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PROJECT TITLE : CHAMELEON SOFA

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1.0 PROJECT TITLE

1.1 CHAMELEON SOFA

The idea of chameleon sofa is taken from the animal chameleon. Chameleon have a special ability to change their colors with there surrounding. They live in warm habitats that range from rain forest to desert conditions. When the chameleon settled down to sleep, the tail will often curl up into a perfect spiral. The concept of modification that occurs on a chameleon is modified into a function because the nature of the chameleon can change its body color according to the environment and conditions. Thus, resulting in the name of a chameleon sofa with various functions.

2.0 PROBLEM STATEMENT

The living room is the heart of the house. (Raffa, S. 2015) ''Every home has a living room''. The living room is the center of the house where emerge people lifestyle and appreciation of furniture design. It is also a place for activities such as recreation, relax, entertain guests, workplaces, and more. Therefore, living space is very important for a home to be used by us. Thus, lack of space in your living room can cause a lot of problems in your house and your home will look messy.

3.0 METHODOLOGY

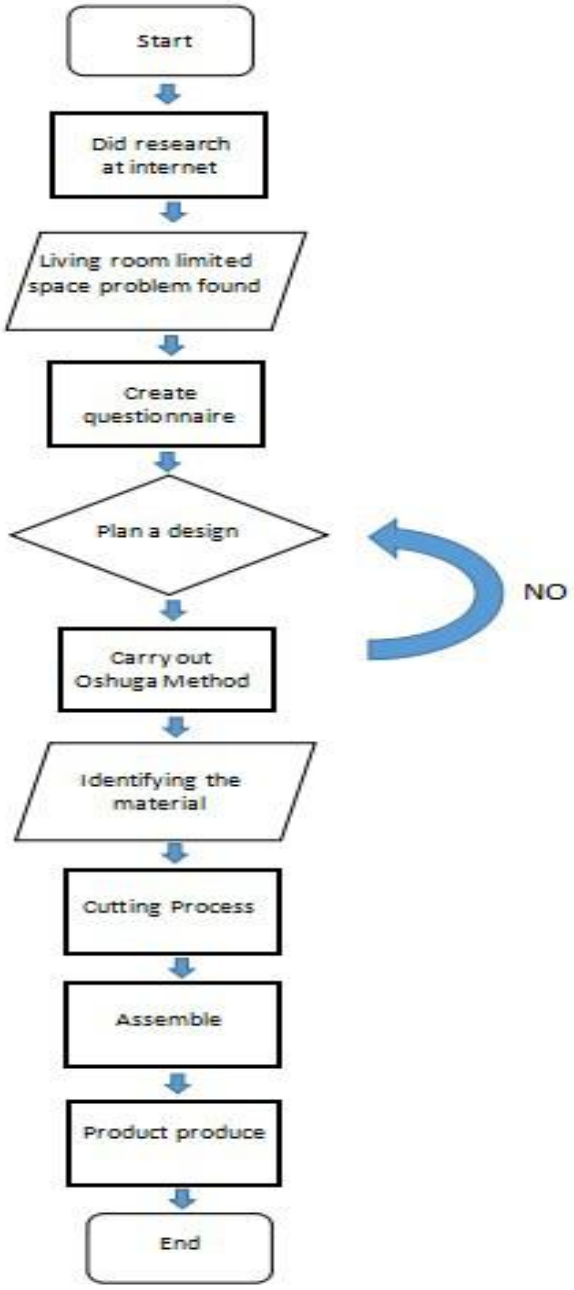
In this chapter, the details about the process to prepare final proposal is presented. The cutting list to show the dimension and questionnaire data to support the produce the product are documented in this chapter.

Our innovation idea for the product is based on Instagram platform "*365object by Berlin based Designer Micheal Hilgers*" **(refer to Appendix A)**. We are planning to make Chameleon Sofa Bed to encounter limited space problem in living room. Examination of the furniture or sofa that are taking too much space in our living room. The method is to study the problem and adding something new idea and design to our sofa bed. This process will continue to measure, cut, and this process will be carried out after obtaining the material. The next step is the process of cutting and assembling process and finally finishing process.

3.1 Location

The present study will be conducted in Politeknik Sultan Salahuddin Abdul Aziz Shah, Selangor. This area is selected because firstly, it is accessible and convenience to our research. Secondly, Politeknik Sultan Salahuddin Abdul Aziz Shah is an already establish settlement, populated mostly by students from various races, course and semesters and workers of all age and class. Given that adolescents in Politeknik Sultan Salahuddin Abdul Aziz Shah are of interesting this study, this area seemed highly appropriate.

3.2 Methodology Flow chart



3.3 Ohsuga method

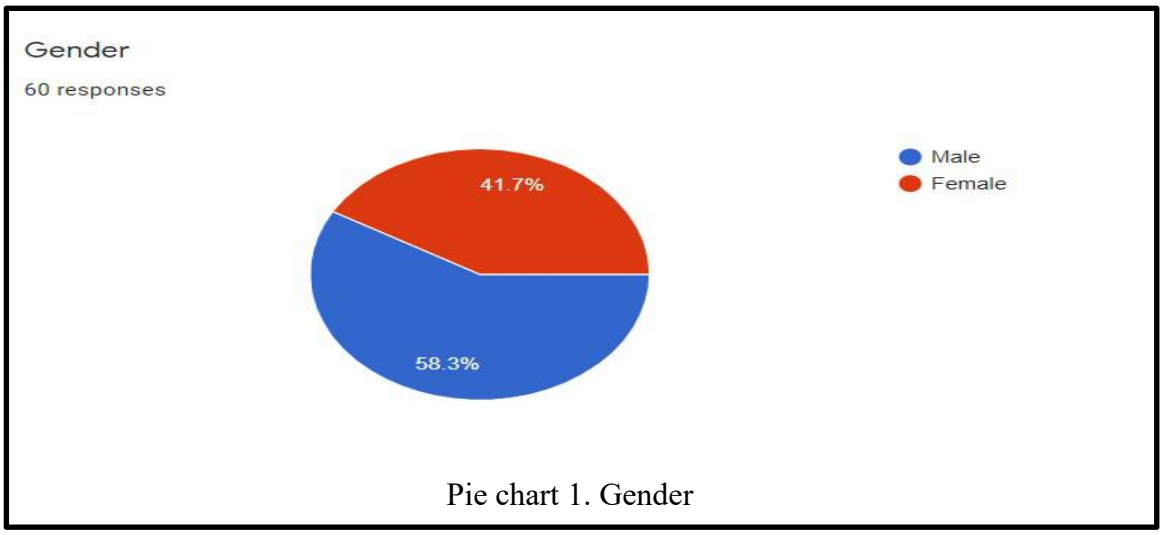
Ohsuga describes the design as series of stages progressing from requirements through the conceptual design and preliminary design to detail design .

On this Ohsuga method , We create the Ohsuga Model **(refer to Appendix B)** based on information we are looking . Ohsuga model that are created using scale (1 : 5) based on the size of current single sofa and single sofa bed, ergonomic human body and size and standard size of living room to make it fit with our product.

3.4 Questionnaire (Sample)

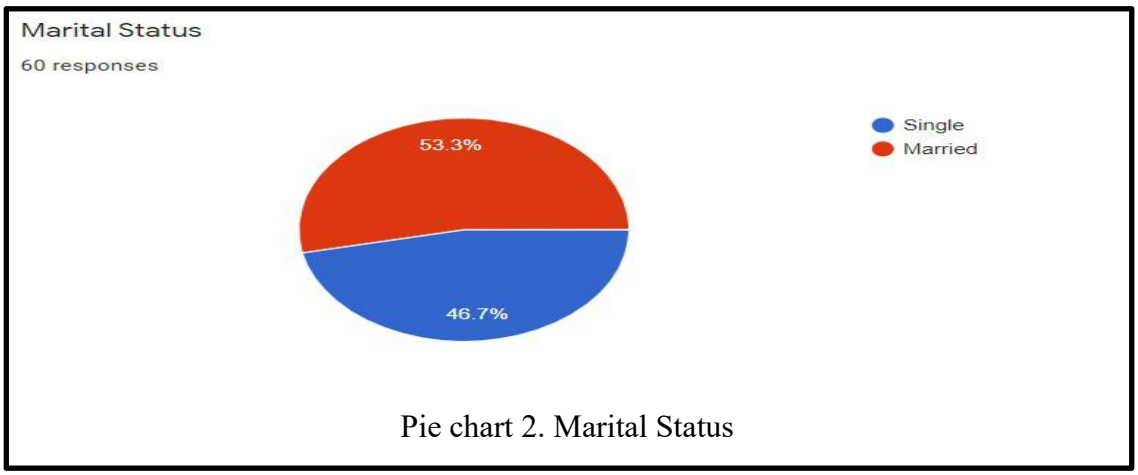
The subjects of our study will be the residents around Politeknik Sultan Salahuddin Abdul Aziz Shah. A total of 60 people who are residents that live near Politeknik Sultan Salahuddin Abdil Aziz Shah will be involve as participants of the study. The multi-stage cluster is used when natural grouping are apparent in the population. These cluster should obtain heterogenerus yet homogeeous elements and be able to represent whole population. Multi-stage cluster sampling involves the repetition of two basic steps, listing and sampling (Babbie,1999). The list of primary sampling units is compiled then selected primary sampling units are then listed. The list of secondary sampling units is then sampled.

3.5 Analysis result



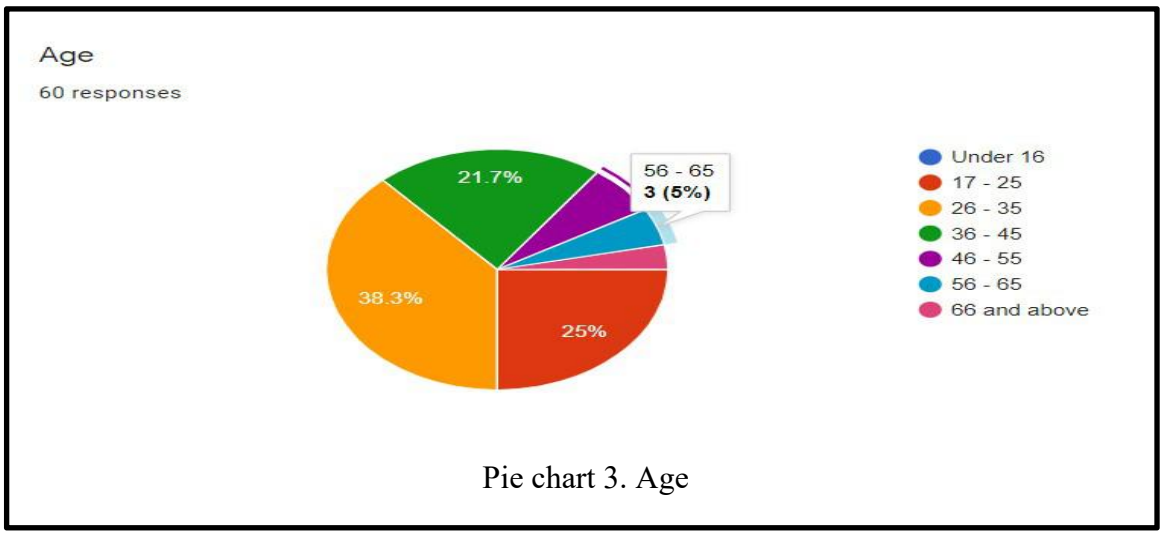
Pie chart 1. Gender

a) Gender (60 responses) have 58.3% is Male and 41.7% is Female. In addition, the male is majority in the survey and the number of male is 35 people. Beside that, the number of female is 25 people.



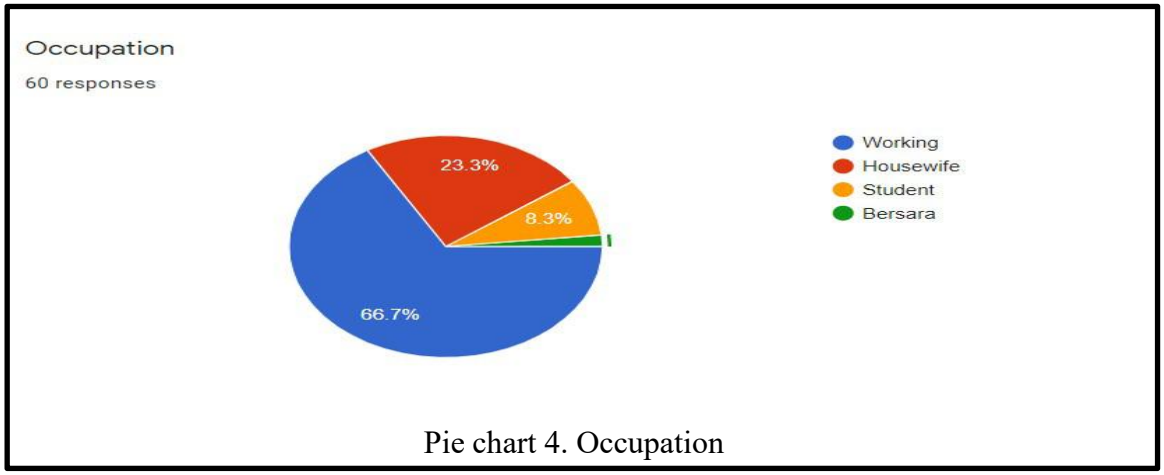
Pie chart 2. Marital Status

b) Marital status (60 responses) have 53.3% (32 people) is Married and 46.7% (28 people) is Single.



