so much fabricate process include joining process, drilling process, bending process and etc. the material for this table almost aluminum.

3.4.4 Concept D

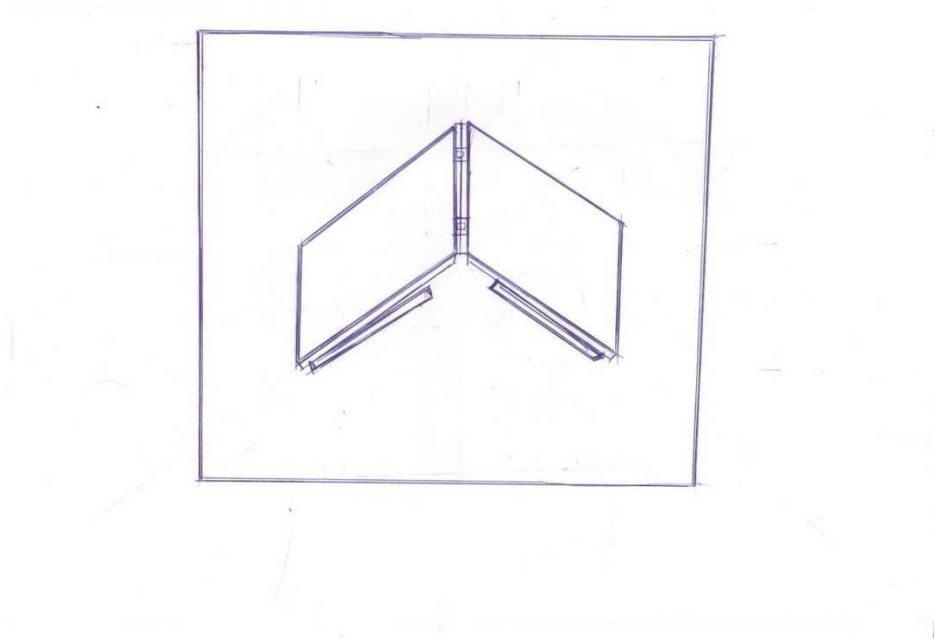


Figure 3.4: Concept D

Figure 3.4 show the concept D .this is a final concept also called concept D. This folding table made from the steel for the frame body and aluminum for table. The steel using for frame body is rectangular hollow .This design use a hinge on the bottom of table to make sure the table can be fold and for each one leg of table had one hinge and one key. The key is to make sure the leg of table strong enough.

