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UNIVERSITI
TEKNOLOGI
MARA

UNIVERSITI TEKNOLOGI MARA

FACULTY OF CIVIL ENGINEERING

INDUSTRIAL TRAINING REPORT

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BEND WELD ENGINEERING SDN BHD

LOT 3611 BATU 30 81500, JALAN JOHOR,

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JULY 2019

ABSTRACT

All student are required to undergo industrial training for 8 weeks as part of their curriculum to complete their 3 years course for the Diploma in Civil Engineering. The program will be during the semester break after completion of 3 years study. During 8 weeks period of training, students will be supervised and monitored their training by a nominated supervisor.

Industrial training can provide exposure to students on situation in job nature in any organization on industry. Through this exposure it will increase student skills under guidance and academician supervision and professional from industry training sites. A part from that, students able to add knowledge and experience in various aspect such as mental, emotion, physical and social.

For my industrial training, I did at Bend Weld Engineering which situated at Pekan Nenas, Johor. It is a manufacturing and fabricating company. This company has been established since 1990. This company was under Kobay Technology and specialized in fabricating subsea component.

I was assigned to the Engineering section which my supervisor is Mr Zulhelmy. For the first 5 weeks I learn about the basic operation in manufacturing. That includes how the company deals with the customer and their production flow.

ACKNOWLEDGEMENT

First of all, I am grateful to the Intern Placement Office of University of Teknologi Mara (UiTM) for successfully arranging the internship program for us. I also thank Bend Weld Engineering for recruit me as an intern and creating such a wonderful environment for learning both soft and hard skills.

The internship opportunity I had with Bend Weld Engineering was a great chance for learning and professional development. Therefore, I consider myself as a very lucky individual as I was provided with an opportunity to be part of it. I am also grateful for having a chance to meet so many wonderful people and professionals who led me through this internship period.

Bearing in mind previous I am using this opportunity to express my deepest gratitude and special thanks to the supervisor in charge from Bend Weld Engineering (Mr. Ahmad Zulhelmi bin Mohamad) who in spite of being extraordinary busy with his duties, took time out to hear, guide and keep me on the correct path and allowing me to carry out my project at their esteemed organization and extending during the training.

I express my deepest thanks to Mr. Rizal (QC inspector) for taking part in useful decision & giving necessary advices and guidance and arranged all facilities to make life easier, I choose this moment to acknowledge his contribution gratefully.

It is my radiant sentiment to place on record my best regard, deepest sense of gratitude to all of the staff from Bend Weld for their careful and precious guidance which was extremely valuable for my study both theoretically and practically.

Also I would like to share my gratitude to Madam Shazreen Binti A. Rahman for spending her valuable time to come visit and evaluate.

I perceive as this opportunity as a big milestone in my career development. I will strive to use gained skills and knowledge in the best possible way, and I will continue to work on their improvement, in order to attain desired career objective. Hope to continue cooperation with all of you in the future.

Sincerely,

Syafri

TABLE OF CONTENT

NO	CONTENT	PAGES
1	Introduction	
	1. Company background	5-8
	2. Organization Chart	
	3. Nature of Business	
	4. Conclusion	
2	Training Attended (weekly summary)	
	1. Exposure level	9-19
	2. Conclusion	
3	Technical report	
	1. Introduction	20-25
	2. Problems and Solution	
	3. Experience Gained	
	4. Conclusion	
4	Conclusion	
	1. Introduction	26-29
	2. Lesson learned	
	3. Knowledge gained	
	4. Limitations and Recommendation	
5	References	30
6	Appendices	31

CHAPTER 1 :
INTRODUCTION

1.1 INTRODUCTION

Bend Weld Engineering Sdn Bhd was established in 1990. It is a wholly owned subsidiary of Kobay Technology Bhd which is a main board listed company of Bursa Malaysia Securities Berhad. Bend Weld core business is to provide services and support for subsea oil and gas companies. Its customers are mainly oilfield equipment manufacturing companies. They are not dealing only with local companies but also export to overseas companies. Their capability covers heavy machinery, fabrication and coating of subsea riser, drilling equipment, modules and metal structures. Bend Weld Engineering are One Stop Solution Provider for Heavy Machining and Fabrication Assemblies. They fabricate metal structures, metal plates, assemblies and sub-assemblies that require our manufacturing capability of Flame Cutting, Laser Cutting, Bending, Rolling, CNC Machining (milling and turning), Certificate Welding, Blasting and Coating. They provide manufacturing services to products such as machining of valve, guide plates, components and fabrication of X'mas Tree Structure, riser clamps, skid structures, machine structure and module structure for Subsea Oil & Gas Industry.



