INDUSTRIAL TRAINING REPORT

STUDENT'S NAME

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March 2020

DECLARATION

I sincerely declare that:

1. I am the sole writer of this report
2. The details of training and experience contained in this report describe my involvement as a trainee in the field of **civil/chemical/mechanical/other** engineering.
3. All the information contains in this report is certain and correct to the knowledge of the author

Signature: 

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ID No. : 0326755

Date : 25/3/2020

ACKNOWLEDGEMENTS

Throughout these 3 months, I have undergone my internship training in Grand Pacific Industrial Equipment Sdn. Bhd. from the 30th of December 2019 till 20th of March 2020. I was able to work independently on the given tasks while learning from the experienced and expertise of the workers. I have gained a ton of valuable work experiences here that I could use towards my future career. Therefore, I have to admit that my internship experience was indeed wonderful for the past 3 months.

First and foremost, I would like to express my deepest gratitude to Miss Wong Jian Hui, Sales Development Manager, who welcomed me and guided me throughout the whole internship training period. Despite being busy with her daily duties, Miss Wong always took her time out to ensure I am always on the correct path which allows me to perform my task efficiently and effectively.

I would also like to acknowledge Mr.Patrick, Director, for giving me this opportunity to pursue my internship training in his company. Mr. Patrick had arranged all the facilities, given me useful advice and encouragement that made me feel I was part of their team in his company. Hence, I choose this moment to thank Mr.Patrick for all his contributions that he has made to me.

Last but not least, I would like to express my deepest thanks to Taylor's University that made this industrial training happen as part of a requirement to achieve my degree in Bachelor of Mechanical Engineering.

ABSTRACT

This purpose of this internship report is to provide a summary of the activities that I was involved in during my 12 weeks of training at Grand Pacific Industrial Equipment Sdn. Bhd. In this report, I will elaborate about my experiences and all the things that I have learned during the entire period of my internship. I have also highlighted some of the challenges that I faced and the actions taken to solve them. Besides that, a clear overview of the company in terms of what they do and the types of service they provide to their customers will be illustrated in this report. Throughout my internship training, I have been assigned to the Sales and Inspection department. In the Sales Department, my supervisor, Miss Wong Jian Hui, Sales Development Manager in the company has been assisting with all my tasks and duties. The assigned tasks include the weight and cost calculation of the steel products, price quotation to customers and purchasing stocks from suppliers. My experience working in the sales department of this company has given me a lot of exposure to how a steel trading company operates. In the Inspection Department, I have been exposed to the methods and procedures throughout the stages of inspecting the products. I have been educated on the testing bodies in Malaysia which are SIRIM, CIDB and CREAM. This has given me a rough idea of how and what are the procedures the imported items have to go through before handing out to the purchasers/suppliers. I also get to learn the importance of conducting an inspection which actually brings a lot of benefits. On the other hand, I have also been introduced to many machineries in the warehouse of the company which gives me a better insight of how these mechanisms help to improve the efficiency of work which in a way create a more sustainable living. A significant achievement during my training is when assisting the fabrication team in working on the project of fabricating the elbows. Although I have no experience in working on Autocad, I've tried my very best to put in full concentration of what the worker has taught me so that I can deliver the best result in the given task. As a result, the team has successfully completed the project in time. At the same time, I also manage to learn a new computer software program. Overall, this internship training program is a great

learning opportunity for me and I am grateful that I am able to expose myself to the real corporate world. I also stand a chance to apply my technical and analytical skills while executing on the tasks. Moreover, I have also been exposed to a new skill which is Autocad that I never cover in my studies. In a nutshell, this 12 weeks of training has been worthwhile because the experiences have broadened my knowledge, improved my soft skills and lastly helps me to explore my career path.

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CHAPTER 1 INTRODUCTION

Industrial training is a compulsory training course for all the students that are pursuing in Bachelor of Mechanical Engineering. It is a must for a student to fulfil all the requirements in this course in order to graduate as a Mechanical Engineering student. This industrial training programme provides an opportunity for the students to acquire their workplace skills since students are required to secure a placement by themselves in an engineering related company. For Engineering students, a total of 12-weeks period will be allocated for their industrial training. During their internship programme, students are required to work under supervision of a supervisor or an experienced staff in that field. At the end of this internship programme, the student will be graded by their industrial and academic supervisor through an interview session during the visitation or a tele-conferencing/phone call session. Besides, students will also be graded through their related documents which are the logbook, final report and evaluation forms from both academic and industrial supervisors. Therefore, students must hand in documents along with a photo of themselves at their workplace before the deadline set.

1.1 Background

Grand Pacific Industrial Equipment Sdn. Bhd. was incorporated on the 23rd of February 1985 where the company started carrying on business in the supply and trading of steel materials, hardware, machinery, tools, equipment and many more. The company also provides semi-prefabrication and machining services to their customers. Besides that, the company owns a fleet of transport vehicles to ensure prompt delivery of goods to customers.

The company was founded by Mr. Patrick Wong, Mr. William Wong and Mr. Johnny Wong. They are experienced and competent businessmen, always striving to provide the best services to their customers.

The company currently employs an approximate amount of 50 employees in both premises which are the sales and administration office and the main factory cum warehouse. Both the office and warehouse are equipped with modern facilities such as telecommunication system, computer system, storage and machining facilities.

With forward business planning, proper organisation structure and technological advancement, Grand Pacific Industrial Equipment Sdn. Bhd. has established itself as one of the top leading hardware and metal fabricators in the east of Malaysia, spanning its services not only to Malaysia but to other countries as well. The company's business sectors are subdivided into 3 divisions which are the cutting and bevelling division, steel division and hardware division. Therefore, the company had properly subdivided all their daily operational activities into a few departments to ensure everything runs accordingly and efficiently. The number of departments include the procurement department, operation department, sales and marketing department, financial department and human resource department.

The company's mission is to provide top quality goods and services at competitive prices; have an efficient transportation system to ensure on time delivery to customers.