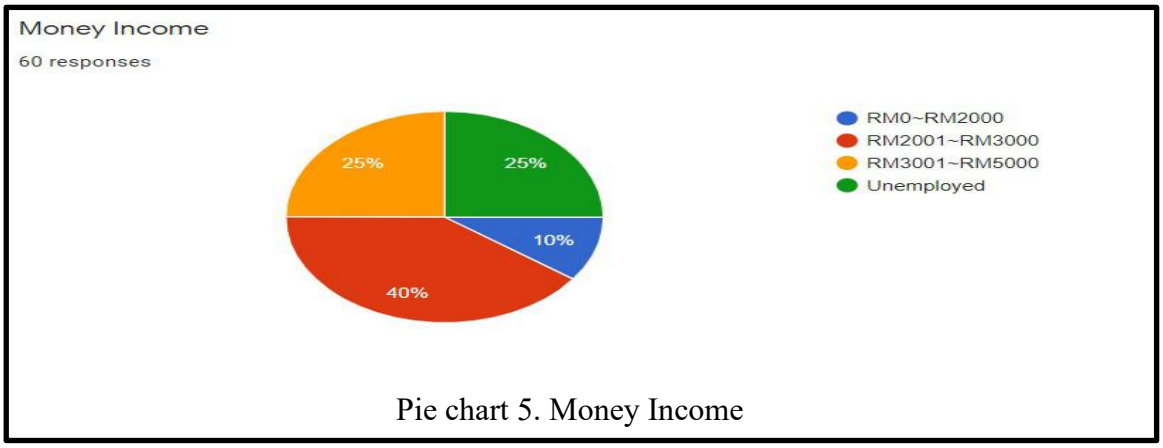
Pie chart 3. Age

c) Age (60 responses) have 38.3% is 26-35 age. In the age group of 26-35 is majority in the responses. The second is group of 17-25 age that this group are occupy 25% and third is group of 36-45 age that this group are occupy 21.7%.



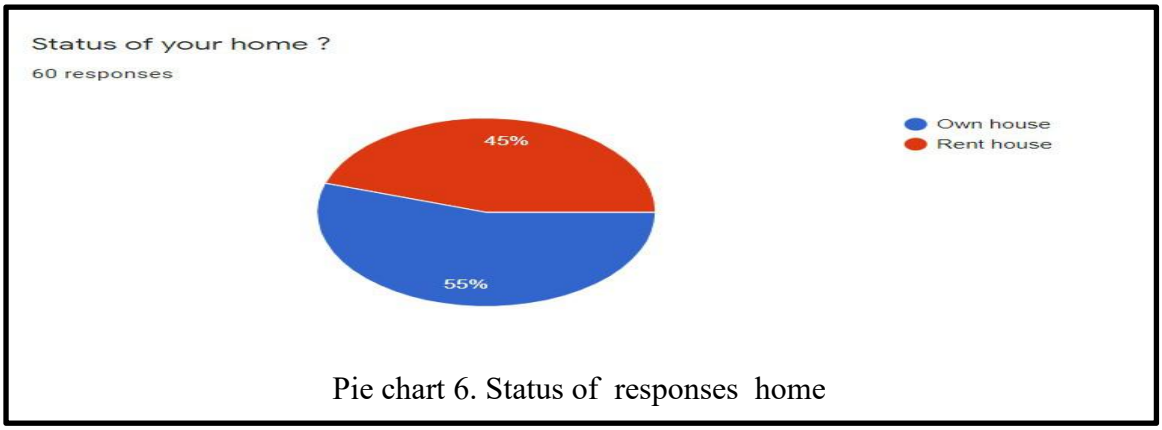
Pie chart 4. Occupation

d) Occupation (60 responses), who are working is 66.7% (40 people) in 60 responses and housewife only have 23.3% (14 people), 8.3% (5 people) of student and 1 retired.



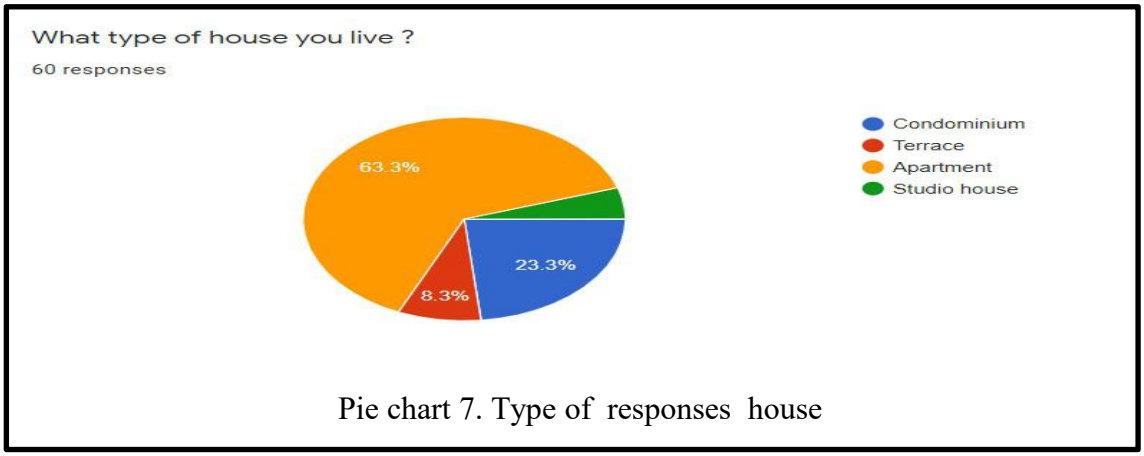
Pie chart 5. Money Income

e) Money income (60 responses), there are 40% of people money income is RM2001 – RM3000. On the other hand, the group RM3001 - RM5000 and Unemployed the percentage in pie chart same is 25%. Lastly, the group of RM0 - RM2000 is the minority in the 60 responses.



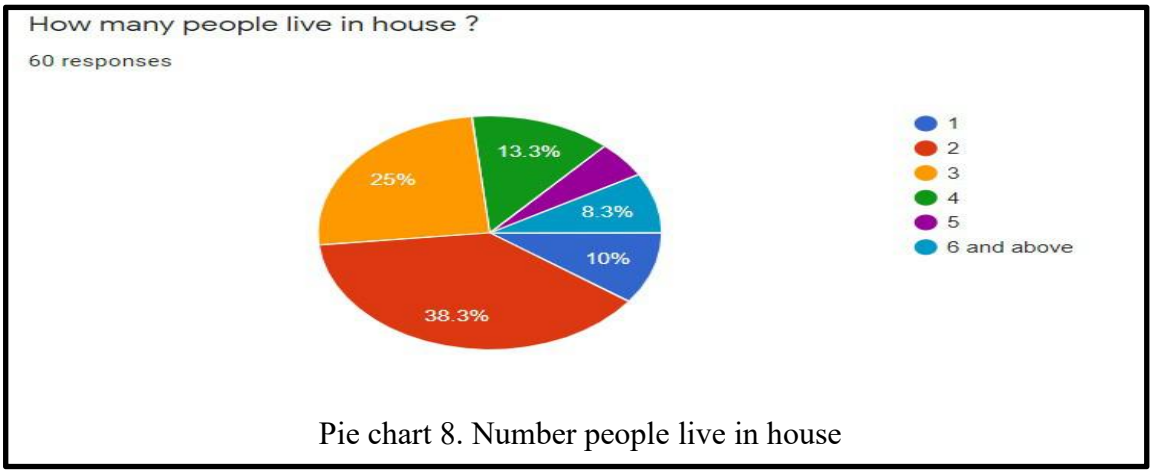
Pie chart 6. Status of responses home

f) Status of home (60 responses) have 55% (33 people) have Own house and 45% (27 people) have Rent house.



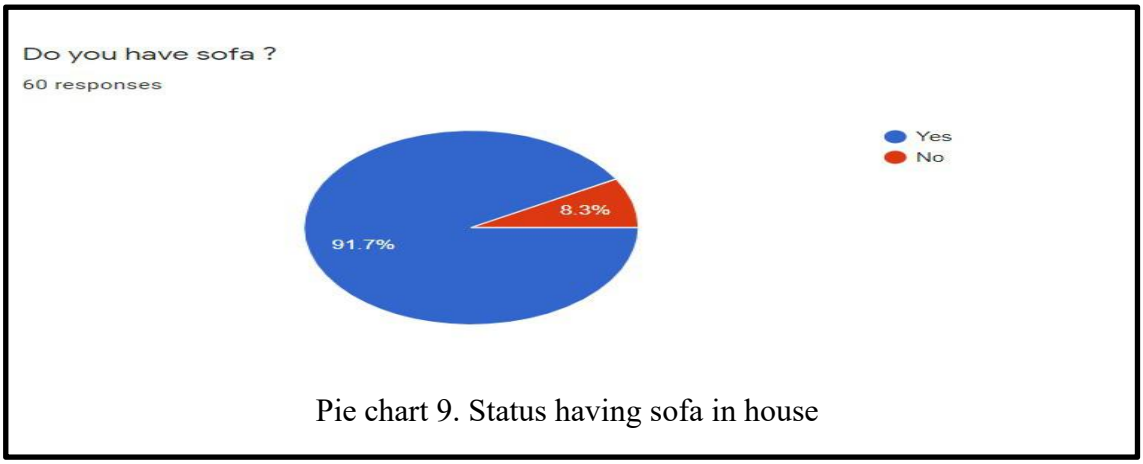
Pie chart 7. Type of responses house

g) Type of house (60 responses), majority people are stay at apartment and the second is condominium. The people stay at apartment are occupy 63.3% and the people who are stay condominium is 23.3%. Only the 8.3% are staying at terrace and lack of people are staying at studio house.



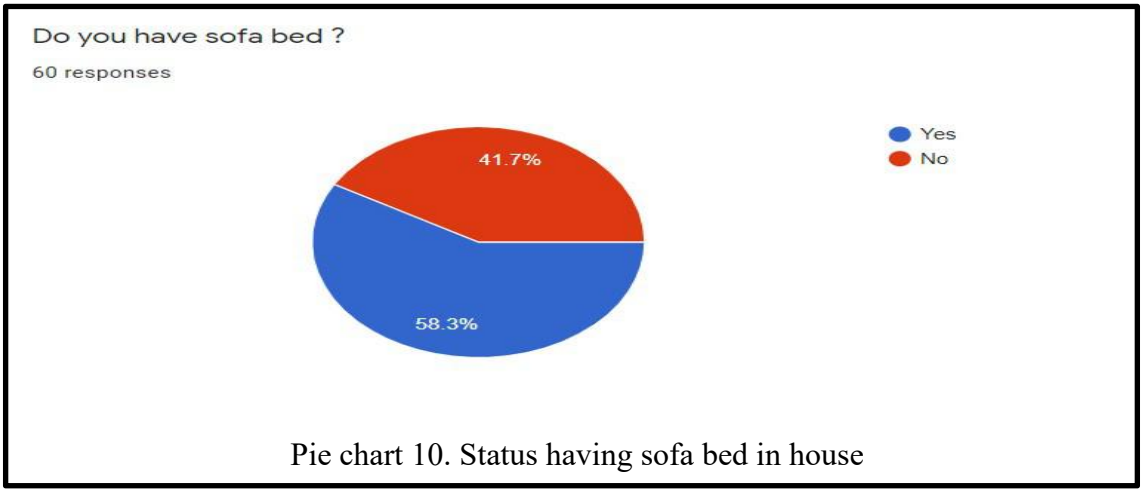
Pie chart 8. Number people live in house

h) Number of people live in house (60 responses), majority is 2 people live in house and occupy 38.3% in the pie chart. The second is 3 people live in house and have 25% in the pie chart. The people who are single live in house is occupy 10%.