www.bendweld.com

1.2 BACKGROUND OF COMPANY



Name of Company : Bend Weld Engineering SDN. BHD.

Address : Lot 3611 Batu 30 81500, Jalan Johor, 82000 Pekan Nanas, Johor.

Telephone : 07 – 6996889

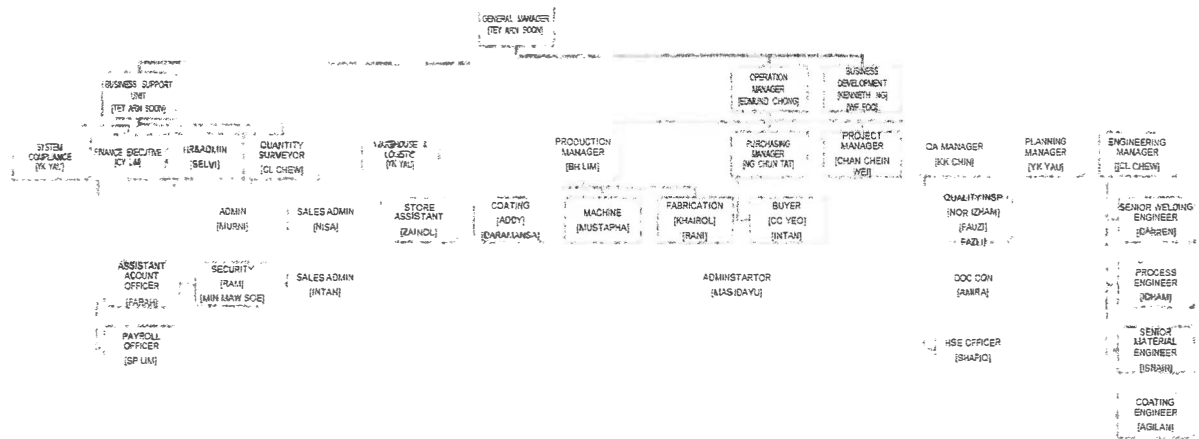
Vision

Bend Weld Engineering vision is to be the market leader and pre-eminent supplier of innovative and compelling engineering solutions to customers worldwide.

Mission

Success is measured by our ability to create economic value, bond with our customers and suppliers, promote a sense of pride and ownership amongst our employees and produce a higher return of equity to our shareholders

1.3 ORGANIZATIONAL STRUCTURE



1.4 NATURE OF BUSINESS

Bend Weld provide the whole process of fabricating a subsea structure. The whole process include cutting, machining, blasting and coating.

Bend Weld long term plan is to be the end user of product manufacturing. By doing this, it can raise the profit of the company. However, to do that, bend weld must expand the size of the workshop and obtained more CNC machine.

1.5 CONCLUSION

As a conclusion, Bend Weld is a well organize company with a big long term plans. The working environment is also useful for trainee to adapt. Bend weld also offers a lot of work scope from planning until packaging which is good considering that trainee can learn and gained as much experience from different scope of work and can apply the knowledge in the coming future.