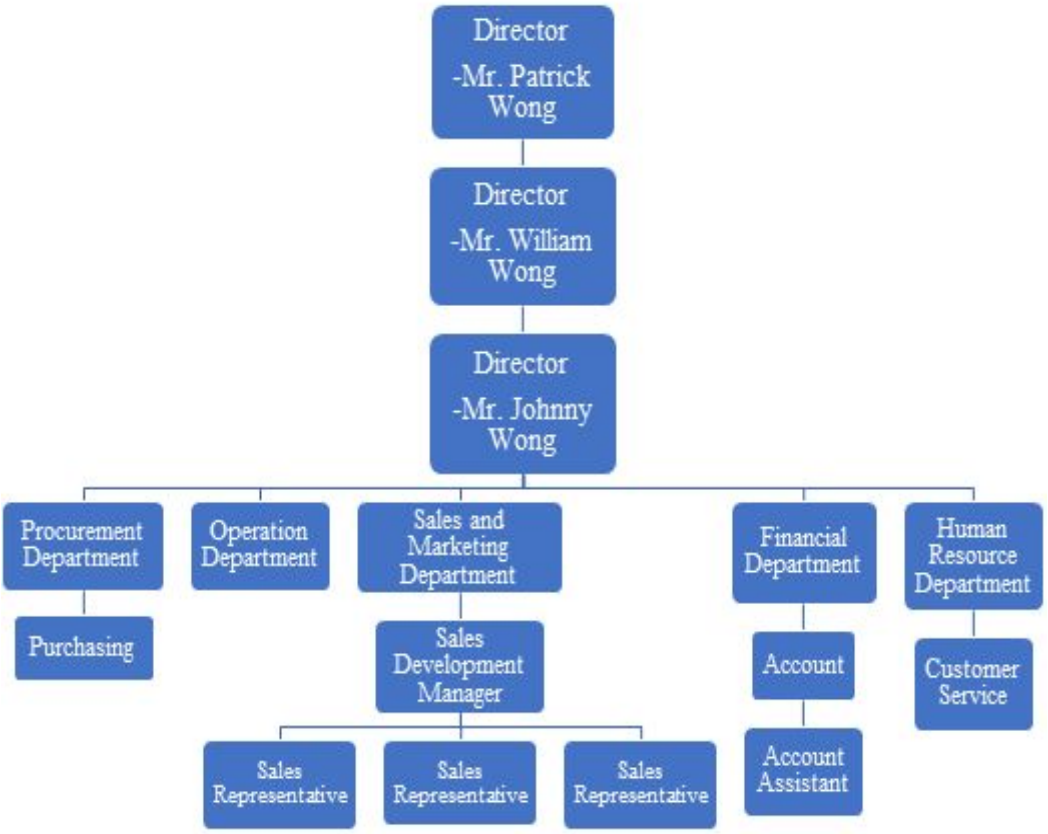


Figure 1.1 Grand Pacific Industrial Equipment Sdn. Bhd. Organisation Chart

1.2 Aims and Objectives

The aim of industrial training is to provide students an opportunity to expose themselves to a real work environment by gaining knowledge through hands-on experience and job implementation. Besides that, the industrial training programme allows students to apply their theoretical knowledge that they have learnt into their related field. The students will also be able to develop multiple skills in management, soft skills, work ethics and many more.

The general objective of industrial training is mainly to fulfill the Bachelor in Mechanical Engineering (HONS) degree requirement under the faculty of Engineering school, Taylor's University. More specifically, the objective of industrial training includes the following aspects:

- To build up good communication skills within a team or when dealing with clients.

- To gain practical experiences in applying techniques and theory through working with professionals and experts in the field of engineering.
- Helps a student to truly explore their career path whereby students are able to acquaint themselves whether they are interested in that field.
- Building connections and network with professionals in the field of engineering.
- To gain confidence by having an opportunity to learn in a safe and proper environment where mistakes are expected.
- To gain working experience which helps students to have a greater opportunity to search for a job after graduating.

CHAPTER 2 AUTOCAD DRAWING

2.1 Elbow

Based on the engineering drawing that was provided by the customer, I was given a task to draft out a technical drawing of the elbow on Autocad. The size of the elbows that the customer wanted was not the common size and they are rare in the market. Therefore, they had come out with their own engineering drawing and had requested us to fabricate the elbows from the drawing. Before we started out on this project, we had properly planned out everything to execute on this task effectively and hence the first step was to sketch out the drawing on Autocad. My supervisor had assigned a worker with experience in Autocad to guide me through since this was my first time using the Autocad software. Since this was my first time exploring Autocad, I was taught on some of the common features that will be used to create the drawing. As there were a total of 4 different sizes of the elbow, the worker demonstrated the first drawing to me before I worked on it. I jotted down the notes and tips that he shared to me while he was demonstrating. I proceeded with the 3 other sizes and the worker carefully inspected every step I worked on in the drawing to ensure there were no mistakes made.

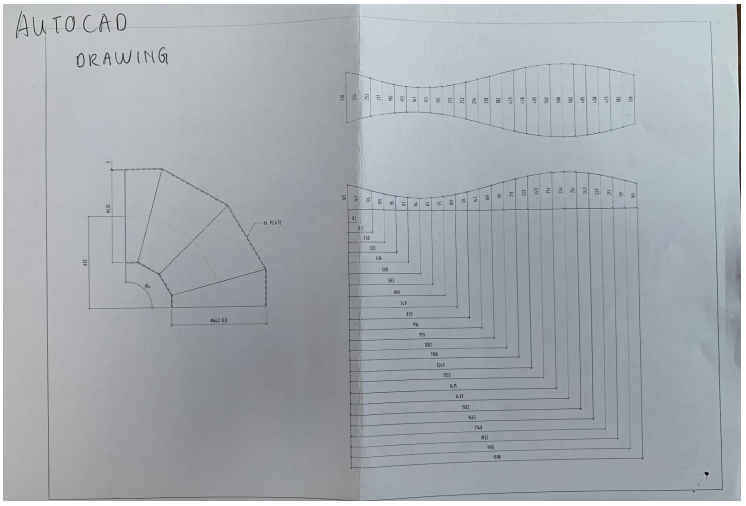


Figure 2.1 Engineering Drawing of the Elbow

2.1.1 Elbow pippings

Elbows pipe fittings are used to change the direction of flow in the piping system. Generally, elbows are available at many different angles and the common ones are 22.5°, 45° and 90° [1]. Elbow pippings are manufactured to be used in the fields of medical, construction, flow lines of gasses and fluids and many other applications. The type of elbow pippings varies depending on its purpose. For instance, some of them were built at a greater wall thickness with high tensile material to withstand the extreme high/low temperatures. Another different type of elbow is called a reducing elbow. Reducing elbow fittings are used to connect two pieces of pipe with different diameters. They are also available in different angles, sizes, materials, etc [2].

2.2 House Address Plate Design

To have more exposure in the software that I am new in, my supervisor had given me another task which was to design a house address plate using the Autocad software. The difference between this and the previous task is that I have to complete this task myself without having someone to supervise my work. Initially, I struggled and faced some issues while executing on this task because the software that I had previously learnt which is Solidworks has a totally different method of using it. On the brighter side, I learnt to be more independent by having to conduct my own research to solve any challenge I encountered in this particular task.

Firstly, I started off by sketching out the design of the plate on a piece of paper with its dimensions. Before I came out with the dimensions, I conducted research regarding the standard size of the house address plates that are commonly used in the market. With all the datas collected, I roughly estimated the dimensions and came out with my own design as shown in the figure below. Before I started drawing it on Autocad, I showed my supervisor the rough sketch of the design to obtain her approval.