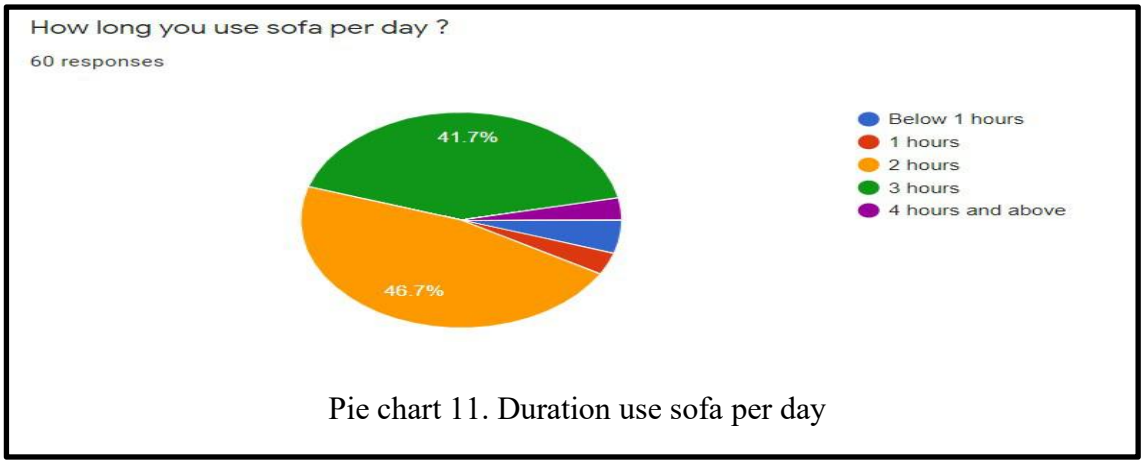
Pie chart 9. Status having sofa in house

i) People that have sofa (60 responses), 91.7% (55 people) have sofa in house and 8.3% (5 people) do not have sofa in house.



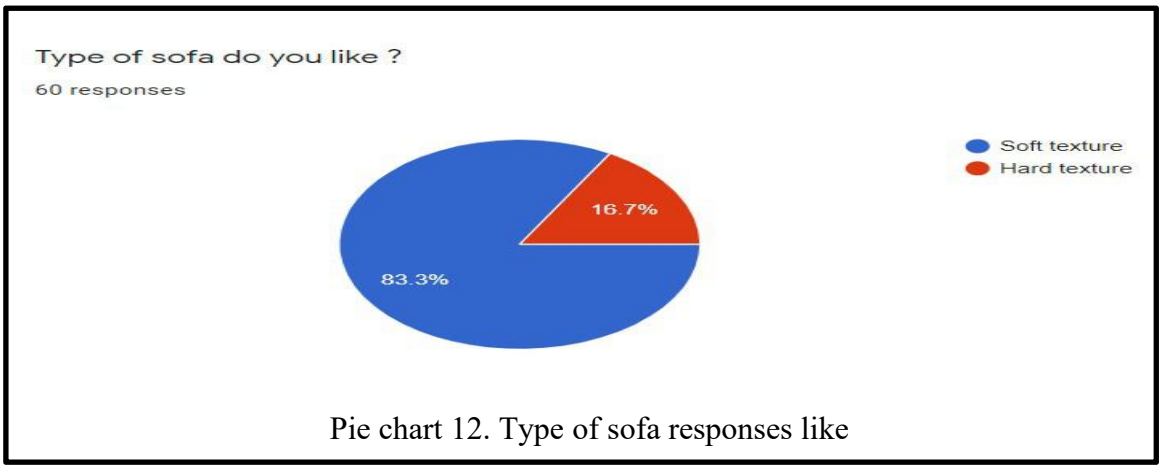
Pie chart 10. Status having sofa bed in house

j) People that have sofa bed (60 responses), 58.3% have sofa bed in house and 41.7% do not have sofa bed in house. In addition, the responses have sofa bed is majority in the survey and the number of people have sofa is 35.



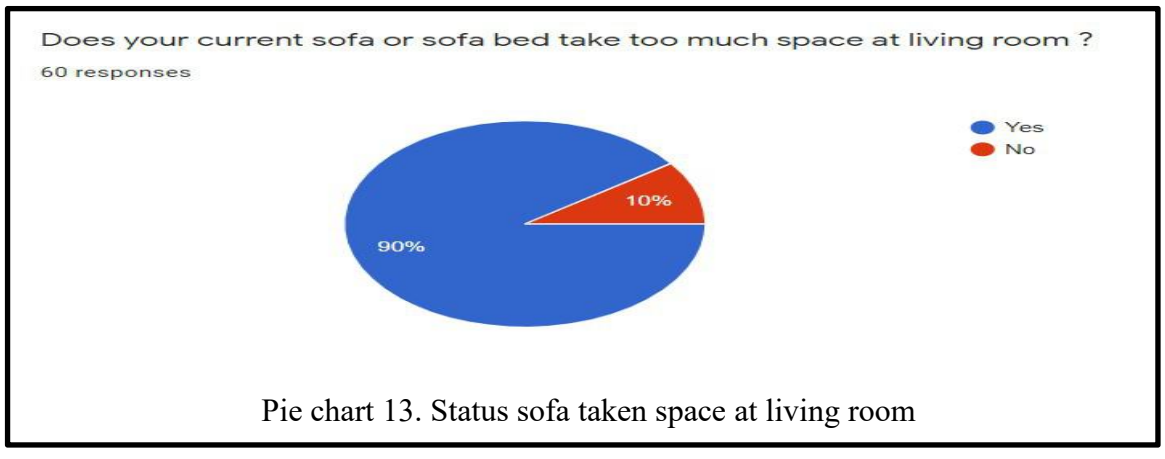
Pie chart 11. Duration use sofa per day

k) Time use sofa per day (60 responses), majority responses are using sofa per day is 2 hours and occupy 46.7% in the pie chart. The second 41.7% responses are using sofa per day is 3 hours. It is because the normal worker will enjoy the movie about 2 hours staying at home at night. The responses who are using sofa per day 4 hours and above probably is the old people and student.



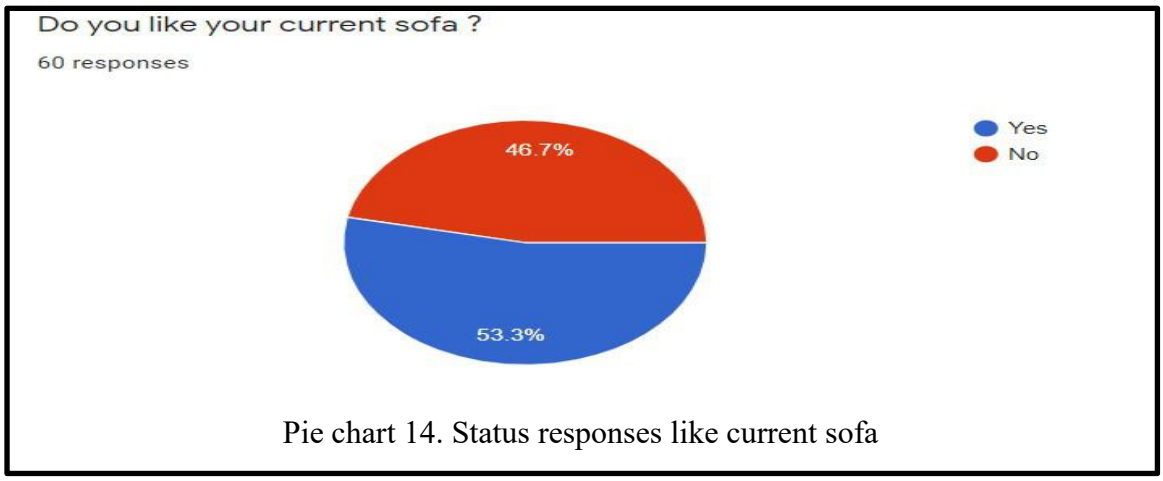
Pie chart 12. Type of sofa responses like

l) Type of liked sofa (60 responses), 83.3% like soft texture sofa and 16.7% like hard texture sofa.



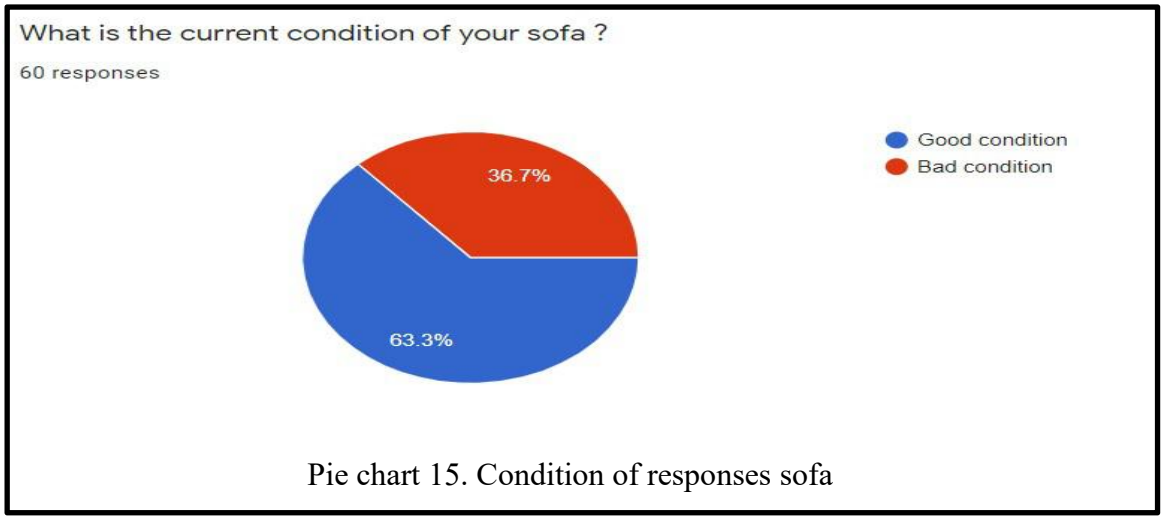
Pie chart 13. Status sofa taken space at living room

m) Status sofa taken space at living room (60 responses), 90% sofa taken space at living room and 10% responses sofa do not taken space at living room.



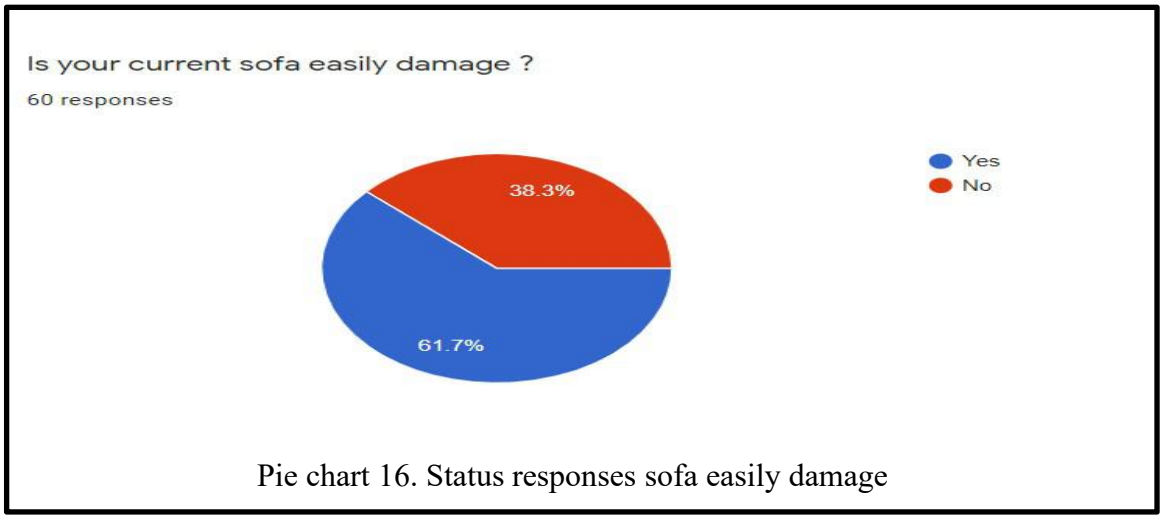
Pie chart 14. Status responses like current sofa

n) Liked current sofa (60 responses), 53.3% (32 people) like current sofa and 46.7% (28 people) do not like current sofa.



Pie chart 15. Condition of responses sofa

o) Condition of responses sofa (60 responses), 63.3% (38 people) have sofa in the good condition and 36.7% (22 people) responses have sofa in the bad condition.



Pie chart 16. Status responses sofa easily damage

p) Status responses sofa easily damaged (60 responses), 61.7% (37 people) have a sofa that are easily damaged and 38.3% (13 people) responses have a sofa are not easily damaged.

3.6 Cutting list

No	Part	Type of wood	Name	Dimension	Quantity
1	A	Block Board	Long seater surface	1200mm x 764mm x 18mm	1
2	B	Block Board	Short seater surface	900mm x 764mm x 18mm	1
3	C	Block Board	Long seater support	1620mm x 580mm x 18mm	2
4	D	Block Board	Short seater support	825mm x 420mm x 18mm	2
5	E	Plywood	Long seater back cover	1560mm x 764mm x 9mm	1
6	F	Plywood	Short seater back cover	1220mm x 764mm x 9mm	1
7	G	Block Board	Arc leg support	440mm x 120mm x 18mm	4
8	H	Block Board	Arc leg surface	406mm x 764mm x 18mm	2
9	I	Block Board	Arc leg back surface	388mm x 764mm x 18mm	2
10	J	Block Board	Ottoman top	800mm x 800mm x 10mm	1
11	K	Block Board	Ottoman side A	548mm x 764mm x 18mm	2
12	L	Block Board	Ottoman side B	548mm x 800mm x 18mm	2
13	M	Block Board	Ottoman base	384mm x 768mm x 18mm	2
14	N	Meranti beam	Support beam	768mm x 42mm x 20mm	60

4.0 SOLUTION PROPOSAL

We are taking this initiative to create a piece of furniture that will solve the problem of limited space (Chameleon sofa). This product has 3 functions namely normal sofa, sofa bed and ottoman storage **(refer to Appendix C).** The design is very ergonomic and single-size.