3.4.5 Concept E

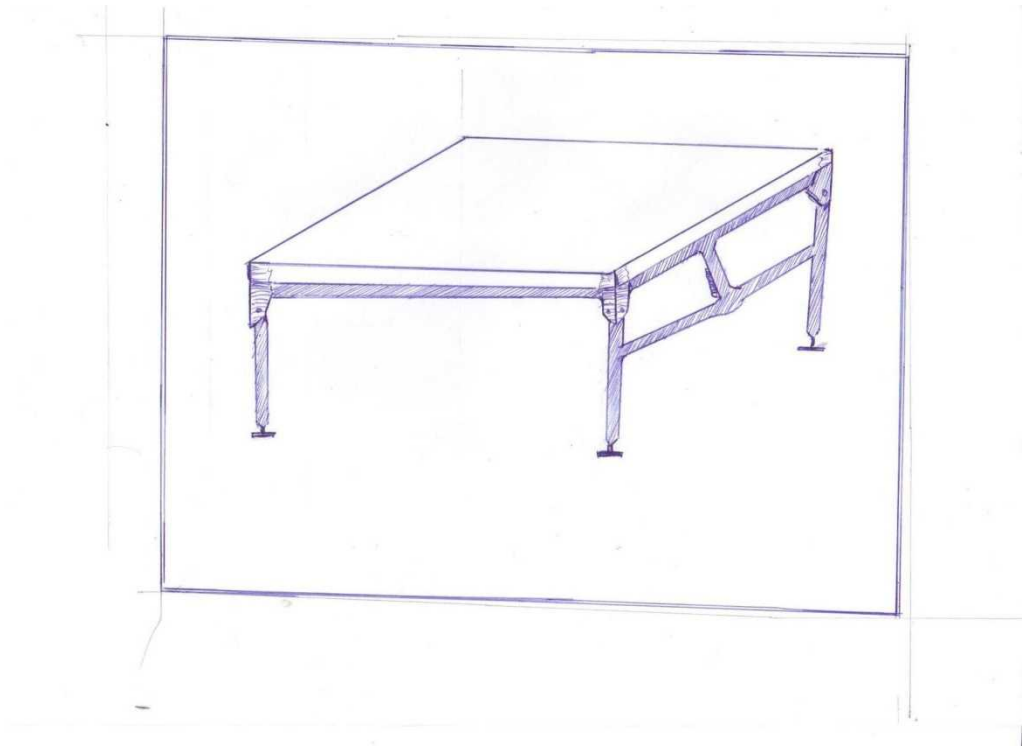


Figure 3.5: Concept E

Figure 3.5 show the concept E of the folding table. This concept is a datum for this project. The leg of table can be fold because the mechanism of spring applied. The spring connected to the leg to make sure the leg can be fold. The table material for this concept is steel and wood. This table can be found on the lecture hall of ump on the Gambang campus. The structure of this folding table very strong.

3.5 CONCEPT SELECTION AND EVALUATION

Table 3.1: Concept Selection

	Concepts Variants				
Selection Criteria	**A**	**B**	**C**	**D**	**DATUM**
Easy to handling	_	+	_	+	0
Easy manufacture	+	+	_	+	0
Cost manufacture	_	_	+	+	0
Function	0	_	0	0	0
Material need	_	_	_	_	0
Safety	+	_	+	+	0
Plusses	2	2	2	4	
Same	1	0	1	1	
Net	0	-2	-1	3	
Rank	2	4	**3**	**1**	
Continue	No	No	No	Yes	

+ = Better than
- = Worse than
0 = Same as

From the concept selection table 3.1, the advantages and disadvantages of the design can be outline. Criteria or characteristic for the product t be fabricated are the important things to be considered. According to the table concept d scores the highest positive sign. Therefore the concept d is the best concept to be produce because the concept D can be fold into the small one.

This concept also more durable because using the material where form from rectangular steel. This concept also uses the hinge as a mechanism to be fold as we know the hinge very easy to find. So, this concept is the best among the best and this product also easy to fabricate and the cost also reasonable. This concept had good criteria to be a best selection too be fabricate.

3.6 COMPUTER AIDED DESIGN DRAWING

After the sketched design was choose. The selected design transfer to the solid modeling and engineering using Auto Cad software.