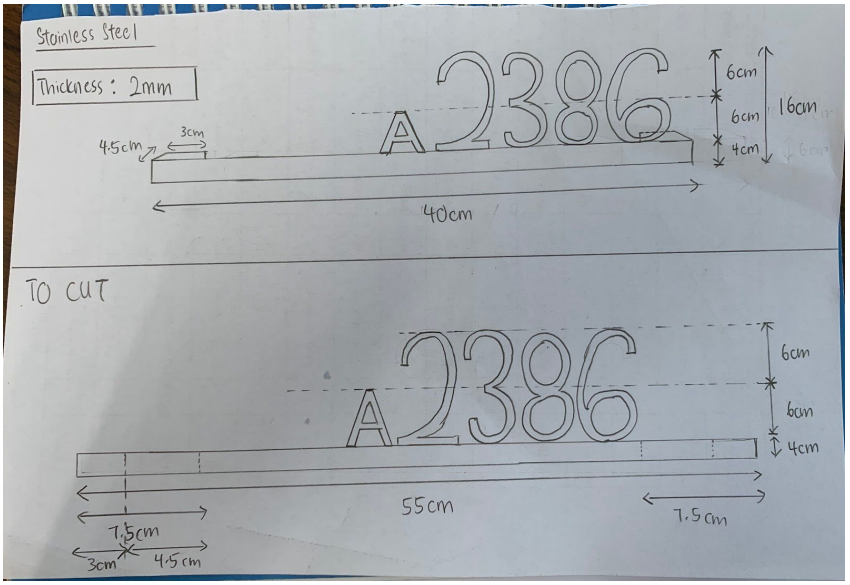


Figure 2.2 Rough Sketch of House Plate Design

Then, I started to draw it out on Autocad according to the dimensions and the design from the rough sketch. For the alphabet and the numbers, I wrote them out in a single line text and I utilized the explode feature to form them into Autocad blocks. However, I faced an issue which was the dimension changes after exploding. I went through the help menu, watched a few tutorial videos and I found a few solutions that might possibly help to solve this issue. After several tests, I'm able to solve the issue of resolving the Autocad blocks by using the scale feature. Then, I proceeded to scale up the Autocad blocks according to the dimensions that I had set in the sketch.

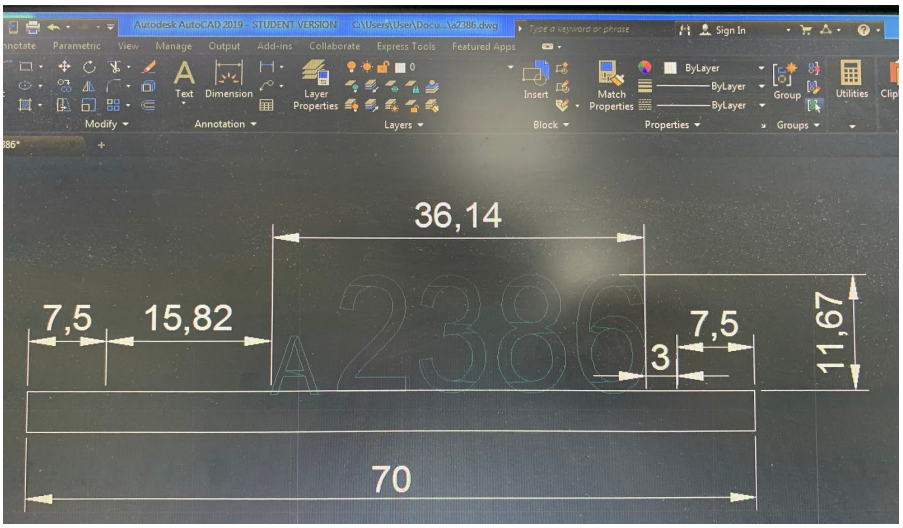


Figure 2.3 Autocad Drawing of House Plate Design

After the Autocad drawing was completed, I saved it as a ‘dxf’ file in my pendrive and tested it out on the I-Cam software with some assistance from the worker. I-cam is a program that helps to integrate the software as part of the CNC machine to enhance the manufacturing process [3]. In a way, I-Cam helps to save up time and money as it increases the NC programmer productivity and the manufacturing process in a more efficient manner. Unfortunately, there was an error popping out after I transferred the autocad drawing into the software. The error showed that the open paths were not offset and some features were too small for the CNC machine to fabricate them out. Hence, I discussed this issue with my supervisor and she suggested that I draw it out instead of using the font and explode feature. The font and explode feature might be one of the factors that contribute to the error where the I-Cam software couldn't detect the autocad drawing.

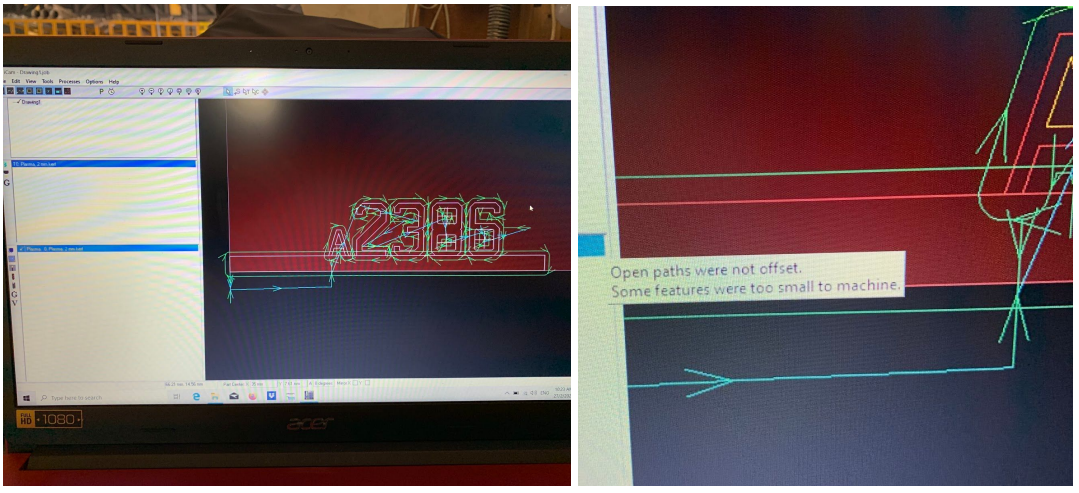


Figure 2.4 Errors shown in the I-Cam Software

I reattempted on the Autocad drawing by redrawing the alphabet and numbers out on the Autocad instead of using the font and explode feature. Some of the modifications made were by removing some of the small cuts on the number blocks as well as scaling up the entire drawing by 25%. These modifications were made to solve the issue whereby the CNC machine was unable to cut any sizes that are too small. After all the necessary modifications were made, I tested it out on the I-Cam software again and it finally works.