Our aim of doing this product to provide a wooden solid surface sofa bed and 3 in 1 functions sofa bed for those who are need to save place at their living room. Our product can be wooden solid surface and also put a layer of tatami sofa on the sofa bed. In the end, our wooden solid single sofa bed (Chameleon sofa) will match with who are wooden lover and saving space type group of people.

In addition, the sofa is made of lightweight material as a blockboard to make it easier for users to change the direction of the sofa. Most of the sofa for sale on the market are quite heavy to change or lift. With our sofa (Chameleon sofa) users do not have to worry about lifting or changing the direction of the couch.

5.0 BENEFITS

Multi-functional and saves space especially in the living room and in a narrow space . Sofa beds are ideal for smaller homes and apartments where adjusting regular furniture is a challenging task. The sofa bed will get useful storage space. Easily use that to conveniently store pillows and duvet after sleep and also provide a good level of comfortable . No need to organize an additional storage solution. can also use the storage to pack other belongings and excess items in an organized way. This makes sofa beds a solution if seeking to make home tidy and free from clutter. This feature blends well with the simple fold-up mechanism to ensure that no longer have to take annoying trips up and down for home to bring out bedding. In this way can facilitate users with daily activities.

In addition, with a variety of facilities in one product and attractive design and reasonable prices make it easier to attract buyers around the world. In addition to addressing space, income, health and home-related problems, it can enhance and stabilize the country's economy with quality market products

6.0 METHOD OF USE

In our case sofa bed can be change that it's uses depends on what to use with easy. Change it from sofa to bed by combining the sofa with ottoman storage to become a sofa bed. Our product have multiple features such as being a sofa bed, having a table behind the sofa when it's in sofa mode.

The Chameleon Sofa can split into two part, which are the sofa and ottoman storage **(refer to Appendix C)**. It also have 3 in 1 function which greatly reduce the space needed for other furniture. The ottoman storage can be used to store a tatami bed and pillow. It also has a foldable table top behind the sofa when it is on sofa mode **(refer to Appendix C)**. Chameleon sofa can be use with or without the need of tatami because it has a smooth surface which would not irritate human body. With all the features, it is definitely suitable for people who like to live with lifestyle.

7.0 CONCLUSION

In conclusion, Chameleon sofa not only help people with their problems but it also teaches us how to design, getting the right materials, using tools correctly and create the sofa itself. With more time, we can put more ideas into the product and thus made the product more functional. Chameleon Sofa also given us a big breakthrough of design ideas. For example, the ideas for the folding table was not intended but we saw an opportunity to make it so we added that as another function. However, Chameleon Sofa can be be used for people with different lifestyles like for average people who just wanted to save their living room spaces or for people who want a unique furniture design in their living room. Chameleon Sofa can also solve the problems many people has such as the limited space in living room by providing a furniture that has multiple function of use. We hope that this product can help people solving the problems we mentioned before.

8.0 APPENDIX

8.1 Appendix A (Origin Idea)

Image 1. Origin idea from "*365object by Berlin based Designer Micheal Hilgers*"

Image 2. Origin idea from "*365object by Berlin based Designer Micheal Hilgers*"

8.2 Appendix B (Oshuga Method)

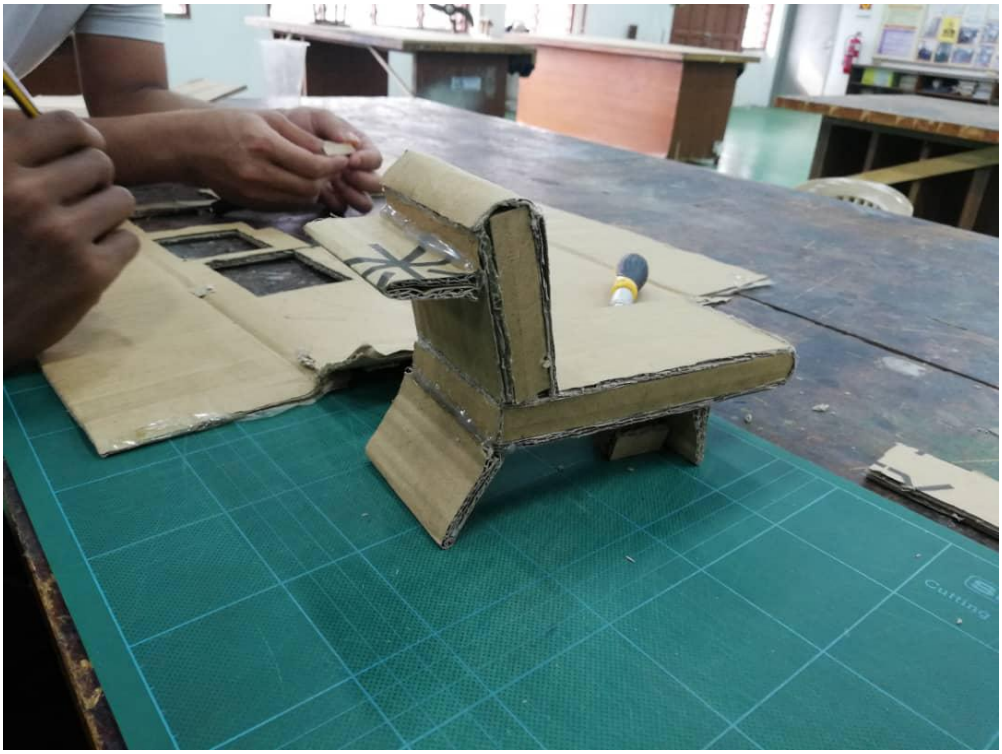


Image 3. Create Ohsuga Model using cardboard scale (1:5)

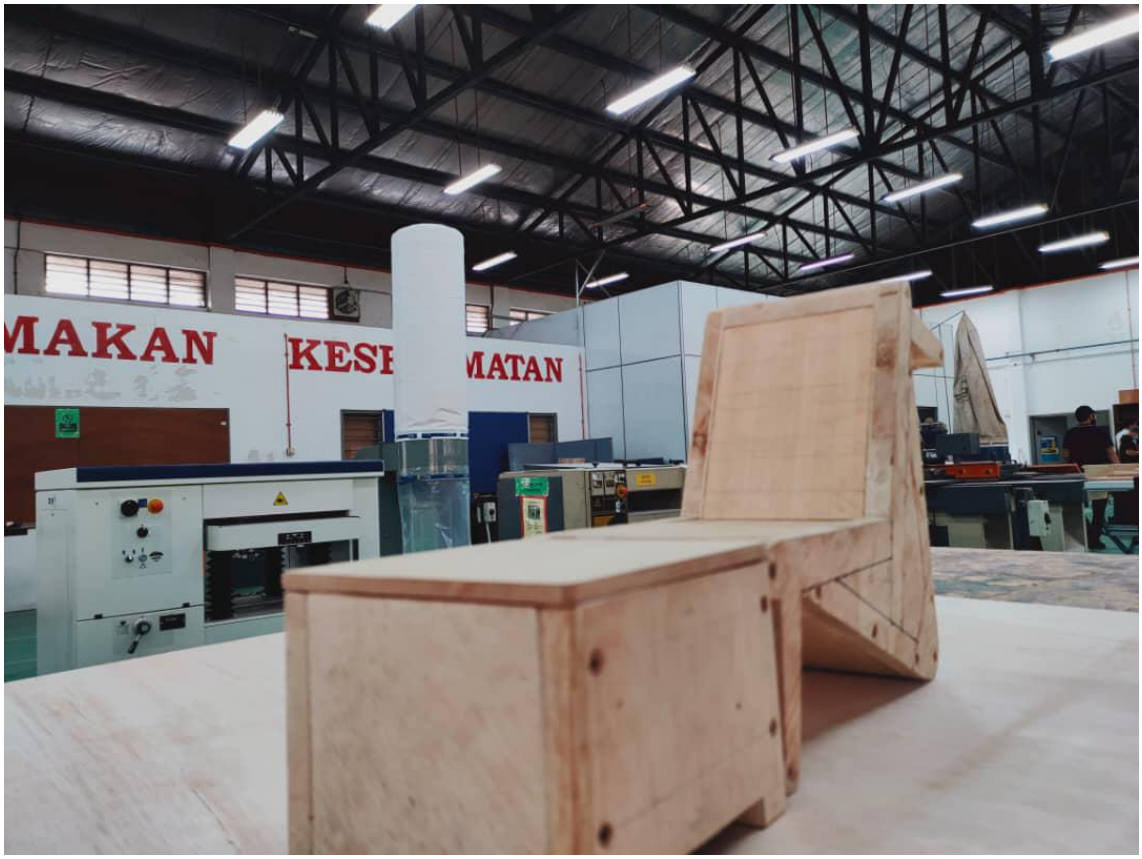


Image 4. Create Ohsuga Model using Blockboard scale (1:5) “Sofa bed view”

Image 5. Create Ohsuga Method using Blockboard scale (1:5) “Sofa view”

8.3 Appendix C (Function of Chameleon Sofa)

Image 6. 3DS MAX Rendering (Sofa Mode)

Image 7. 3DS MAX Rendering (Foldable Table Mode)

Image 8. 3DS MAX Rendering (Sofa Bed with Ottoman Storage Mode)

8.4 Appendix D (Design process)

Image 9. First design of Chameleon Sofa (autocad rendering)

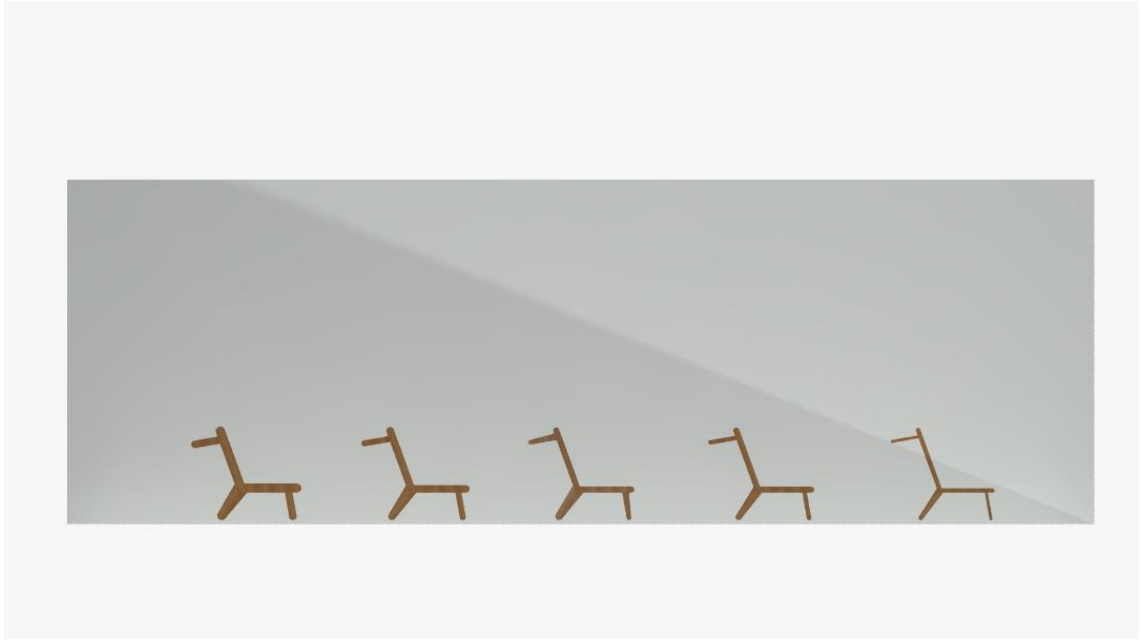


Image 10. Thickness identify

Image 11. Second design of Chameleon Sofa (autocad rendering)

Image 12. Third design of Chameleon Sofa (autocad rendering)

Image 13. Final design of Chameleon Sofa (autocad rendering)

Image 14. Final design of Chameleon Sofa (autocad rendering)

Image 15. Final design of Chameleon Sofa with Tatami (autocad rendering)

Image 16. Safety accessories

Image 17. Final design of Chameleon Sofa (autocad rendering)

Image 18. Final design of Chameleon Sofa (3DS MAX rendering)