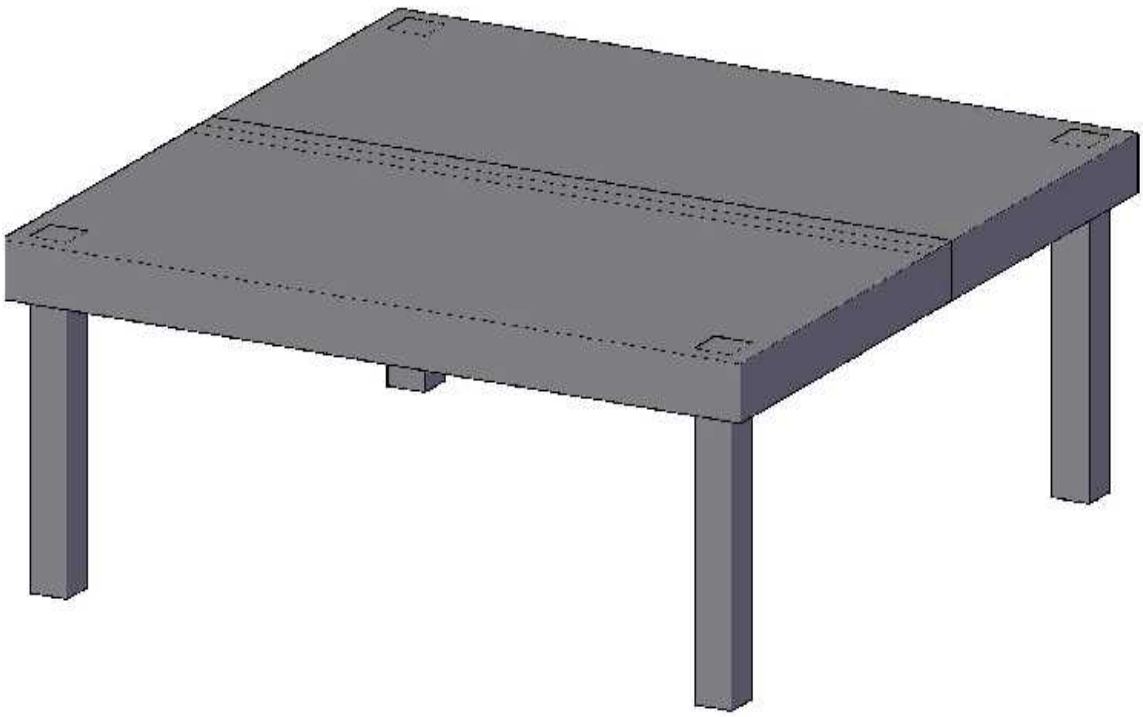


Figure 3.6: 3D drawing of the folding table

3. 7 DESIGN SPECIFICATION

Based on the drawing and sketching selection. After generated and evaluated the best concept selection. The concept D is a best concept among the rest concept. the concept D is the best and will be fabricated.

3.7.1 Bill of Material (BOM)

Table 3.2: Bill of Material (BOM)

Type of Material	Dimension	Amount
Rectangular steel	500mm×25mm	4
Rectangular steel	300mm×25mm	4
Rectangular steel	600mm×25mm	2
Aluminum	300mm×300mm	2
Hinge		6
Key		4

3.8 TECHNICAL OF EQUIPMENT

There are several specification that must be considered when using machinery or equipment when fabricate the folding table. the fabricate equipment such as hand grinding machine and MIG welding machine. Below are specifications each of equipment:

3.8.1 Hand Grinding

i. Voltage:240 v
ii. Ampere:2.8 A
iii. Frequency : 50-60Hz
iv. Watt: 680 w
v. Rpm :11000 min-1
vi. Diameter :100mm

3.8.2 MIG Welding Machine

i. Voltage:22.0 v
ii. Ampere: 140 A
iii. Frequency:50-60Hz
iv. Rpm: 6m/min
v. Diameter: 20L/min

3.9 FABRICATION PROCESS

Fabrication process is a stage after designing process. these processes are about the material selection and make the product base on the design and by followed the design dimension .most of product produce was made by steel and aluminum .in fabrication stage , a lot of method can be applied to produce the products such as welding, cutting ,drilling and etc.

Fabrication process is difference from manufacturing process in term of production quantity. Fabrication process is a process to make only one product rather than manufacturing process focus on the large produce. in this project fabrication process need to make frame by using steel.

Fabrication process was used at the whole progress to make product. This was include part by part fabrication until assembly to others component such as table frame with the leg.

3.10 PROCESS INVOLVED

The process involved in fabrication process of folding table.

i. Measuring

Materials are measured to desired dimensions or location using measure tape and vernier caliper

Figure 3.7: measuring

ii. **Marking**

All measures materials need to be marked to give precise dimension

Figure 3.8.1: Marking the material

Figure 3 8.2.: Marking the material

iii. **Cutting**

All materials need to be cut followed the dimension using the grinder hand.

Figure 3.9: Cut the material using the hand grinding

iv. **Drilling**

The frame of folding table need to be drill to put the aluminum table on it by using rivet. The drill press applied.

Figure 3.10: Using drilling machine to make a hole

v. **Joining**

Materials joined by the method of welding and MIG. Figure 3.11 and 3.12 show the type of welding will using in the joining method

Figure 3.11: Using Welding to join the material

Figure 3.12: Using the MIG Welding to join small part

vi **Rivet process**

Rivet process is to join the aluminum with the body frame of folding table. Figure 3.13 below show the rivet.

Figure 3.13: Rivet

vi. **Finishing**

Any rough surface cause by welding spark need to be grind with using hand grinding to give smooth surface and safe surface.

Figure 3.14: Finishing process using hand grinder

vii. **Painting**

Using black and silver colour paint to paint the folding table. Figure 3.15 show the folding table which already finished in painting process which the silver colour to the aluminum and black for the leg and body

Figure 3.15.: Painting table with silver and black

CHAPTER 4

RESULT AND DISCUSSION

4.1 INTRODUCTION

The final fabrication of the folding table is done from only limited times due to several problems occur to the project. In this chapter will discuss mainly about the problems encountered during the whole project was been carried out and this chapter will present about the result of the project and little discussion and analysis.