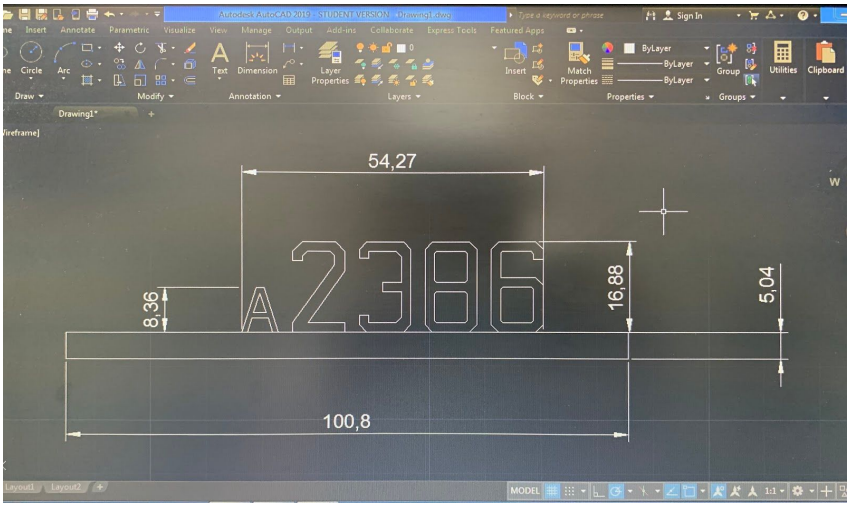
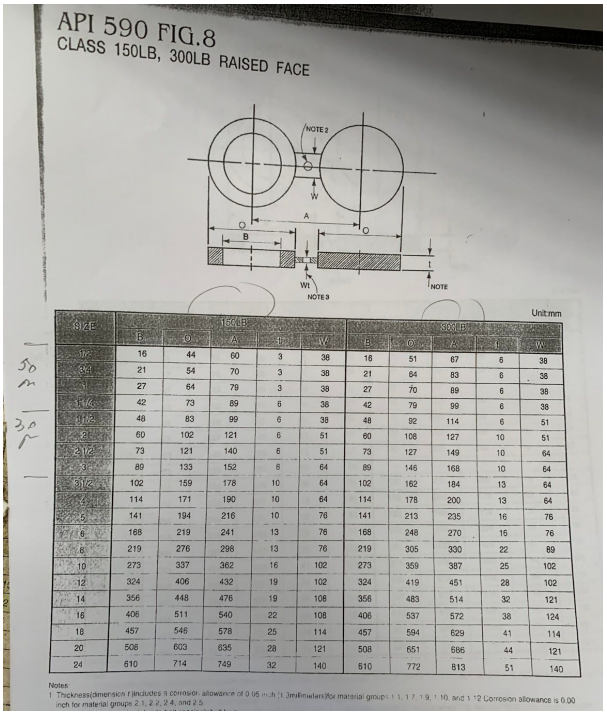


Figure 2.5 Reattempt Autocad Drawing of House Plate Design

2.3 Spectacle Blind and Spade Blind

The director of the company, Mr.Patrick handed me a few spectacle blind dimension charts with different sizes and weights. He explained to me which sizes are highly demanded in the current market. As for this task, I am required to draw them out on Autocad based on the standard dimensions in the chart in order to fabricate them out using the CNC machine.



SIZE	150LB					300LB				
	E	O	A	t	W	E	O	A	t	W
½	16	44	60	3	38	18	51	67	6	38
¾	21	54	70	3	38	21	64	83	6	38
1	27	64	79	3	38	27	70	89	6	38
1½	42	73	89	6	38	42	79	99	6	38
1½	48	83	99	6	38	48	92	114	6	51
2	60	102	121	6	51	60	108	127	10	51
2½	73	121	140	6	51	73	127	149	10	64
3	89	133	152	6	64	89	146	168	10	64
3½	102	159	178	10	64	102	162	184	13	64
4	114	171	190	10	64	114	178	200	13	64
5	141	194	216	10	76	141	213	235	16	76
6	168	219	241	13	76	168	248	270	15	76
8	219	276	298	13	76	219	305	330	22	89
10	273	337	362	16	102	273	359	387	25	102
12	324	406	432	19	102	324	419	451	28	102
14	356	448	476	19	108	356	483	514	32	121
16	406	511	540	22	108	406	537	572	38	124
18	457	546	578	25	114	457	594	629	41	114
20	508	603	635	28	121	508	651	686	44	121
24	610	714	749	32	140	610	772	813	51	140

Notes:
1. Thickness(dimension t)includes a corrosion allowance of 0.05 inch (1.3millimeter)for material groups 1.1, 1.7, 1.9, 1.10, and 1.12 Corrosion allowance is 0.00 inch for material groups 2.1, 2.2, 2.4, and 2.5.

Figure 2.6 Spectacle Blind Dimension Chart

At first, the worker had demonstrated and guided me on how to draw the spade blind for the first size. Some of the new features that he had introduced to me were the offset and trim feature. Then, I proceeded to draw out the other remaining sizes based on the dimension chart.

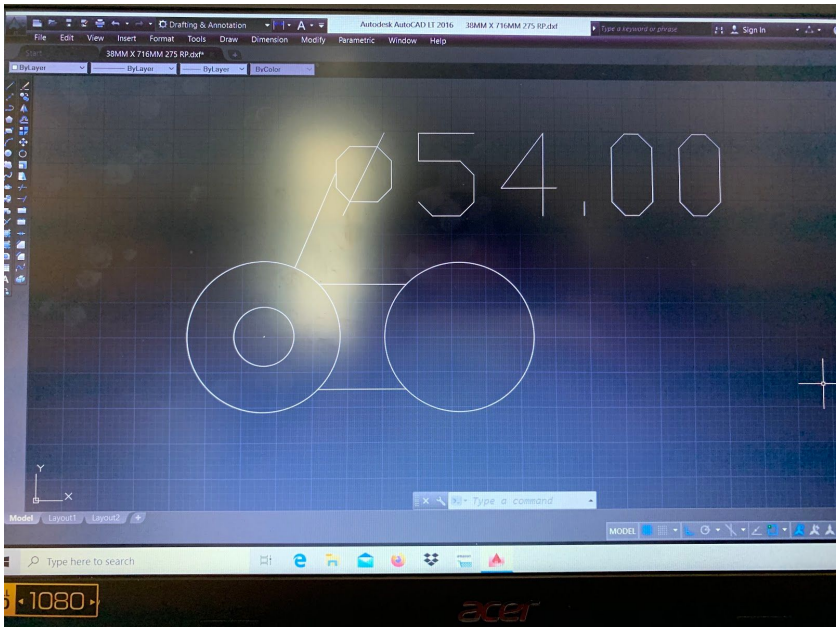


Figure 2.7 Spectacle Blind Drawing on Autocad

2.3.1 Blinds and Spades

The spectacle blind is a safety device used to isolate a section of a line when the equipment/pipeline needs to be inspected for maintenance or service. Spectacle blinds are normally applied to a permanent separating piping system. Spectacle blinds consist of two discs attached to one another by a small section of steel in the middle. One of the discs is a solid plate while the other is a ring with a hollow section in the middle where the diameter of the hollow section must be equal to the diameter of the flange [4].

Spades blind or ring spacers are also similar to the spectacle blind except that both of the discs are not connected to one another. They perform the exact same function as the spectacle blind and they are normally applied in systems where maintenance service is often less necessary or in any pipelines of larger sizes [5].

CHAPTER 3 SALES DEPARTMENT

3.1 Weight and cost calculation

Since the company also runs a steel trading business, I was given an opportunity to work in the sales department where I get to explore the daily operations of how a steel trading company operates. Firstly, I was exposed to the formulas on how to calculate the weight of every different steel product. This includes the formulas for the shafts, mild steel plates, I-beam and many more. I recorded down all the formulas in my notebook for my future reference whenever I need it. For the first week, I've done a few practices from some of the purchase order receipts provided by my supervisor. I was also given the responsibility of calculating the total price of an order from a walk-in customer with some assistance from Mr.Tan. This also helps me to boost my confidence when dealing with customers in a real life situation. My supervisor provided me a full list of product codes for me to go through.. I took my time to read through each product code and try to be familiarised with everything.