8.5 Appendix E (Autocad drawing)

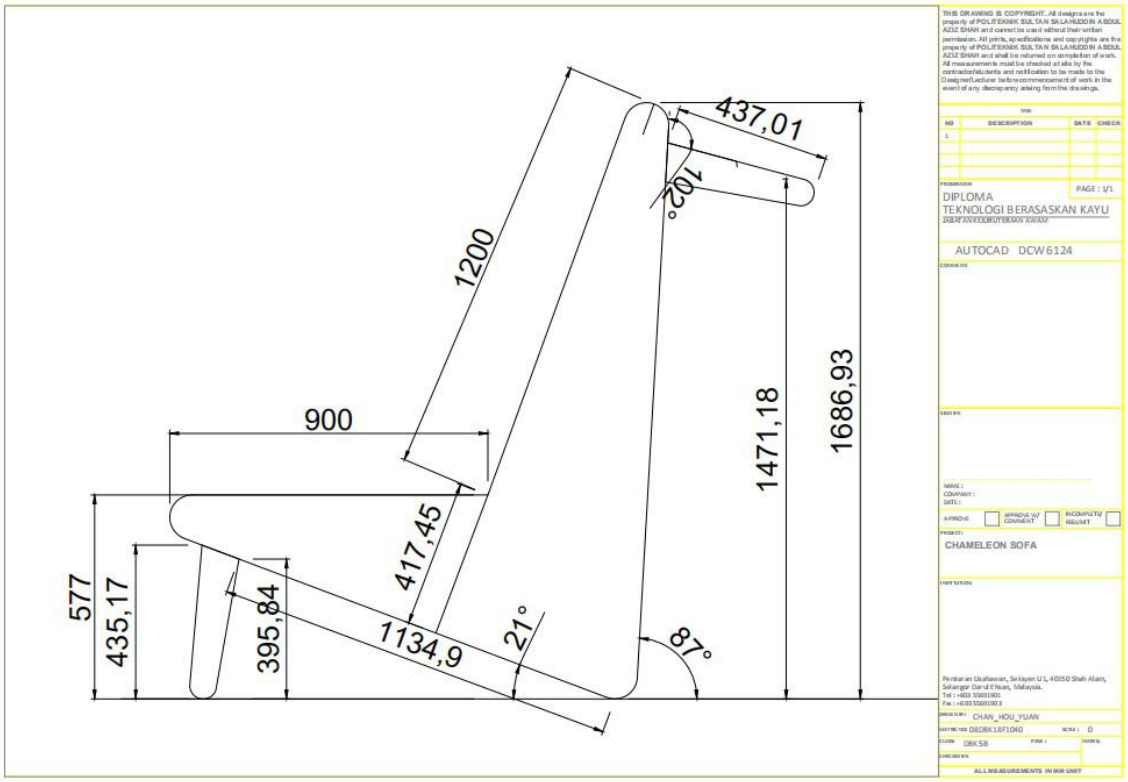


Figure 1. Sofa Mode 2D Dimension

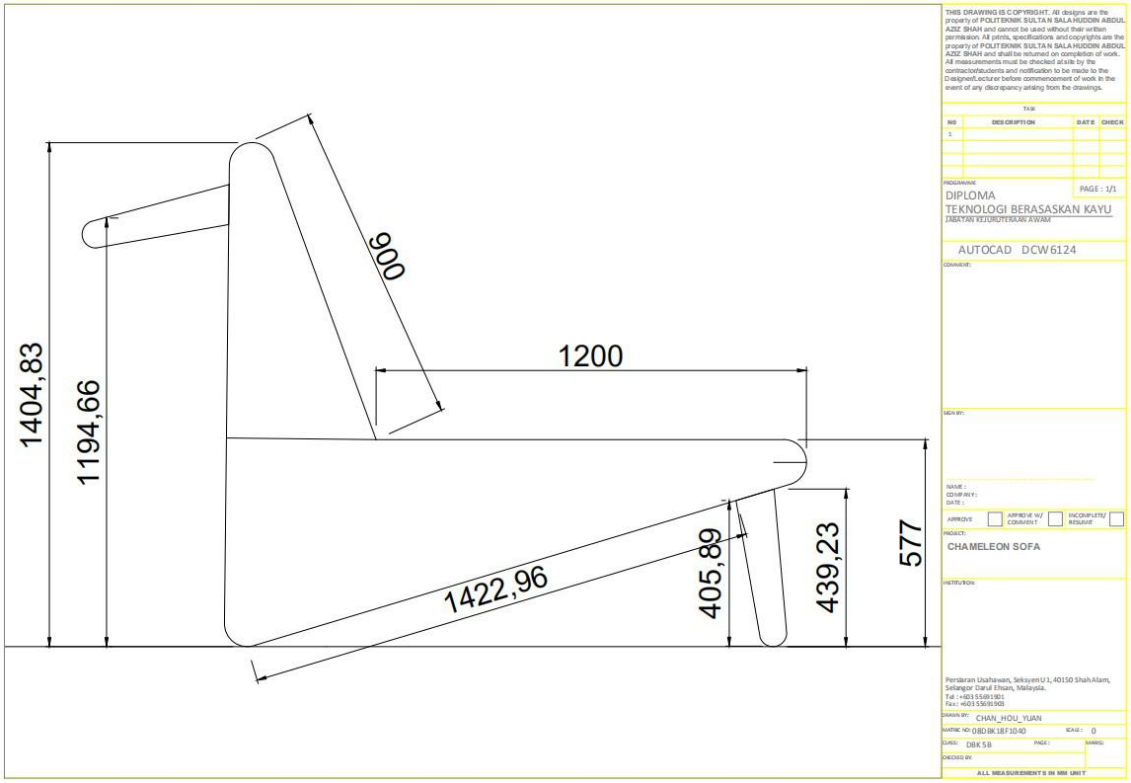


Figure 2. Sofa Bed Mode 2D Dimension

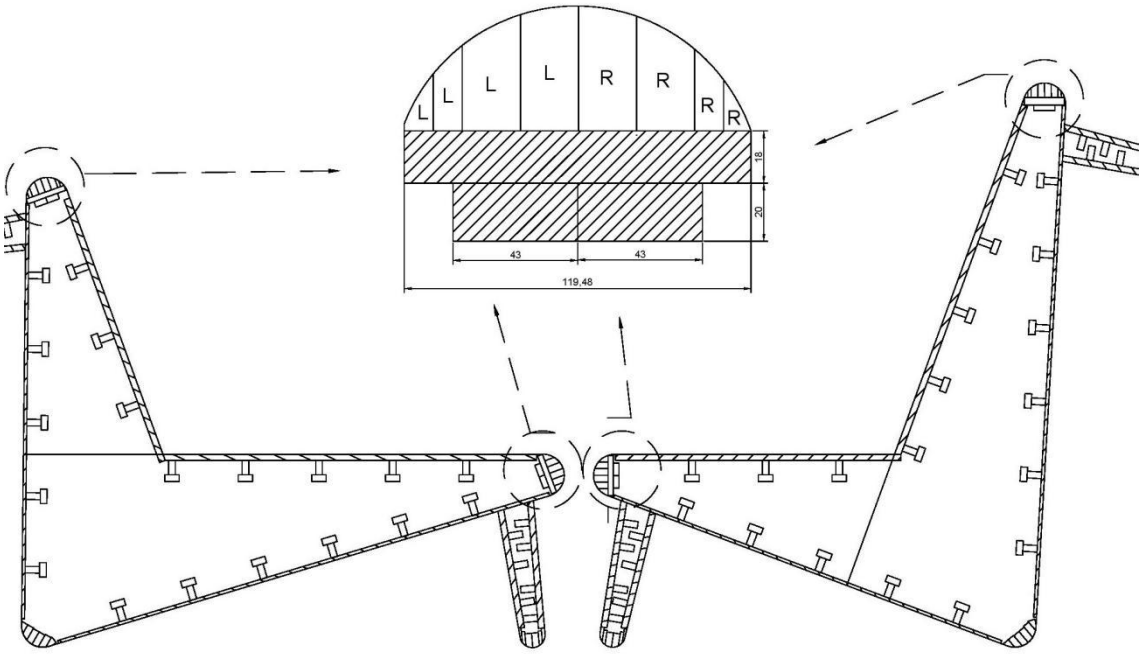


Figure 3. Curve detail drawing 2D Dimension

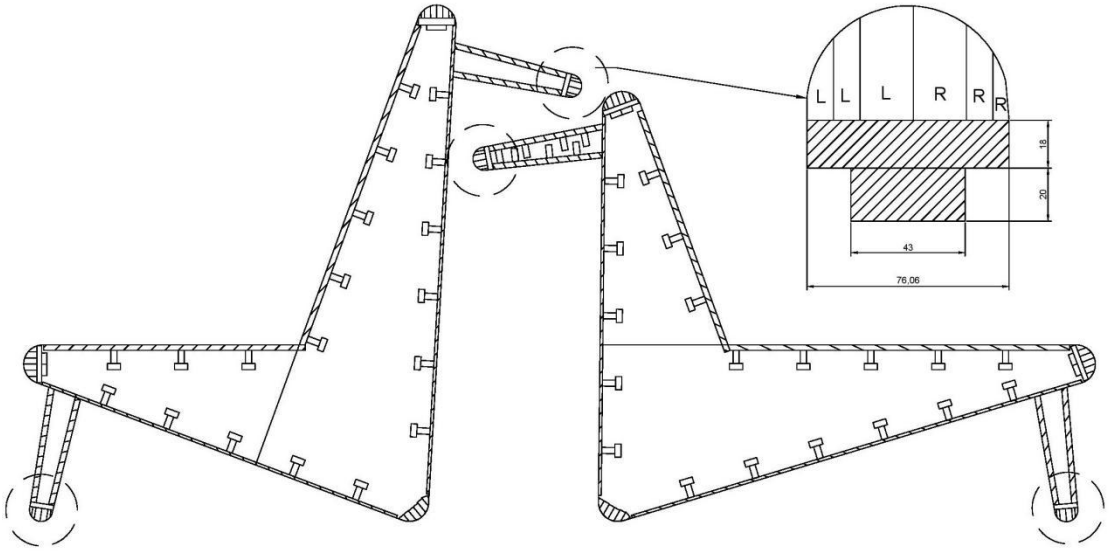


Figure 4. Leg curve detail drawing 2D Dimension

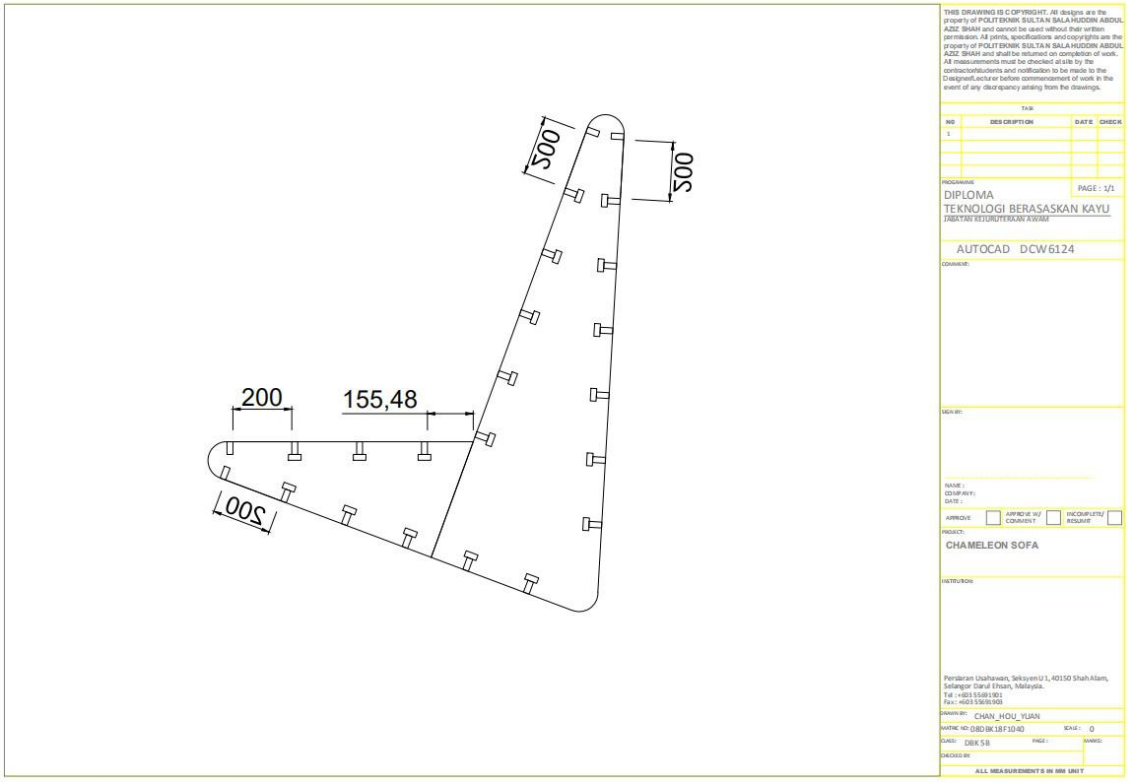


Figure 5. Support Beam 2D Dimension