4.2 RESULT

The folding table had finished fabricate according to the plan on time before the final presentation. Below is a picture of the product of the folding table;

Figure 4.1: Front view

Figure 4.2:Top view

Figure 4.3:Side view

4.3 PROJECT PROBLEMS

4.3.1 Material

After cutting the materials, the surface not too smooths and need to be grinding. The surface

4.3.2 Welding process

When the welding process, the material cannot afford the temperature from the welding and might the material damaged, or the hole on the material created

4.3.3 Strength

After finished the fabrication the folding table did not to strong to afford load and easy to drop down. The folding table needs to be fabricating again until the table really strong to afford the load

4.3.4 Painting

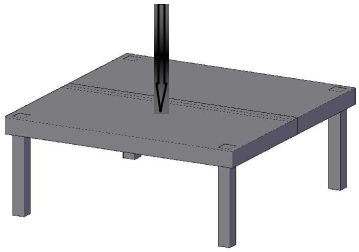
When painting process, the aluminum can not absorbed the paint .

4.3.5 Joining

The joining material as frame body and leg broken when joining process using welding.

4.4: STRESS ANALYSIS

30 Kg



i. Assume the load acting on the table 30 kg

Area hollow steel

$2.5806 \ x\ 10^{-3} m^2$

ii. Distribute force divided by 4 because table had 4 leg

iii. Calculate stress that received by every chair

$$\sigma_{cal} = \frac{F}{A}$$

$$\sigma_y > \sigma_{cal} \qquad \sigma y = 250MPa$$

4.5 COST ANALYSIS

Table 4.1: Cost Analysis

Type of material	Dimension	Price	Amount	Total
Rectangular steel	500mm × 25mm	RM6.00	4	RM 24.00
Rectangular steel	300mm × 25mm	RM3.00	4	RM 12.00
Rectangular steel	600mm × 25mm	RM7.00	2	RM 14.00
Aluminum	300mm × 300mm	RM5.00	2	RM 10.00
Hinge		RM2.00	6	RM 12.00
Key		RM3.00	4	RM 12.00
			∑ Total=	RM 84.00

CHAPTER 5

CONCLUSION AND RECOMMENDATION

5.1 INTRODUCTION

This final chapter represents about conclusion and recommendation for the project. In this chapter will discuss mainly about the conclusion of the project, concluding all the process that involved. Besides that this chapter also contains recommendation about the project. So for this recommendation it can make improvement about the project in the future.

5.2 CONCLUSION

The objectives of the project that are to design and fabricate folding table are successfully done and achieved. Although there are a lot of obstacles, I am really thankful that I can finish this project within the time given. I am also really satisfied where I have learned a lot of knowledge and skill in so many things throughout this project. I hope these valuable experiences I get will be useful to me in the future.

This project also generates my capabilities as a responsibility person. This is because I had to take care and take a look for my project. Finally, I can conclude that final year project is very important because we can learn a lot of things that are important for us to use them while we are working in the futur

5.3 RECOMENDATION

5.3.1 Other Material

Maybe in the future, we can change the material to make a stronger folding table. Not only the material is stronger, it is also lighter to make sure the folding table more lighter to bring anywhere.