Besides that, the director, Mr. Patrick assigned me a task to calculate the weights of each product that was just purchased by a company. I summed up the total weight of every product after calculated and wrote it down on a delivery order note before handing it to the warehouse manager. The reason being is to ensure that the total weight of the load doesn't exceed the weight limitation of a lorry. After I hand it to the warehouse manager, he will then proceed with his planning task of the delivering process.

While my supervisor was away from the office delivering some documents, I also gained an opportunity to deal with the walk-in customers as well as answering phone calls from the office. This helps to improve my communication skills where I learn to deliver and receive information more effectively in the future. When dealing with the customers, I also managed to learn how to prepare cash bills, delivery orders, material issue notes, interstock transfer, goods received note, invoice and many other related documents.

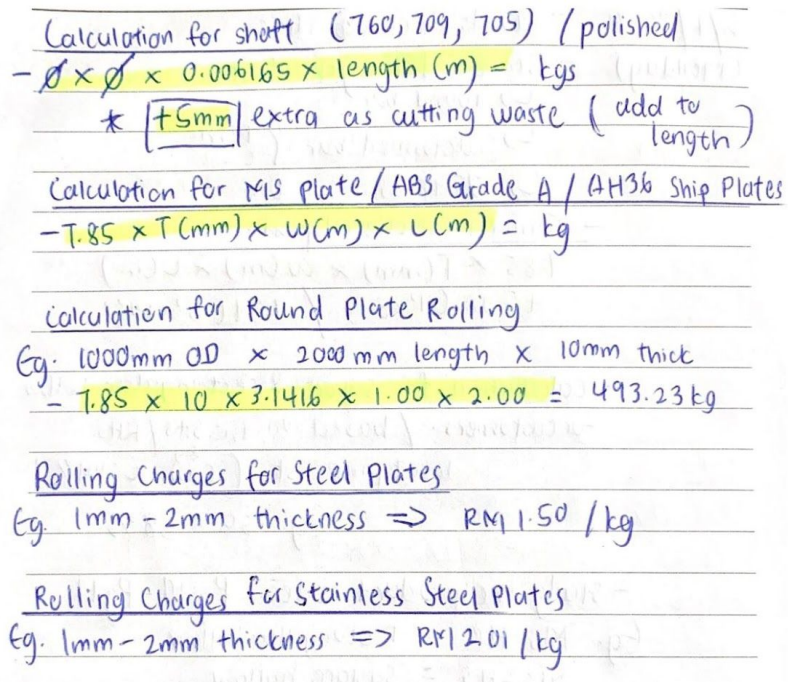
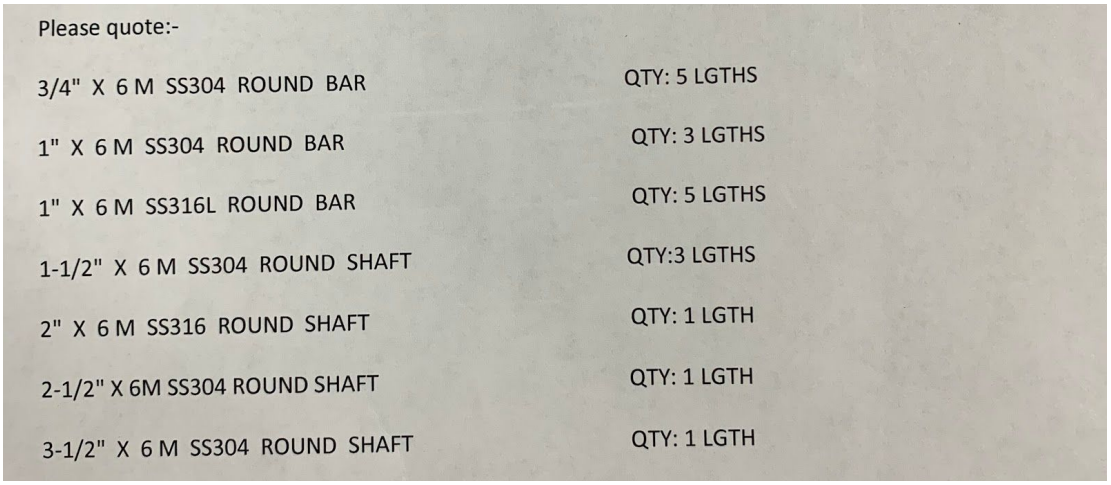


Figure 3.1 Formulas and Rolling charges for each product

3.2 Purchasing

After getting familiarised with the calculations, my supervisor guided me through the purchasing operation. Firstly, she showed me a sample quotation email that was sent by her to a supplier. My supervisor then gave me a task to prepare a purchase order in the system which includes all the items shown in that quotation email. For this task, I had to calculate the cost per kilogram for each item. This was done to check whether the cost of each product increases or decreases from the previous purchase. The cost of the products from the previous purchase can be obtained from the stock card in the system. Besides, my supervisor had also taught me how to compare the costs between two suppliers through a few samples. This roughly gave me an idea on how to purchase items from suppliers as well as obtaining the best cost of each product.

Before working on the purchasing, I was also assigned a task to analyse the stock movement of the product. This stock analysis was performed to check which items need to be restocked at the moment.



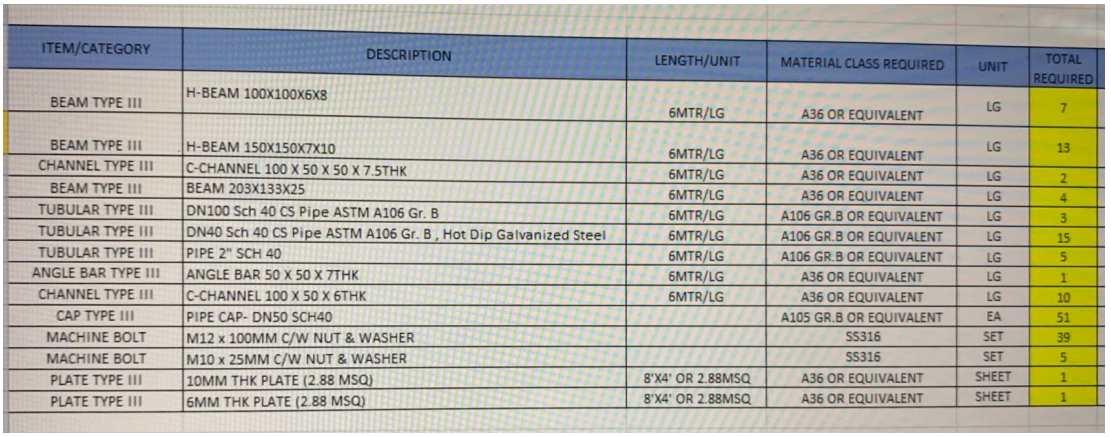
Please quote:-

3/4" X 6 M SS304 ROUND BAR	QTY: 5 LGTHS
1" X 6 M SS304 ROUND BAR	QTY: 3 LGTHS
1" X 6 M SS316L ROUND BAR	QTY: 5 LGTHS
1-1/2" X 6 M SS304 ROUND SHAFT	QTY:3 LGTHS
2" X 6 M SS316 ROUND SHAFT	QTY: 1 LGTH
2-1/2" X 6M SS304 ROUND SHAFT	QTY: 1 LGTH
3-1/2" X 6 M SS304 ROUND SHAFT	QTY: 1 LGTH