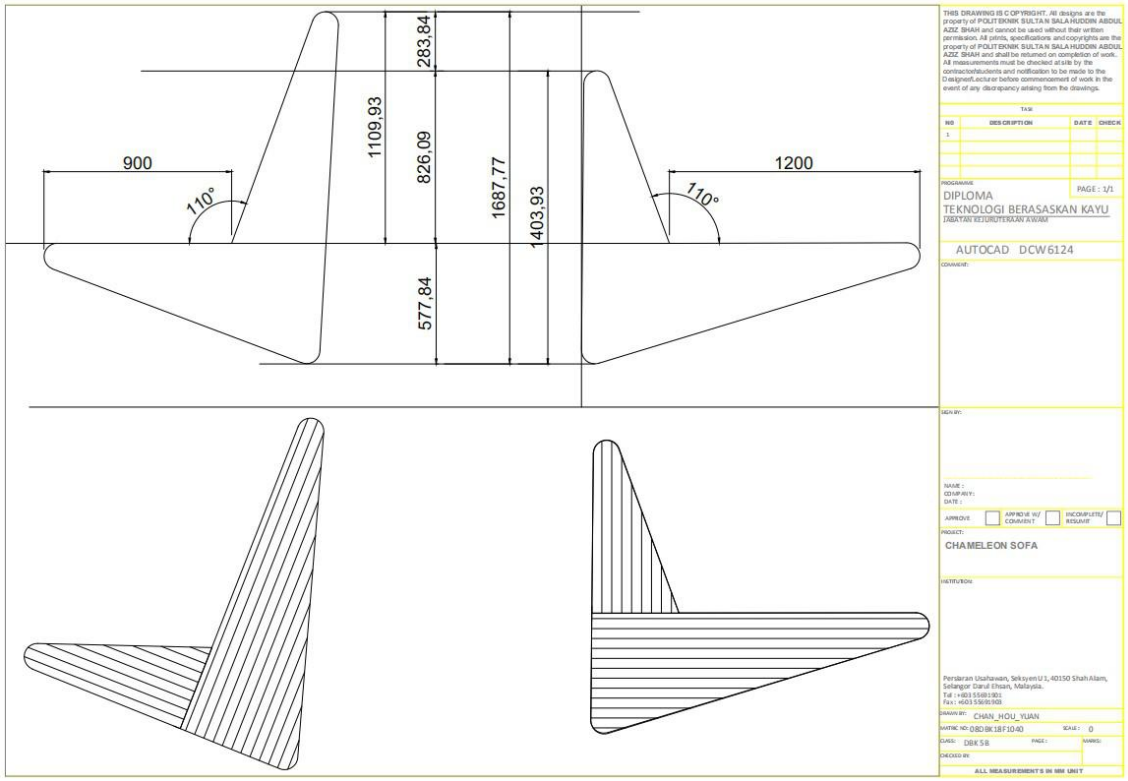


Figure 6. Overall Height 2D Dimension

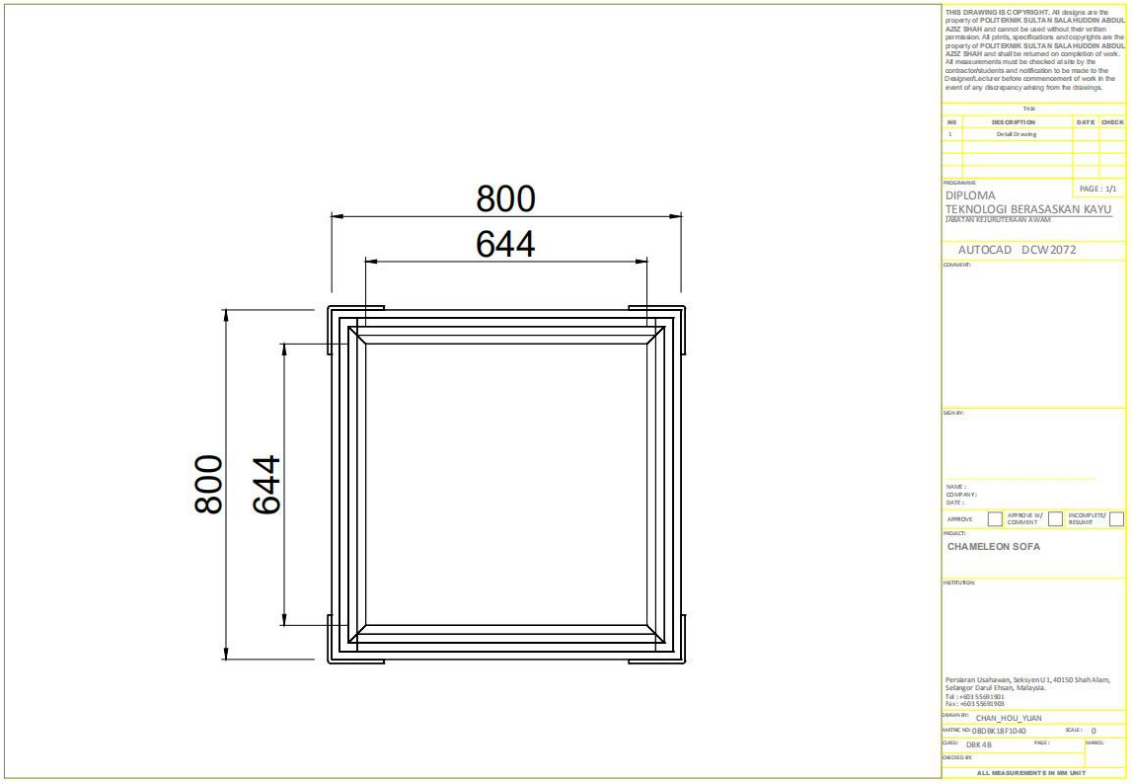


Figure 7. Ottoman Top View 2D Dimension

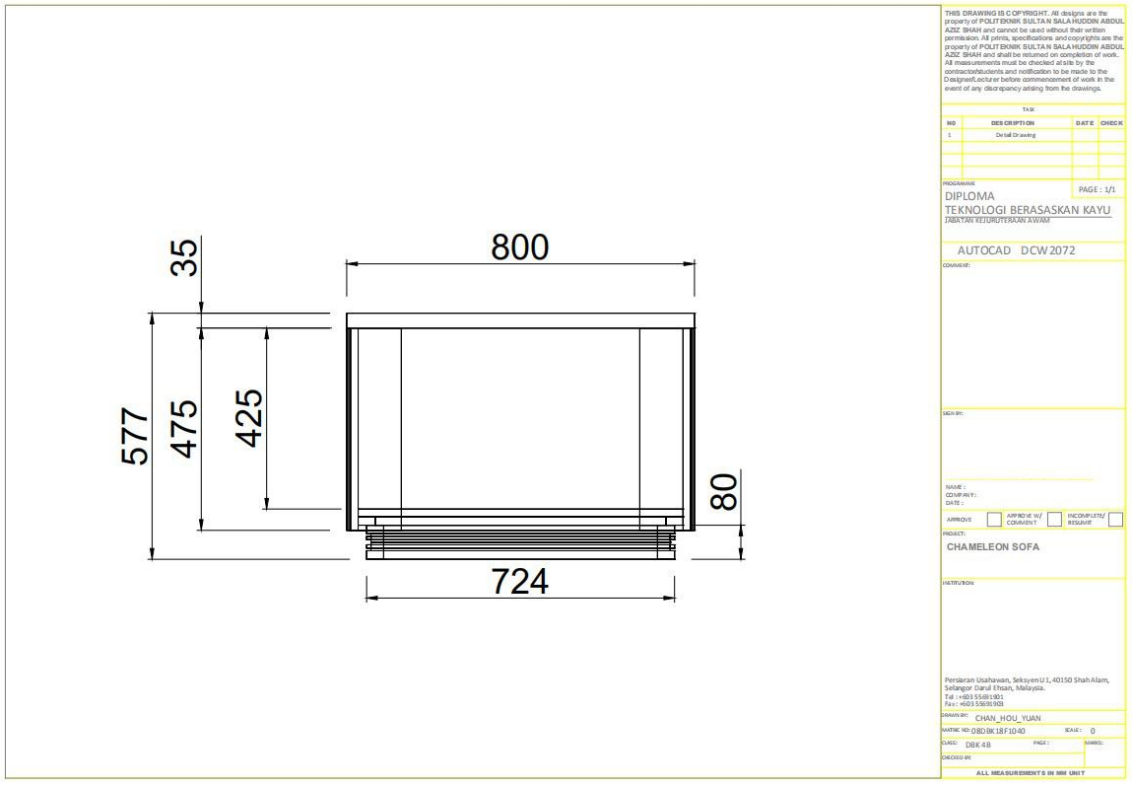


Figure 8. Ottoman Side View 2D Dimension

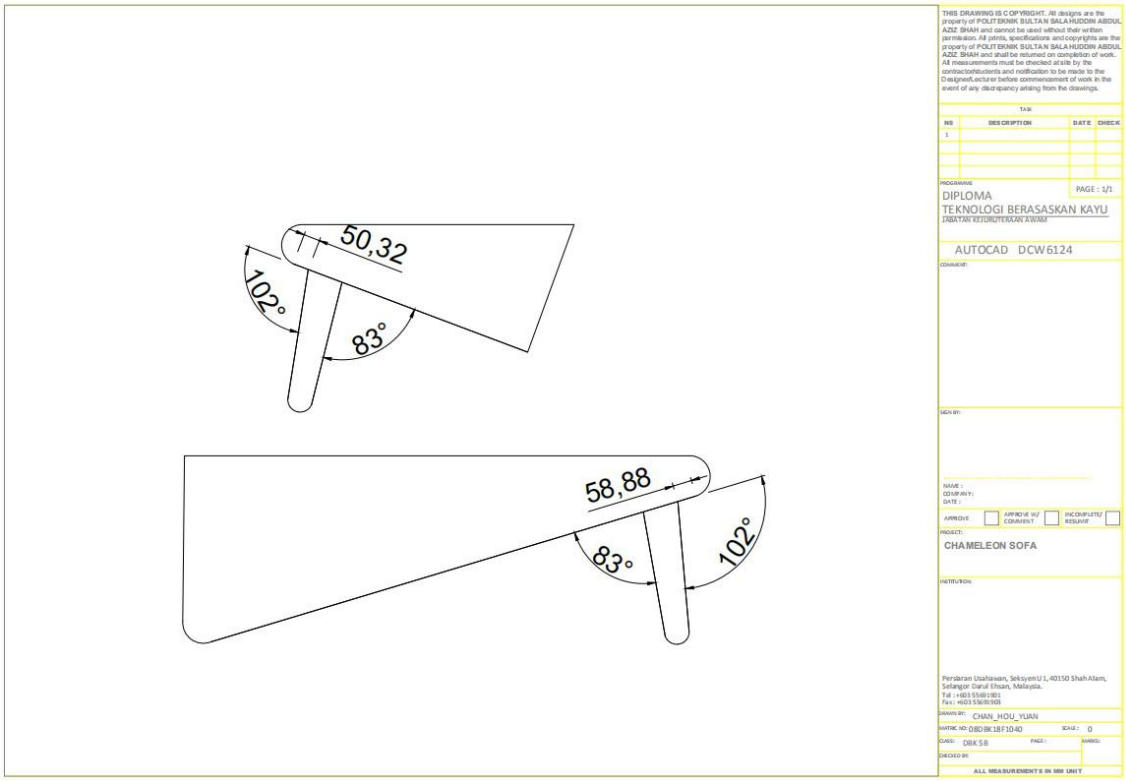


Figure 9. Leg angle detail drawing 2D Dimension

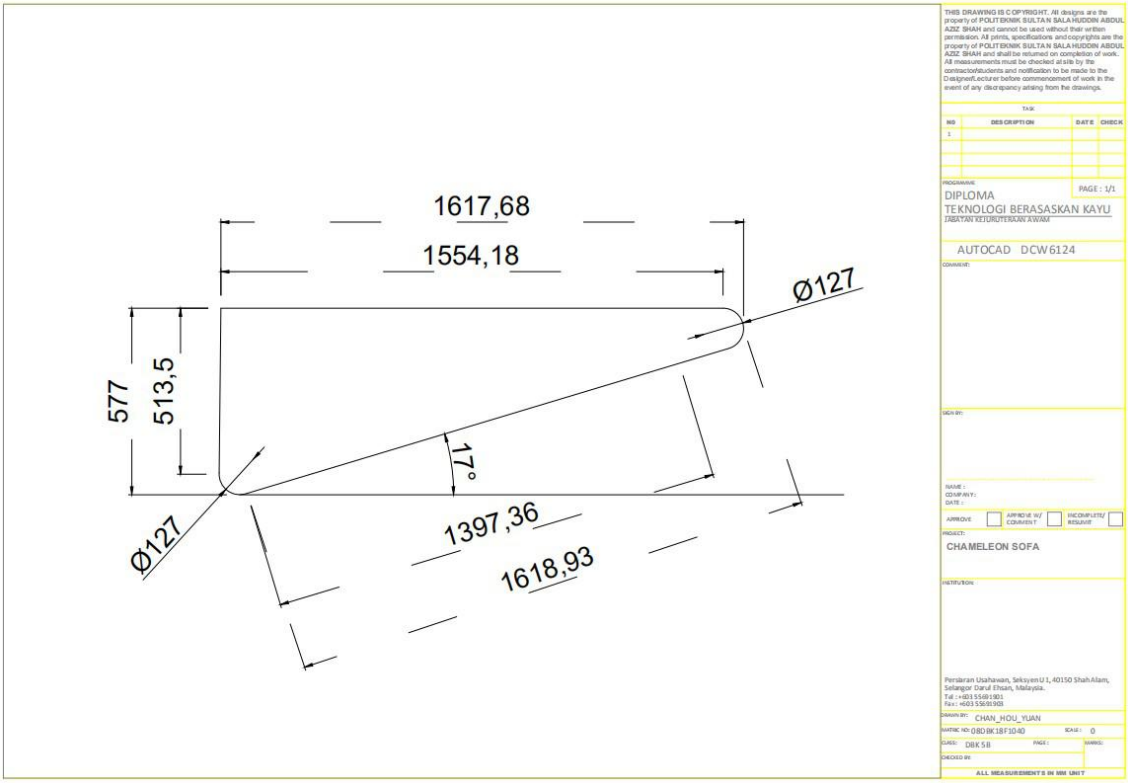


Figure 10. Long seater detail drawing 2D Dimension