CHAPTER 2 :
TRAINING ATTENDED

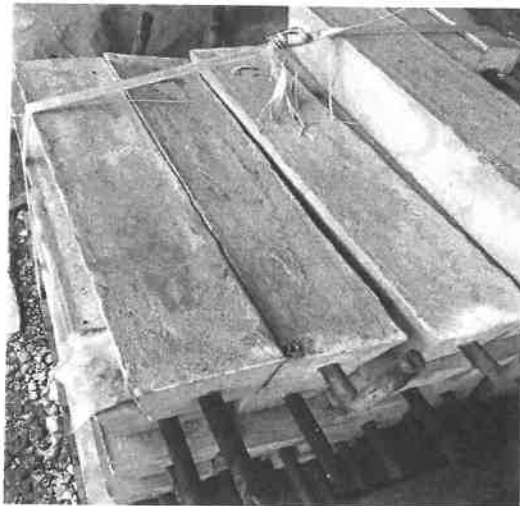
2.1 INTRODUCTION

Daily reports were recorded every day in the log book provided. In this chapter I will tell about the daily task report during my Industrial Training and all the work that I have do. This chapter is a summary of the overall activities carried out weekly during industrial training. Based on the activities performed as written in the book of reflection journal will briefly described in chapter covers the tasks assigned by supervisor during industrial training in one semester of twenty weeks. Day work week is not necessarily the same every week because there are have public holidays and public holidays announced by the company.

2.2 EXPOSURE LEVEL

Week 1

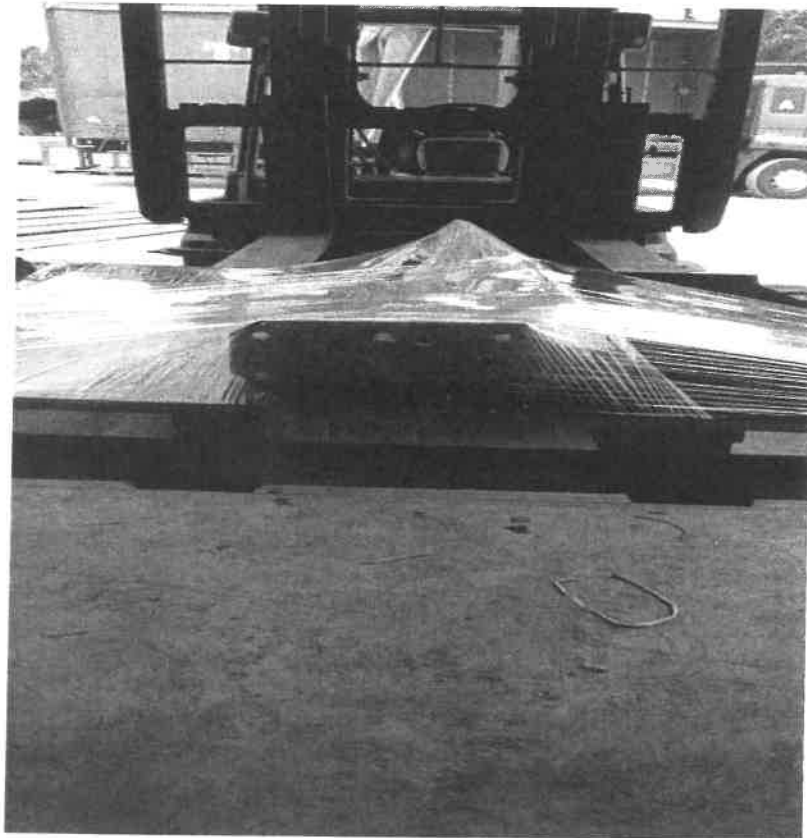
On my first day, I have attended the safety briefing by Mr Shafiq on HSE briefing. I have been given a lectured on do and don't and prevention of accident in workplace. Next day, Mr Zulhemi gave me an SOP file for review. The SOP of company need to be follow as it is important for certificate and audit. Then, I have product introduction session with Mr Chew around the production and warehouse. I have been taken to welding section, fitting, oxy cut, CNC machine and warehouse. I have also been brief about the WPS and welding procedure. Meanwhile, Mr Zulhemi explain to me in detail what are the business that company actually do and their product and also the targeted market and customer. I also being brought to see some of the oil and gas product such as anode and blasting chamber. On the last day of first week, there was a lecture by Mr Zulhemi on Basic oil and Gas Material Specification. The Norsok standard is quite rigid compare to ISO standard since the rough condition of Norwegian ocean. That is why, Norsok standard is commonly selected by many of the oil and gas company.