Figure 3.2 List of products quoted to the supplier

3.3 Price quotation

I also worked on the price quotation task that was given by my supervisor. I learnt to reply to customer's enquiry through an email. My supervisor had guided me on the most effective way to write an inquiry response email. Other than replying back with the unit cost of each item, my supervisor had taught me to always include the validity period, delivery period and to state whether the items offered are ex-stock in the email. While executing on this task, I was exposed to some of the microsoft outlook features that were mainly used in corporate. At the same time, it also helps me to enhance my microsoft excel skills by mastering some of the shortcuts which are able to make my work more efficient.



ITEM/CATEGORY	DESCRIPTION	LENGTH/UNIT	MATERIAL CLASS REQUIRED	UNIT	TOTAL REQUIRED
BEAM TYPE III	H-BEAM 100X100X6X8	6MTR/LG	A36 OR EQUIVALENT	LG	7
BEAM TYPE III	H-BEAM 150X150X7X10	6MTR/LG	A36 OR EQUIVALENT	LG	13
CHANNEL TYPE III	C-CHANNEL 100 X 50 X 50 X 7.5THK	6MTR/LG	A36 OR EQUIVALENT	LG	2
BEAM TYPE III	BEAM 203X133X25	6MTR/LG	A36 OR EQUIVALENT	LG	4
TUBULAR TYPE III	DN100 Sch 40 CS Pipe ASTM A106 Gr. B	6MTR/LG	A106 GR.B OR EQUIVALENT	LG	3
TUBULAR TYPE III	DN40 Sch 40 CS Pipe ASTM A106 Gr. B , Hot Dip Galvanized Steel	6MTR/LG	A106 GR.B OR EQUIVALENT	LG	15
TUBULAR TYPE III	PIPE 2" SCH 40	6MTR/LG	A106 GR.B OR EQUIVALENT	LG	5
ANGLE BAR TYPE III	ANGLE BAR 50 X 50 X 7THK	6MTR/LG	A36 OR EQUIVALENT	LG	1
CHANNEL TYPE III	C-CHANNEL 100 X 50 X 6THK	6MTR/LG	A36 OR EQUIVALENT	LG	10
CAP TYPE III	PIPE CAP- DN50 SCH40		A105 GR.B OR EQUIVALENT	EA	51
MACHINE BOLT	M12 x 100MM C/W NUT & WASHER		SS316	SET	39
MACHINE BOLT	M10 x 25MM C/W NUT & WASHER		SS316	SET	5
PLATE TYPE III	10MM THK PLATE (2.88 MSQ)	8'X4' OR 2.88MSQ	A36 OR EQUIVALENT	SHEET	1
PLATE TYPE III	6MM THK PLATE (2.88 MSQ)	8'X4' OR 2.88MSQ	A36 OR EQUIVALENT	SHEET	1

Figure 3.3 Customer's enquiry in excel file

3.4 Mill Certificates

For every product that has been purchased from a supplier, they will provide a mill certificate to the purchaser. A Mill Test Certificate (MTC) is issued by the manufacturer which acts as an assurance certificate to show a steel product's compliance with the international standards [6]. Mill Test Certificate may includes most or all of the following information :

- Chemical Properties
- Mechanical Properties
- Heat number of material
- Name and specifications of material
- Manufacturer name
- Final test result
- Test results (eg. Hardness test, Ultrasound test, Hydrostatic etc.)
- Material Grade

Mill Test Certificate is very important for the fabricators and customers because this certificate confirms that the product received meets the specifications and the items will have its traceability.

My supervisor had guided me through the delivery order along with the milling certificate to check whether the product in both delivery order and milling certificate tallies. While working on this task, I get to familiarise with both local and international milling companies and the type of products they manufactured. The international milling companies were mainly from South Africa, China, India and Japan. For instance, I learnt that Arcelormittal milling company from South Africa mainly manufacture beams.

In the sales department, I have been exposed to knowledge regarding sales that goes beyond my studies where I was previously unaware of.

CHAPTER 4 FABRICATION SEGMENT

Throughout the 12 weeks of internship, I had explored quite a number of fabrication processes which includes rolling, bending, pipe threading, lathe machining, punching, laser and plasma cutting using the CNC machine. I was partially involved in one of the projects that was constructing the elbow. For this particular project, I was given an opportunity to work on the Autocad drawing which I had elaborated in Chapter 2 (Autocad Drawing).

4.1 Process of constructing an elbow

After the autocad drawing was completed and saved into a 'dxf' file, it was transferred into the I-Cam software. The I-Cam software will create detailed instructions (G-Code) that drives the CNC machine [7]. A piece of 4'X 8' mild steel plate was placed on the CNC machine and the cutting process began. After the subsections of the elbow were cut out, they were then welded back together into a piece of flat plate.

Figure 4.1 CNC cutting process

Figure 4.2 Subsections welded into piece of flat plate

After the welded plate was let down to cool, the piece of welded flat plate was placed into a plate rolling machine. Before beginning with this rolling process, the operator checked whether the machine is in a good condition whether the hydraulic pressure is normal, the rotation of the rollers are smooth and the overturned sides can be closed before operating it. After the inspection, the operator started to roll the plate using the machine control. The both ends of the plate which meet were welded together again to form a cylindrical shape plate.

Figure 4.3 Rolling process

Figure 4.4 Welded plate after rolling

The cylindrical rolled plate was cut out to form its subsections. Then, the rolled subsections were joined back together by welding. This step was done very carefully by the worker to ensure there won't be any gaps around it after joining them. This is because the elbow will eventually be used in a piping system. Therefore, it is crucial for the worker to execute on this step perfectly to ensure there was no leakage found in the elbow.

Figure 4.5 Cutting of the welded rolled plate

Figure 4.6 The subsections of the rolled plate

Figure 4.7 Joining of subsections

Figure 4.8 End product of the elbow

4.2 Bending Service

I get to explore the fabrication process in the warehouse where they bend the square hollow bar using the bending machine.

Figure 4.9 Bending Machine

Figure 4.10 End product of Bended Bar

4.3 Lathe Machining and Pipe Threading Service

The company also provides lathe machining service where I also get to explore how the worker made the large size bolts from a plain smooth shaft.

Figure 4.11 Lathe Machine

Figure 4.12 End product of the Bolts

The worker had also demonstrated to me how the pipe threading machine works and what it can do. He simply took a used pipe and showed me how to fabricate a threaded pipe from a plain end pipe.

Figure 4.13 Pipe Threading Machine

Figure 4.14 End product of the Threaded Pipe

4.4 Punching Service

Other than that, the worker also showed me how to operate a punching machine. I was also told that the force exerted by this machine is 5 tonne of force. Therefore, it is important for us to obey the safety procedure by wearing all the protective gear when operating this machine.