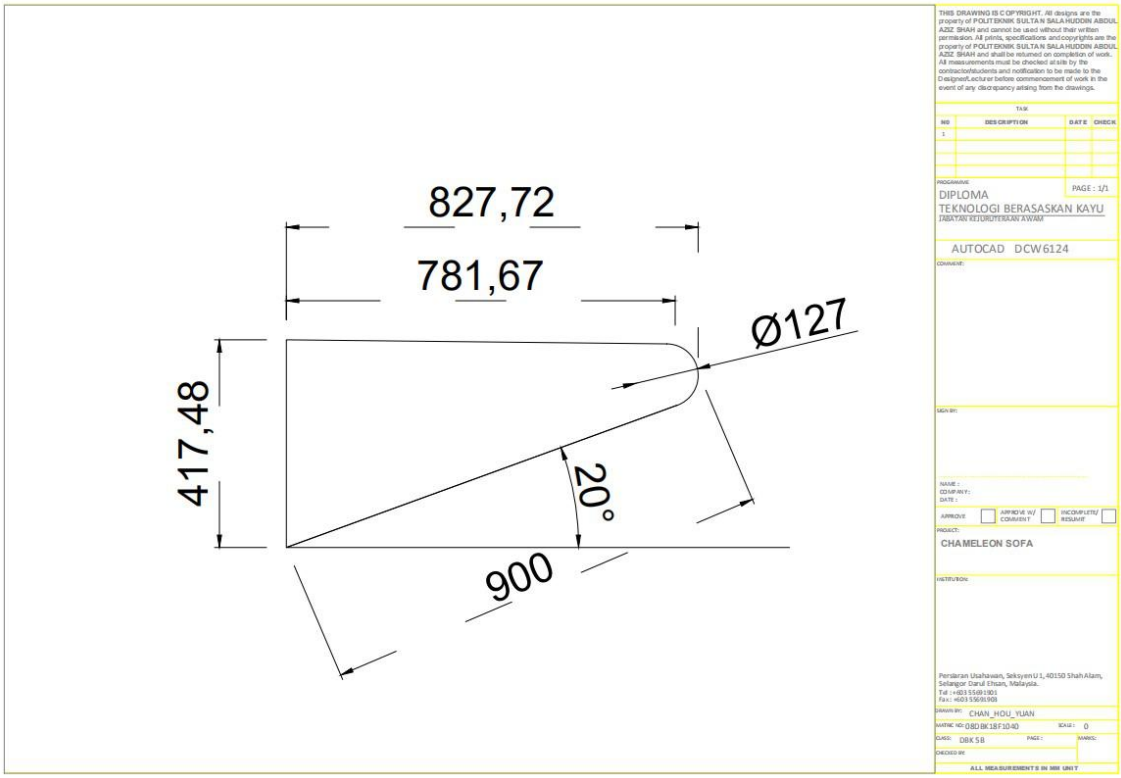


Figure 11. Short seater detail drawing2D Dimension

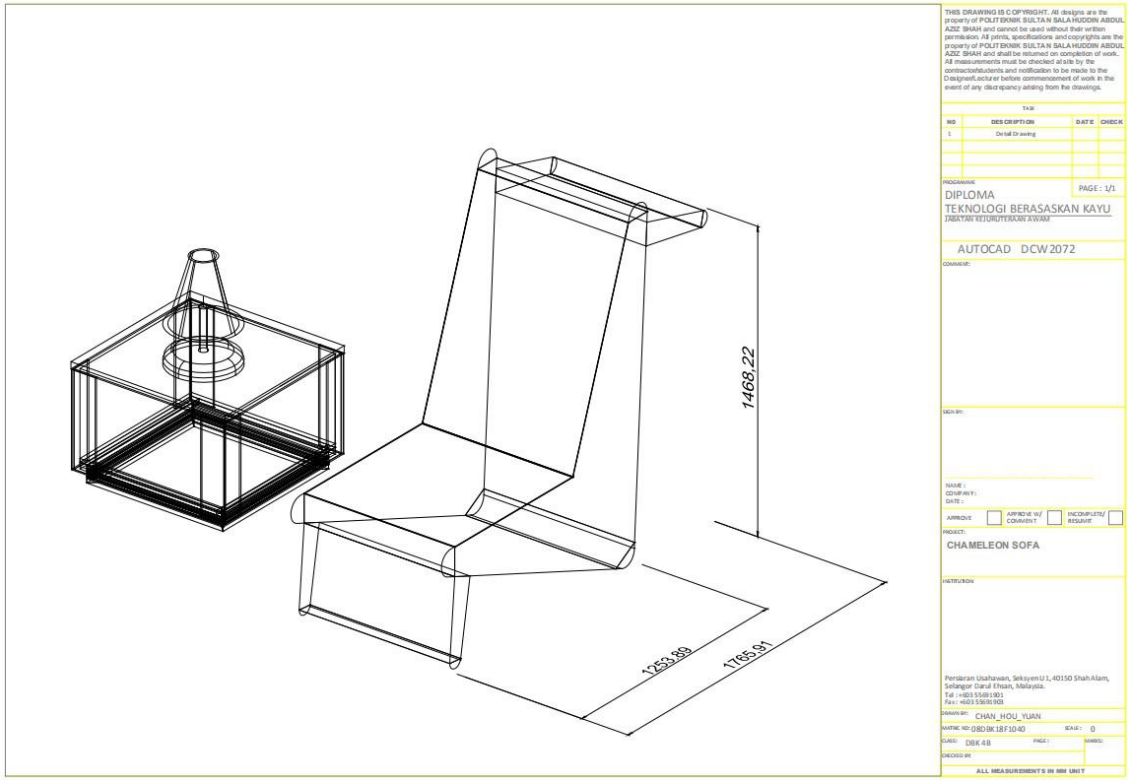


Figure 12. Overall Sofa Mode 3D Dimension

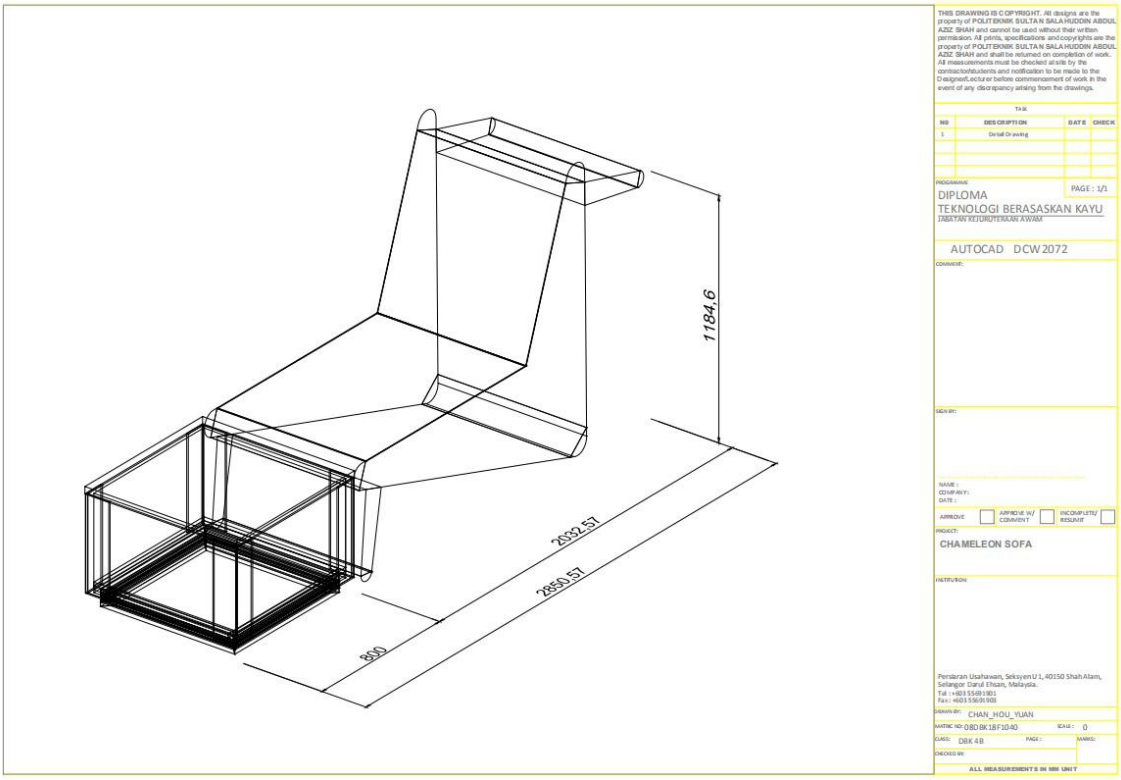


Figure 13. Overall Sofa Bed with Ottoman Storage Mode 3D Dimension

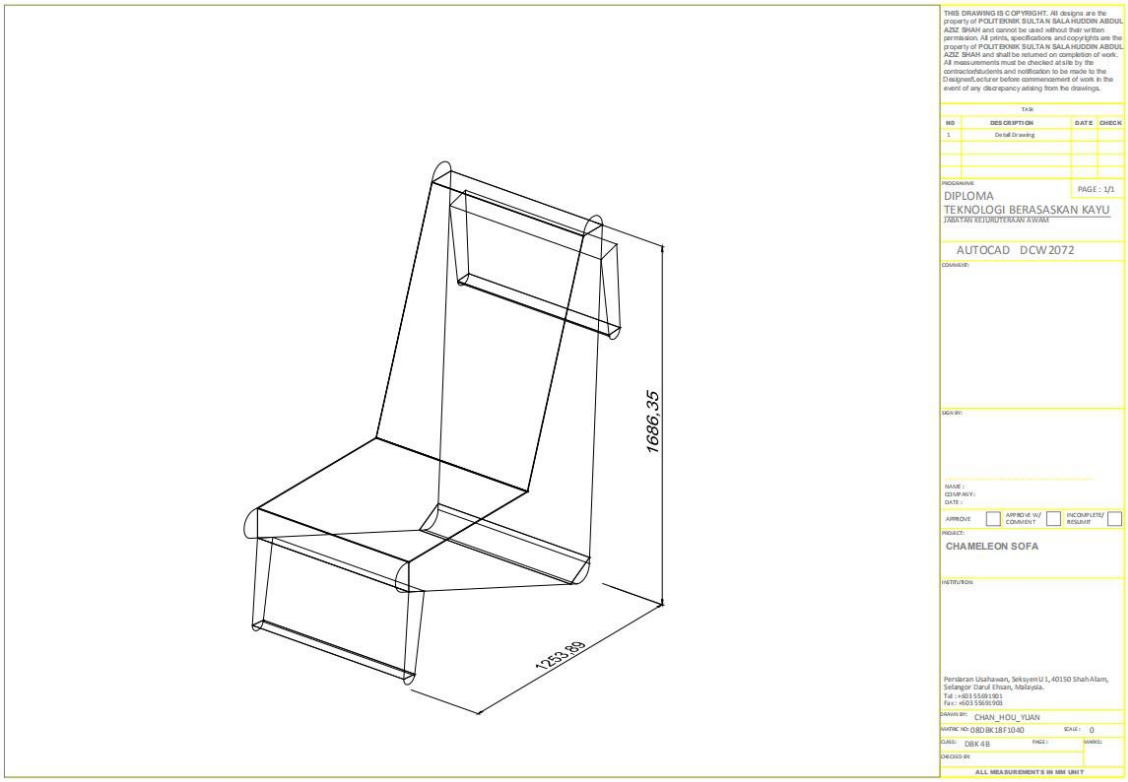


Figure 14. Overall Foldable Table Mode 3D Dimension

Appendix E (Cutting Diagram)