Zinc anodes are widely used in sea water environments and have been used for many years as a reliable and economic means of providing cathodic protection to the steel hulls of boats and ships. They can provide sufficient output to protect steel in higher resistivity environments such as tidal areas and brackish to fresh water estuaries.

WEEK 2

The first day of week 2, I help my supervisor whom is the coating engineer to prepare stickers. These stickers were used as labels on the subsea structure. The requirement of these stickers must be referred on the Project Management Plan (PMP). After completing the stickers. The stickers must be peeled of and stick onto the subsea structure and then layered it with a coating. The colour of the coating labelled is usually black but it varies based on the PMP. Because of the huge number of the subsea structure. I take two days to complete the stickers and then watch the coating staff coat the subsea structure. The paint use is also need a specific requirement as the structure would be submerge and we did not want the coating to peeled of. The rest of the week I spend on helping the store department to arrange and wrap the subsea structure that has been completed to be shipped off. This is due to the shortage of manpower in the store department so my supervisor ask me to lend a hand to them. It is quite useful for my communication skills as I can ge along with workers in different department and enhanced my soft skill.

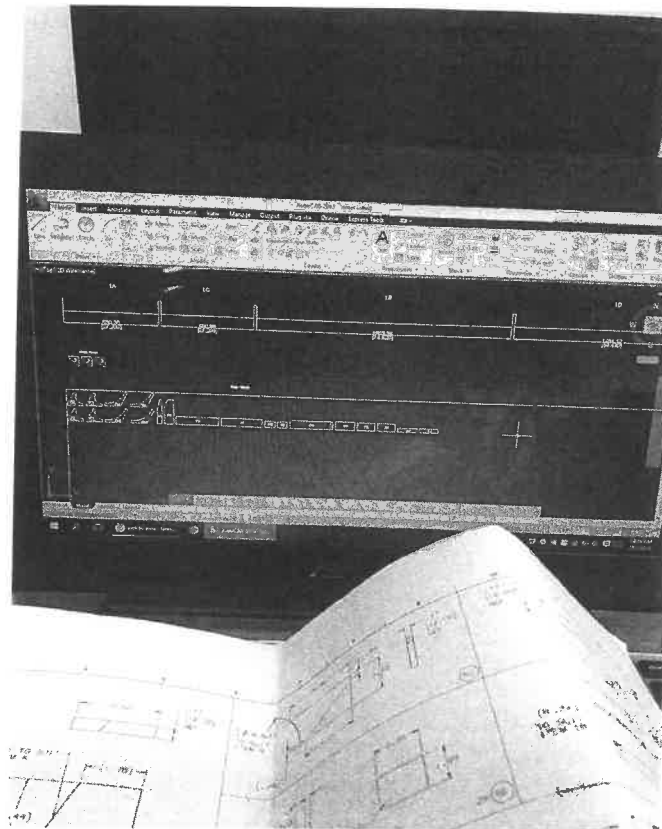


WEEK 3

The first day is joined the engineering department. Every day, there was a morning briefing about the task that need to done and the task that was already completed. The briefing was led by Mr Isnain as the head engineer and was supervise by Mr C.L. Chew as the engineers manager. During the briefing I can get a grasp on how real life situation works and can get know better of the engineering team. After the morning briefing, my supervisor brief me on my task which is completing the Cad drawing by using autocad.

The next day, my supervisor gave me a drawing to complete it as it need to be send to the machinist department for the CNC process. I resume my work on the autocad drawing while being supervise by my supervisor.

My supervisor also brief me about the process of checking the coating quality. This is vital as coating is the last process when fabricating a subsea structure. The coting must be perfect as when the structure is complete, a representative from the customers came and inspect it before being packed and shipped. If there is a mistake, a rework of the structure is needed.



WEEK 4

I was given a brief introduction on Bill of Material (BOM) preparation. Mr Zulhelmi has gave me a task to study the common material size available at the market and their shape as well as the material specification. BOM is quite common as it is quite the same as Bill of Quantities (BQ) so I can learn much faster as I already learned it in classes.