Figure 4.15 Punching machine

CHAPTER 5 INSPECTION

5.1 Quality and Quantity check

In Grand Pacific Industrial Equipment, I was also given a task to inspect on the newly arrived stock which was the roofing that the company had just purchased. My supervisor assigned a person from the warehouse to guide me on the inspection. He had taught me the inspection procedures by demonstrating the steps taken by him. The main objective of the inspection is to meet the wants, needs and requirements of the customers. The first step that was taken was to ensure the quality of the product that we received was in a perfect condition through visual inspection. Then, we proceeded with the quantity check by comparing the purchasing order and the supplier's delivery order.

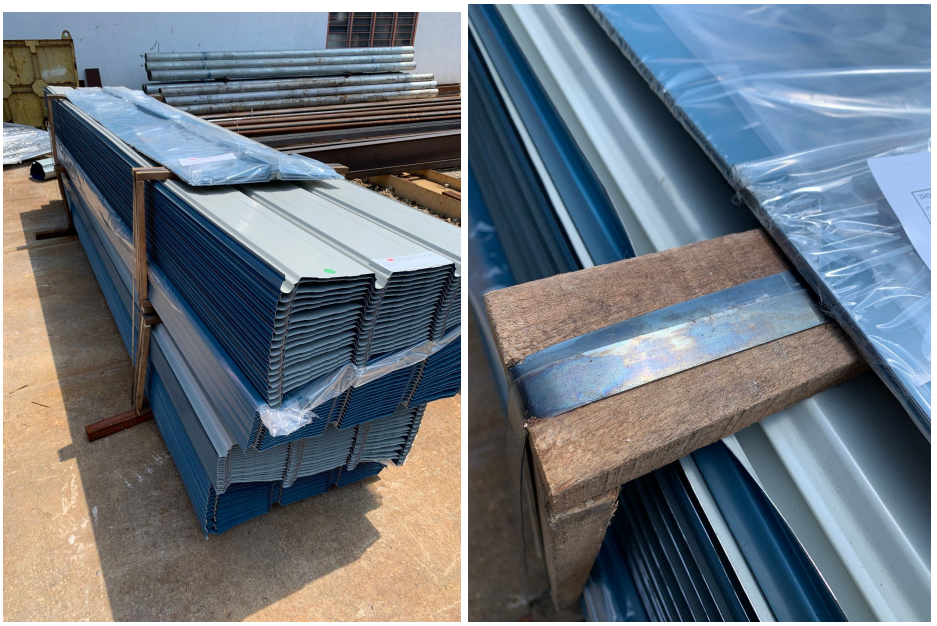


Figure 5.1 Roofing

Figure 5.2 Roofing information sticker

There was also a case where the stock card shows a negative quantity in the system.. I was given a task to key in all these products in an excel file as these products need to be rechecked because the current stock check wasn't tally with the closing stock check as per report. During the stock check inspection, we measured the thickness of the product such as the hollow rectangular bar using a digital vernier caliper to ensure we were checking on the correct size. After the stock check, I will then list down all the updated quantities of those products and update my supervisor about it.

Figure 5.3 Stock check

5.2 Testing bodies in Malaysia

My supervisor had also briefed me through a few inspection and testing bodies in Malaysia which are SIRIM, CIDB and CREAM. I browsed through their websites that my supervisor had shared with me to refer to what type of services they provide. My supervisor handed me a few test reports from CIDB and CREAM for me to look through to have a rough idea on how it looks like. The inspection report includes the chemical composition testing, uniformly distributed load test, concentrated load tests and many other tests. Some of the reports do also provide photos of how the testing process was done. All the imported stocks must go through the inspection and testing body before handed out to the suppliers to ensure they pass all the tests.

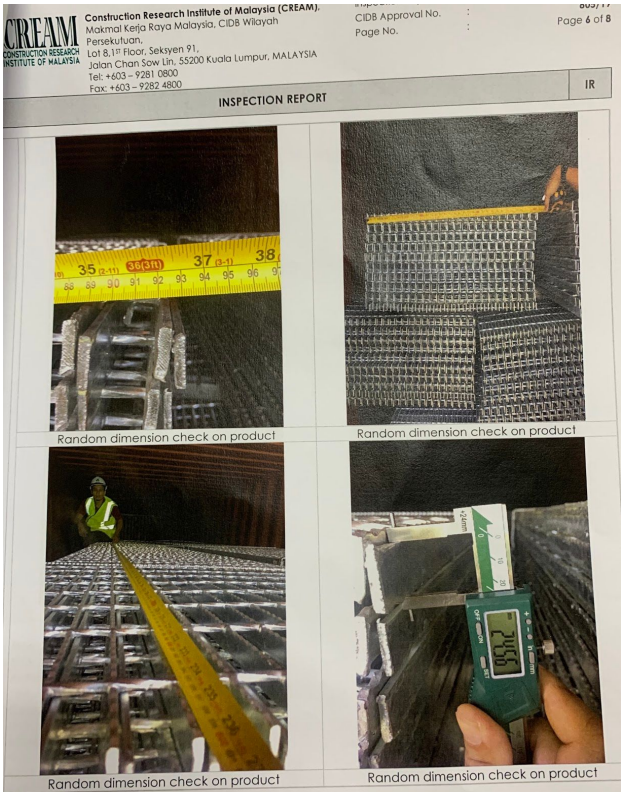


Figure 5.4 Inspection Report (CREAM)

5.3 Heat number inspection

I also performed a heat number inspection on the items that just arrived. The items arrived were the SCH 80 elbow from two different suppliers. I first checked on the quantity of the elbow from each supplier. Then, I randomly selected a few elbows from the bulk and compared the heat number embossed on it with the heat number in

the mill certificate. If the heat number tallies with one another on both sides, this means that the item delivered by the supplier is correct. I was also told by my supervisor that the heat number is very important so that the purchaser can trace that specific material from that particular manufacturer. Besides, the heat number will be useful for recall, allowing people to identify any bad batch of metal products and this helps to ease the process of warning an issue to the public [8].

Figure 5.5 SCH 80 Elbow

CHAPTER 6 STEEL AND HARDWARE PRODUCTS

6.1 Steel Product

During the first week of my internship, my supervisor had assigned one of the warehouse workers to walk me around the warehouse. I was exposed to all the steel products that the company supplies to their customers. The worker had explained each of the products in terms of the applications and its specifications. For instance, I was told that the steel plate was divided into 3 categories which are the mild steel plate, boiler plate and stainless steel plate. He had explained the difference between them in terms of their cost, chemical, and mechanical properties as well as the primary usage of it. Other than the plate steel, I was exposed to other steel products such as I-Beam, deformed bar, angle iron, polished shaft and many more.