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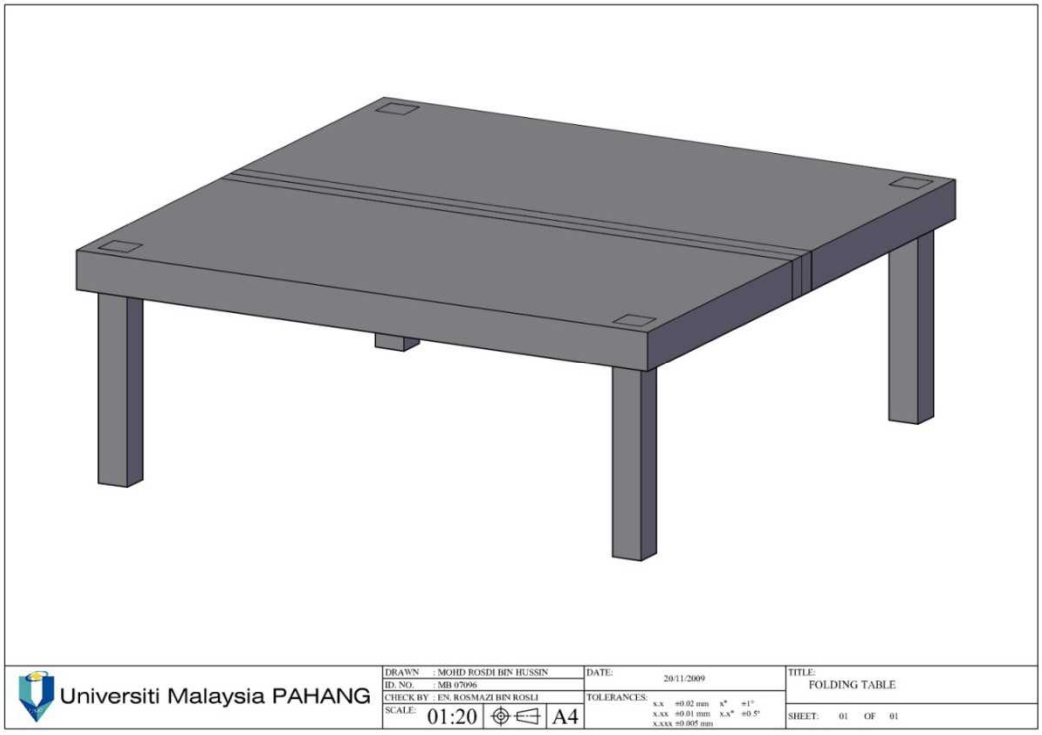
GANTT CHART

APPENDIX B


Universiti Malaysia PAHANG
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ID. NO. : MB 07096
CHECK BY : EN. ROSMAZI BIN ROSLI
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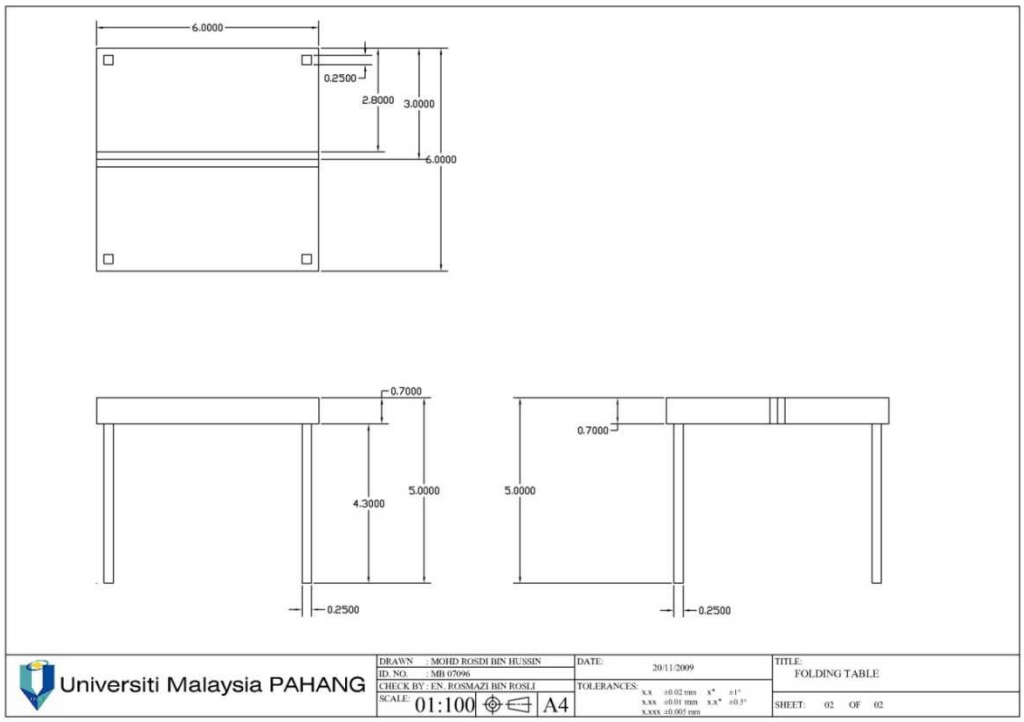
DATE: 20/11/2009
TOLERANCES:
x.x ±0.02 mm x° ±1°
x.xx ±0.01 mm x.x° ±0.5°
x.xxx ±0.005 mm
TITLE:
FOLDING TABLE
SHEET: 01 OF 01



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