Mr Zulhelmi gave me the drawing from the customer to make a BOM with guidance from him. I has to review the example that he give for me to studies. Meanwhile, there are few people doing the Magnetic Particle Test (MPT). MPT is a non-destructive test process for detecting surface and slightly subsurface discontinuities can be magnetized by direct or indirect magnetization. I was given an actual industrial drawing need to draw the outline part and confirm the part quantity.

I continue my tasked for the whole week with the guidance from my supervisor. At the end of the week, I followed the material engineer to check the parts arrive and inspect whether the part is in a perfect condition or it has some defects and need to be return to the supplier. If the parts is already accepted it cannot be return. Hence, we must make sure it is in a good condition so there is no complication when the parts is being assembled.



WEEK 5

This week, I study about the sandblasting, its equipment and material and also its requirement. Besides that, I was sent to the machining department. This is so that in the short time of eight weeks, my supervisor wants me to learn and experience everything. I also did a study on CNC Machining which involve Lathe and Milling and a little bit of a welding.

At the end of the week, there is special test conduct by third party, Bureau Veritas (BV). BV is a inspection company, their certificate is importance. There are few company that undergoes an inspection such as DNV and others. The test that they conduct is proof load test (NDI). The test is require to test the adhesive power (welding) ny carrying a specific amount of load (depend on the safety factor). The BV will came and observe the testing and will sign the observation. Load testing can be classified as a destructive test- but only if the test is failed. A simple example of load testing is when you stand back and admire something you have made, then testing on it to see how strong it is. Load testing is often used to certify lifting equipment.



WEEK 6

After a week in the machining department, I joined the quality department. The QC inspector is in charge of maintain the quality of the products before being shipped out. There were also responsible on the products and parts that came in from the supplier. I help the qc inspector Mr Rizal to do some inspection of the material. The materials that need to be inspect must be following the requirements needed which is based on the PMP.

Each department has its own QC inspector as the company wants to maintain its quality throughout the whole process. This is essential as there should be no mistake.

The QC inspector asked me to follow him to TechnipFMC whom is our customer. This is because there is a complain about the subsea structure and a rework is needed. The QC inspector is fully responsible as he was the last one to verified the products before being shipped out. Hence, he needs to fixed the mistake.



WEEK 7

In this week, I followed the Qc inspector to checked the materials. Most of my task is the same as the previous week which is inspecting. However, it is a valuable experience as being a Qc inspector, you need to be alert and precise as the company demands perfection and you need to delivers.

By the end of the week, my supervisor asked me to help him completing the EMP plan. After being brief about completing the EMP plan by my supervisor, I was given a first task on doing the EMP by providing the BOM as well as cutting plan. I have to propose the material require and the quantity by the customer for quotation. The cutting plan was done by using AutoCAD software. The top priority selected for nesting is type of material followed by material grade, thickness and quantity needed. The size of raw material in AutoCAD must be compliance with the size available at the market. I completed the EMP plan under the guidance and tutorage from my supervisor