Figure 6.1 I-Beam

Figure 6.2 Mild Steel Plate

Figure 6.3 Circular Hollow Bar

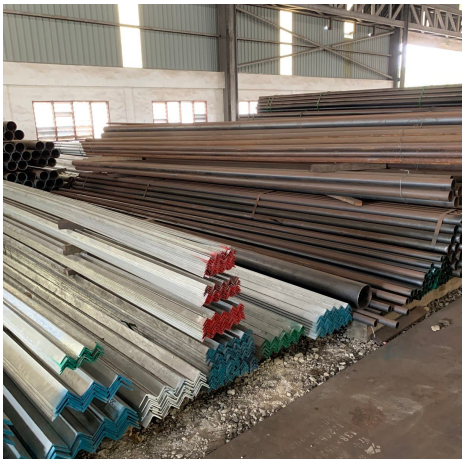


Figure 6.4 Angle Iron

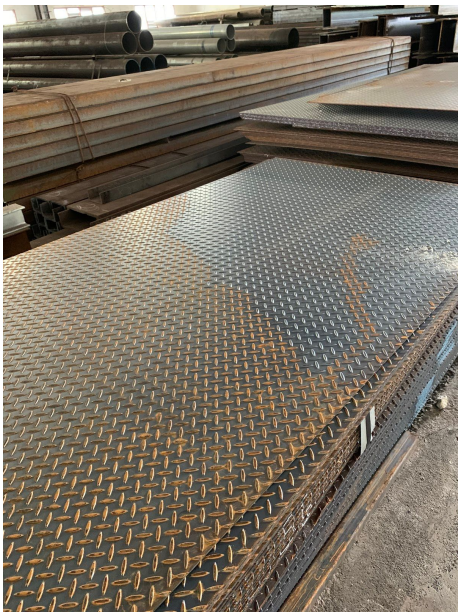


Figure 6.5 Chequered plate

Figure 6.6 Deformed Bar

6.2 Hardware Product

Grand Pacific Industrial Equipment also supplies hardware products to their customers. I was given an opportunity to explore their hardware store located just below the company's office. Some of the products I've been through in the hardware store includes the rollers, bolts and nuts, elbows, flanges, mechanical equipment and many other industrial supplies.

Other than that, my supervisor handed me a few catalogues of all the tools and devices used in the engineering field. The brand of the items were mainly from Germany and most of the products they sold were incorporated with the latest technology. I took a glance through and read on the functions as well as the specifications of the product. This helps to broaden my knowledge and stay updated on the latest technology used out there. Also, my supervisor had given me a safety product catalogue to browse through. Safety helmets, visors, harness and protection clothings were some of the products inside the catalogue. I get to expose to the safety products that were offered in the current market

Figure 6.7 Bolts and Nuts

Figure 6.8 Standard sized Elbow

Figure 6.9 Hardware storage

AREAS OF IMPROVEMENT

My internship experience with this company has been amazing for the past 12 weeks. However, a few areas of improvement are still crucial to enhance the effectiveness of an internship training. Here are a few recommendations that I have suggested for the next internship placement of the company in the future.

Firstly, I would appreciate it if Taylor's School of Engineering would extend the duration of this internship program up to 4 to 6 months instead of just 3 months. This is because the duration assigned (12 weeks) was insufficient for the company to fully guide and develop skills and knowledge to their interns. Besides that, interns were also unable to showcase their skillsets to their employer/supervisor in this short amount of time. This will also serve a better opportunity for interns to get the job offers from the company after they graduated.

Secondly, the company should provide interns with real work assignments to ensure the program's success. Interns should be assigned tasks that are more work and engineering related, challenging and valuable. By emphasizing the importance of these featured tasks, interns can determine and perceive what they are working on. This will greatly enhance their internship experience

Besides that, I had also come out with a few company improvement ideas which may help with the company's performance. This is because the company is currently facing transportation issues in the warehouse. This problem occurs very frequently because the company does not have a proper transportation manager that controls this operation. In fact, the current worker that was managing it is also responsible for other duties such as processing the new stocks, packing orders, retrieving stocks, etc. Hence, I find that it will be better for the company to have a transportation manager in the warehouse to plan and supervise all the shipments to the end users.

Furthermore, the company is facing the system connectivity issue where the desktops are unable to connect to the system every morning, This issue mainly occurs in the warehouse office where the staff will be using it to prepare all the sales related documents for the customers. I had already experienced this problem where

the customer had to wait for a long period of time as we couldn't issue the cash bill for the customer. Therefore, the company must take this issue seriously by hiring a technician or any IT experts to solve this issue immediately.

Lastly, some of the staff in the company are facing workload distribution issues especially those who are working under the sales department. The shortage of staff working under this department had led to this issue. One of my colleagues from this department told me that he has to deal with the overwhelming workload due to numerous clients/customers he has to face everyday and has to work on many other different tasks. Hence, I find that it is necessary for the company to conduct meetings weekly/monthly to have a better understanding of the current working situation of every staff member. This also helps to gain feedback from every worker to improve on the company's performance.

CONCLUSION

It was an outstanding and useful experience interning at Grand Pacific Industrial Equipment Sdn. Bhd. The helpful supervisor and workers had allowed me to learn and understand myself even further as a worker. The ideal working environment has influenced my motivation and productivity at work which allows me to execute all my tasks effectively. The learning experiences that I've gone through in this company have also brought out some of my strengths and weaknesses. One of my strongest assets is my work ethic and I am always willing to step in regardless of any situation. For instance, I have the courage to face difficult clients/colleagues or any tough projects because I understand that these are the things that will teach me the most in my learning process. I also love to work on any tasks that are outside of the job description or unrelated to what I've learnt. However, my public speaking skill has proven to be one of my major weaknesses. During the first week of my internship, I struggled as I am naturally shy and have the lack of confidence speaking to my supervisor and the staff. Since I had the opportunity to work in the sales department, I handled a lot of customers and faced some clients which in turn helps me greatly in gaining back my confidence in communicating. My experience in this company was a fruitful one. I worked in the Sales Department where I was taught on the purchasing, price quotation and the cost calculations. I was also assigned to deal with the customers and clients by preparing delivery orders, cash bills, material issue notes and other related documents. Besides, I was also given an opportunity to work under the Inspection Department where I was exposed to the methods and procedures throughout the stages of inspecting the products. I was assigned to inspect on the quantity and quality of the newly arrived products. Then, I performed a heat number inspection of the items through the supplier's delivery order or the mill certificate provided to ensure that the item delivered to the company is correct. At the same time, I get to learn how to read the mill certificates as well as knowing the purpose of it. Other than that, I was also partially involved in one of the projects to fabricate the large sized elbow. I did my part which was to draft out a technical drawing of the elbow on Autocad. This was the beginning stage of the project and hence I must

ensure that this task was done perfectly. Furthermore, I was also exposed to all the machineries in the company as well as the steel and hardware products. I learnt about the functions of the machines, operations procedures and how their mechanism works. I have also learned some of the important lessons and values throughout the 12 weeks of my internship. This includes the soft skills, building healthy connections, creating an effective network and also to be independent. All in all, I was extremely grateful to have undergone my internship training in this company where I get to expose myself into the corporate and industrial world. I gained a lot of valuable knowledge and work experiences that I could use towards my future career. Lastly, I must also say that these experiences and knowledge that I have gained will prove an objective in my engineering career.

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