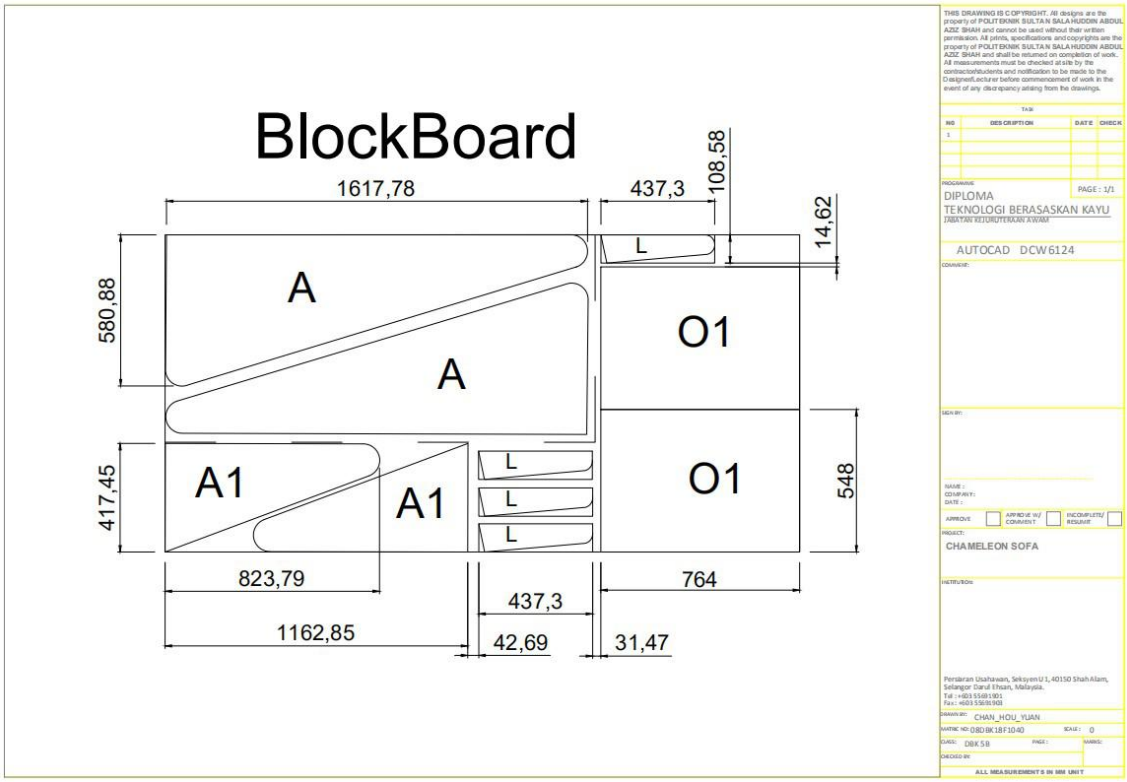


Figure 15. Cutting Diagram 2D Dimension

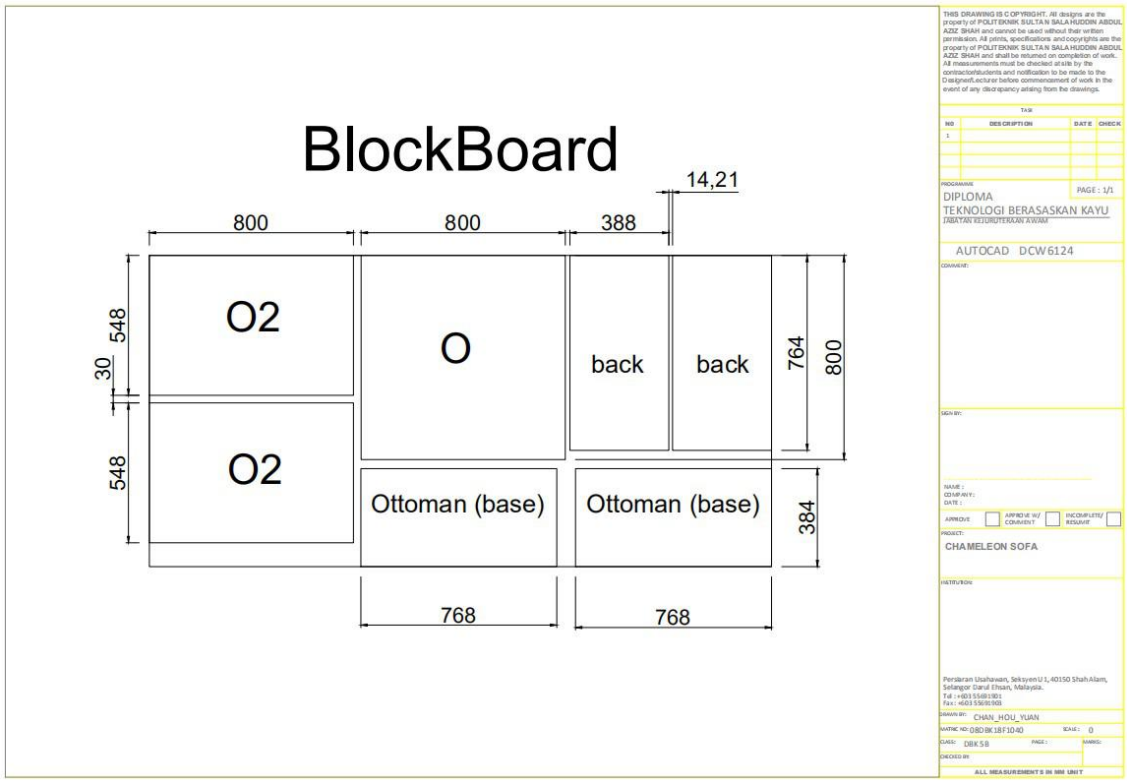


Figure 16. Cutting Diagram 2D Dimension

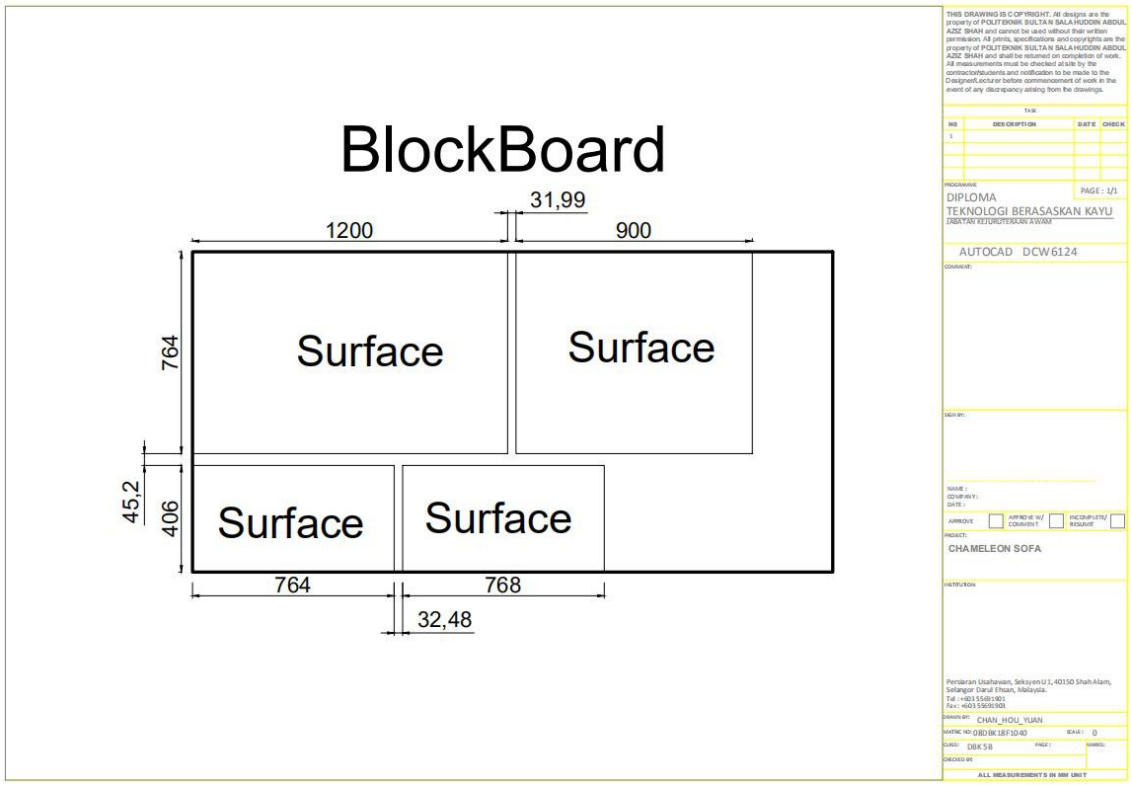


Figure 17. Cutting Diagram 2D Dimension

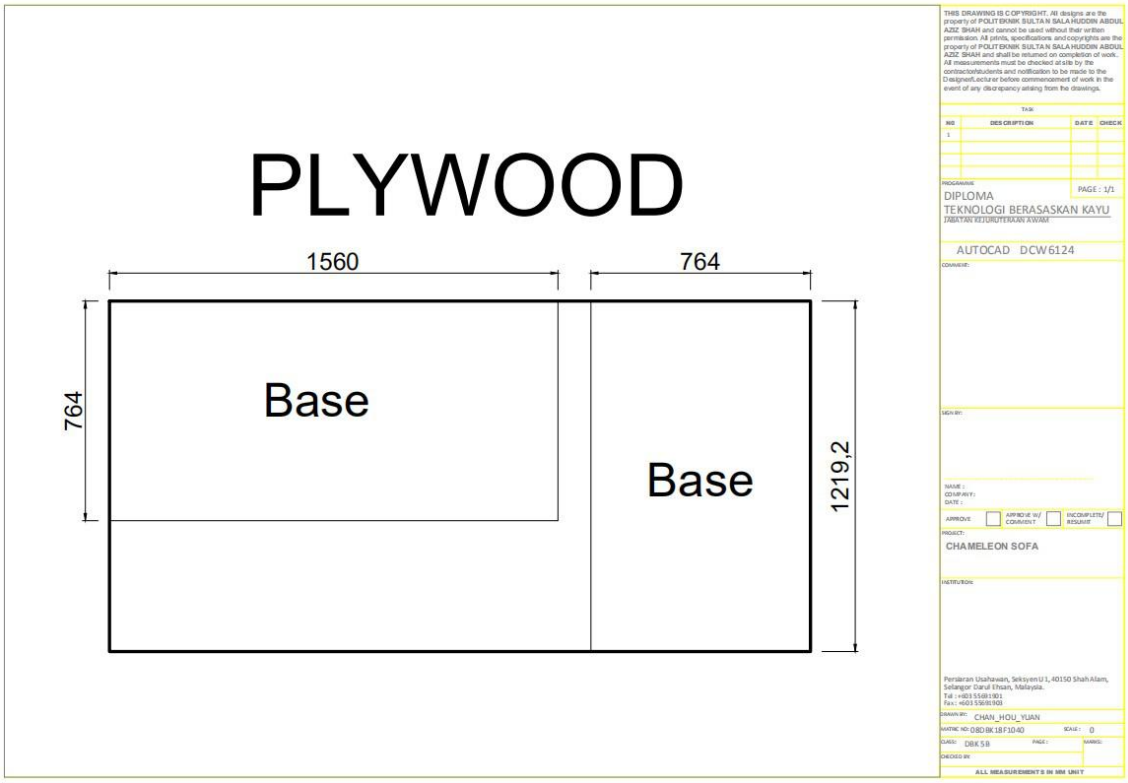


Figure 18. Cutting Diagram 2D Dimension

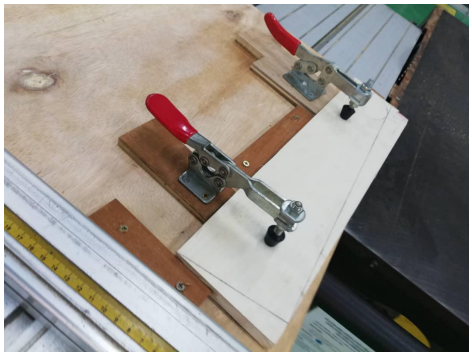
Appendix F (Manufacturing)

Measuring 90° square.

Sanding the curve.

Cutting the support with teamwork.

Setting the table saw before cutting.



Using the jig clamp cutting avoid the risk.

Supervisor guide using machine correctly.