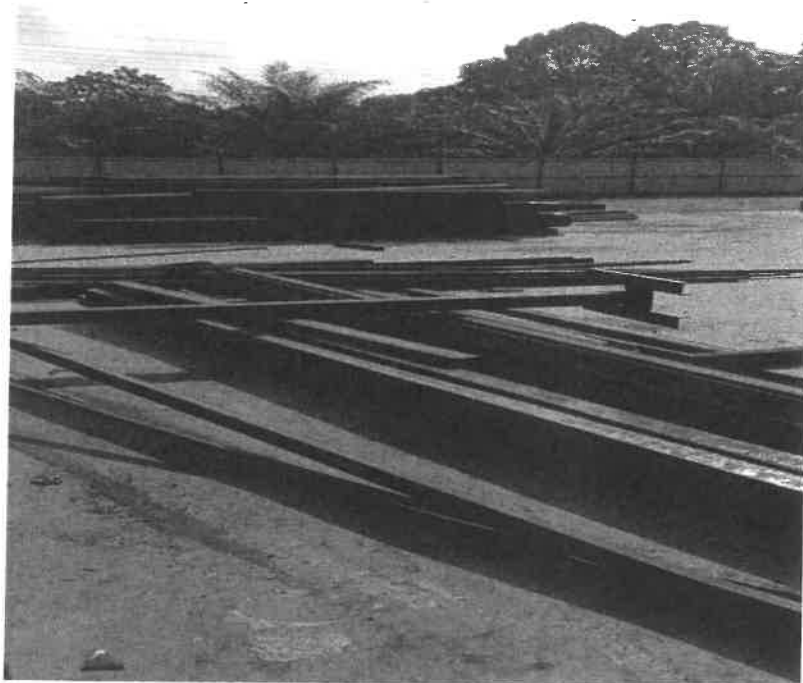


WEEK 8

This week, I spend most of the time gathering new knowledge through internet. I gather information about the material grade such as AISI 1040, Stainless steel 316L,316 and 317. The information is important since that material is most common material used in oil & gas industry. Then, there is a day I have to review the MVR and issuance a drawing to doc con (Document Control). I also observe the inspection process on the product.

I also spend my last week helping the store department packaging. Most of my time were spend helping each department and maintain a good relationship with my co workers. I packed a subsea structure that needed a box to be put in.

I also help the QC department to inspect the material and steel plate. The steel plate needs to be reorganized and sort according to its dateline and sizes. So I spent a lot of time finding and sorting the steel plate. Besides steel plate, steel pipe and bar should also be sorted.



2.3 CONCLUSION

In a nutshell, the industrial training has helped me a lot in developing myself. It taught me how to deal with pressure and how to cooperate with a large number of people. It is important for me as I am still learning to cope with the environment. The company also taught the importance of safety as well as work products. Although the works need to be done in the quickest and most precise way, the safety must be taken in consideration. I am thankful enough that the company is well organized and safe in the aspect of safety. Also the co-workers gave me as much knowledge as I can. It is important for me as everyday I am learning something new which makes me eager to find work experience in the coming future.

CHAPTER 3 :
TECHNICAL REPORT

3.1 INTRODUCTION

During the eight weeks of industrial training. I have learn a lot as I have been given various task such as doing the EMP plan and the BoM. During this period, a have encounter various problem and also solution as I growth. Although I did not help much due to the short amount of time, I have managed to ease the work of my supervisor and coworkers. I didn't contribute much on company development, however I lighten the workload by my supervisor as I help him in provide an EMP. Based on SOP of the company, one EMP need to be done at least 2 day after the project is release and in one day, the company got a lot of project to quote. One man work sure quite tough to handle all the EMP, however with my present could help him a little bit and company smoothness production.

3.2 PROBLEM AND SOLUTION

The most common problem that I faced is that the company accepting a lot of job projects although the manpower is not enough to complete them all within the amount of time given. There is also problem from the production staff especially from the welders and grinders as the usually did not complete the work in the amount of time hence slowing the whole process which is already being delayed. However this is understandable as the amount of works is increasing but does not have enough manpower. This is overcome by hiring new welders and grinders. A monthly meeting is also being held to exchange ideas and the ideas is taken from anyone regardless their position. By doing this, we can overcome and get the solution. It also increase the moral of the workers as they can voice out their opinions and idea.

3.3 EXPERIENCE GAINED

Most of the experience that I gain is when I work in the engineering department. I help my supervisor completing the EMP and BOM. I also experience on how to be a QC inspector and their scope of work.

3.3.1 Enquiry Management Plan (EMP)

Enquiry Management Plan		CUSTOMER REQUEST DATE: 07-AUG-2017				
EMP No.	EMP-17-1072	PROCESS	RECEIVE		COMPLETE	
RFQ No.	FW: 170356_REQUEST FOR QUOTE - HMC PR 10089591 - UPGRADE OF AIRBUS TOOLS		DATE	SIGN	DATE	SIGN
Customer	KOBAY	EMP RELEASE				
Material No.	Upgrade of PN 98L53609013000 PLATFORM 1 - 519.1As per Airbus TEB 380C9023 Issue No: 3 (98L53609013000)	MATERIAL BOM				
Quantity (EA)	1	MATERIAL COST				
Date of Release	1-Aug-17					

EMP is used as a reference to both customer and the company. It gives a detail information regarding customer product and as a quotation data for the customer. The Engineer need to produce the BOM to list out the material required to buy to create the product.

3.3.2 Bill Of Materials (BOM)

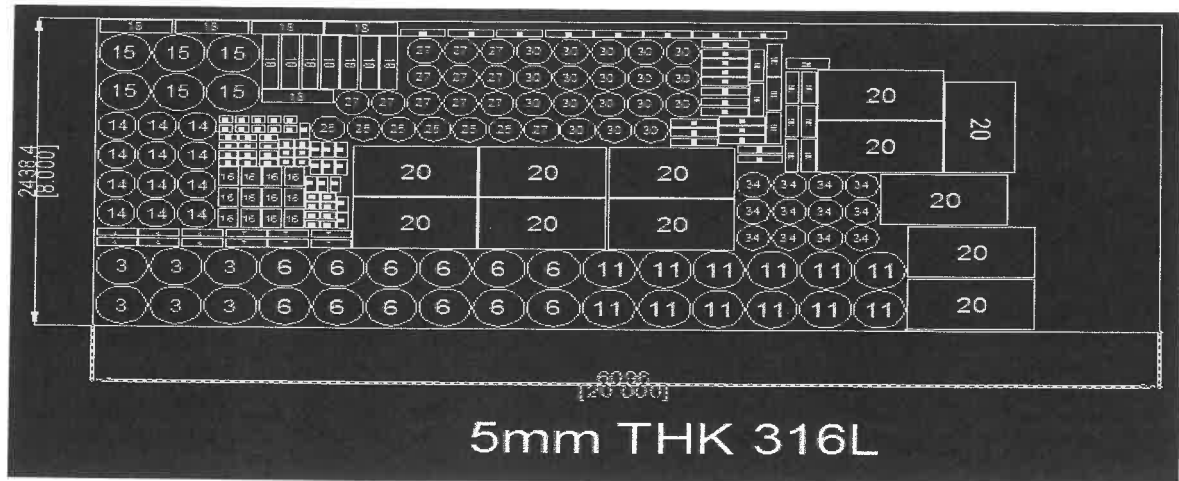
Then, the Engineer need to list out the process required to create the product as well as Coating Engineer for the coating purpose. All the process is important to quote a price for the customer. This is very hard for me as I and not used of the steel grade and specifications so I need to study and surf the internet regarding the grade and specification of each steel.

Raw Material		ENGINEERING BOM DESCRIPTION					
ID	PART ITEM NO.	TYPE OF MTL	SPECIFICATION	MTL GRADE	QTY PER UNIT	ENGINEERING RECOMMENDED SIZE	REMARKS
200	98L53809013200	ALUMINIUM SANDWICH PANEL		EC 22PI'226 26AV	1	620mm X 735mm X 10mm x 1pc	EURO'22COMPOSITES
202	98L53809013202	ALUMINIUM ANGLE		6063'22T5	1	AR : 60mm X 40mm X 4mm X 1pc L = 2260mm	
204	98L53809013204						
206	98L53809013206						
208	98L53809013208						
224	98L53809013224	ALUMINIUM PLATE		6063'22T5	1	75mm X 75mm X 20mm X 1pc	
226	98L53809013226	ALUMINIUM PLATE		6063'22T5	1	115mm X 120mm X 35mm X 1pc	
228	98L53809013228	PLATE		D2 / D4	2	50mm X 75mm X 35mm X 1pc	
500	98L53809013500	ANTI-SKID SAFETY MATING		VM20	1	620mm X 725mm X 10mm x 1pc	ALTRO
212	98L53809013212	STEEL BAR		AISI 1045	2	135mm X 115mm X 25mm X 1pc	
214	98L53809013214	ROUND BAR		AISI 1045	2	DIA. 8mm L = 106mm	
216	98L53809013216	ROUND BAR		AISI 1045	2	DIA. 16mm L = 28mm	
218	98L53809013218	PLATE		RUBBER 1001	2	45mm x 75mm x 1.5mm	DEINSA P.A.E.NEISA SUR
220	98L53809013220	STEEL BAR		AISI 1045	1	45mm x 95mm x 40mm	
222	98L53809013222	STEEL BAR		AISI 1045	1	45mm x 95mm x 40mm	

there is a list of raw material require to build the product. My task is to list out the material as a propose for purchasing. For each item, the BOM includes the manufacturer's part number (MPN) an approved manufacturers list (AML) and component descriptors. It may also include attached reference files, such as part specifications, computer-aided design (CAD) files and schematics. A production planning and inventory control system for material requirements planning (MRP) integrates data from production schedules with that from inventory and the bill of materials to calculate purchasing and shipping schedules for the parts or components required to build a product.

Originally used internally within a company, the BOM served as a way to track product changes and maintain an accurate list of required components. As manufacturing has become increasingly distributed, however, the BOM has taken on greater importance.

3.3.3 Material Cutting Plan



Material cutting plan is quite easy for me as I have already experience in using the autocad. I need to take the customers drawing from the materials engineers and draw each parts of the structure on the autocad. The amount of parts need to be correct and precise. I also have to draw it according to the ratio so that when the cutting process is being held, the dimension of the parts is correct

3.3.4 QC inspection

QC inspection is to inspect the dimension and type of steel that is being used of the parts. The checking of the parts must be precise and correct as every details of the parts needs to be checks. Also if the parts come in more than one units, all of the units need to be check to avoids any defection.

3.4 CONCLUSION

As a conclusion, it thought me a lot of the process in fabricating a subsea structure. These knowledge that I gained will be used in the future. I am thankful for all of the knowledge given.

CHAPTER 4 :
CONCLUSION

4.1 INTRODUCTION

During my period in industrial training, a lot of knowledge and experience was gained. This is very essential for my growth as a person. A lot of lesson I have learned such as punctuality and the importance of communications skills. I am forever grateful at Bend Weld engineering for hiring me and the memories will forever be cherish by me.

The importance of giving students the exposure in industrial training is important as students can use the knowledge during their industrial training in the coming future in their career. There is also a lot of new thing that I learn such as EMP and BOM. Even the smallest thing such as sending an email using the correct ways.

4.2 LESSON LEARNED

The lesson that I learned is punctuality. Punctuality is important as it gives you the a good first impression to your superiors. If you have a good first impression, the relationship between you and your superiors is also good.

Next, communicating skills. In the industry it is very essential to have a good communicating skills as we need to communicate every day regardless the topics. If you cant communicate well, the ideas cannot be passed and you cannot growth.

Social skill is also important as you can make new friends. Social skills also helped to get through your daily life. You can handle pressure and can asked for help with your coworkers.

4.3 KNOWLEDGE GAINED

After complete my industrial training, I had been exposed to a Engineer working life. Throughout my internship, I could understand more about the definition of a Engineer and prepare myself to become a responsible and innovative Engineer in future. Along my training period, I realize that observation is a main element to find out the root cause of a problem. Not only for my project but daily activities too. During my project, I cooperate with my colleagues and operators to determine the problems. Moreover, the project indirectly helps me to learn independently, discipline myself, be considerate, self-trust, and take initiative and the ability to solve problems. Besides, my communication skill is strengthening as well when communicating with others. During my training period, I have received criticism and advice from engineers and technician when mistakes were made. However, those advices are useful guidance for me to change myself and avoid myself making the same mistakes again. Apart from that, I had also developed my technical skills through various activities that I had done. This also helps sharpen my skills in AutoCAD since most of the tasks were done with AutoCAD.

4.4 LIMITATIONS AND RECOMMENDATION

My recommendation for this program is to reconsider the time schedule for this program. During the semester break after completion of second year studies is not a perfect time for the internship. There are company willing to hire a student after their completion of internship. One year study or two semesters more to continue is sure too long to wait. Most of the employee wants to take the internship time as the “training” time and they can save cost on the induction. I also recommended that, internship program will be held twice as outside classroom knowledge is important as well as inside classroom knowledge since the student have to know what they are learning for and it’s practical. In sum, the activities that I had learned during industrial training really are useful for me in future to face challenges in a working environment. I would like once again appreciate everyone who has made my industrial training a valuable experience.

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APPENDICES

