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DIPLOMA IN CIVIL ENGINEERING

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UNIVERSITI TEKNOLOGI MARA

FACULTY OF CIVIL ENGINEERING

INDUSTRIAL TRAINING REPORT
ECM376

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MIZURA SDN. BHD.

SMK NILAI IMPIAN

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NEGERI SEMBILAN

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Abstract

The purpose of this industrial training is basically to give some exposures to the students who pursued their studies in a higher level. It is one of the way to let them know how to apply their knowledge from classroom to the real life. Other than to fulfill the requirement wanted by UiTM in Diploma level. Internship program also can be seen manage to exposed students balancing practical and theory. This could be helpful when they enter the real working life.

This report will surely brief my activities and also describe how my internship program was done from the very beginning to the end of it. Two months or 8 weeks are the duration set up for students to undergo this program. MIZURA Sdn. Bhd. is now running 3 construction projects and 2 maintenance projects and I was ordered to undergo industrial training to site Nilai Impian which is SMK Nilai Impian which was situated at Nilai, Negeri Sembilan.

This report will also explain a little bit more about the background of the company that I have chosen, organizational structure and also about the knowledge and experience that I have gained along the period of program. Other than that, there were also problem faced and of course there will be solutions for each of it. Hopefully, each and every details that will be explain in this report will satisfy the readers and manage to make readers understands a little bit more about engineering field.

Acknowledgement

Firstly, I would like to express my gratitude to the Almighty Allah because enabled me to complete this internship program and also completing this final report. I would like to say thank you to MIZURA SDN. BHD. for accepting me as their internship student. I would also like to say thank you to the company because of giving me so many unbearable experiences that could never be gain at anywhere. All the knowledge gained will be apply in real life as well because MIZURA Sdn. Bhd. manage to provide me a comfortable facilities such as rental house and desk in office along the period of internship program.

Then, I would like to say thank you to the team project especially Mr. Islahuddin and Mr. Khairul as the site engineer and site supervisor because taught me of so many things in site. For others department such as M&E and Safety Department, I would like to say thank you because of helping me during the internship program in terms of knowledge. Without their willingness and kindness to teach, I would never understand anything while completing the program. In every phase of the project their supervision and guidance shaped this report to be completed perfectly.

Finally, I would like to thank to my parents for giving me so much of moral support during this internship program. Without them, I could never have the courage and motivations to complete the internship program. I would like also to express my appreciation to all Industrial Training coordinators that were willing to guide all students from the very beginning of internship until the submission of final report.

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Chapter 1: Introduction

1.1 Introduction

Industrial training is one of the most important thing to be done for every student that are studying in any course. For Diploma in Civil Engineering (EC110), the industrial training or internship programme were held for 2 months which consist of 8 weeks. It is a requirement to fulfil the course in order to graduate for diploma. The location of internship programme were chosen by students and also depends on certain state. Any company from any background such as consultant or construction site can be chosen. I was posted to site SMK Nilai Impian, Nilai, Negeri Sembilan to assist engineers and supervisors there.

In the other hand, the organization helps students to apply their theoretical knowledge in classroom to the site. This could also test the general knowledge have by the students. They also capable to sharpen their soft skills, gained new knowledge and strengthen their mental and physical to master in their profession later. This is so important as it will be the preparation for students in facing the working life as an engineer.

1.2 Background of The Company

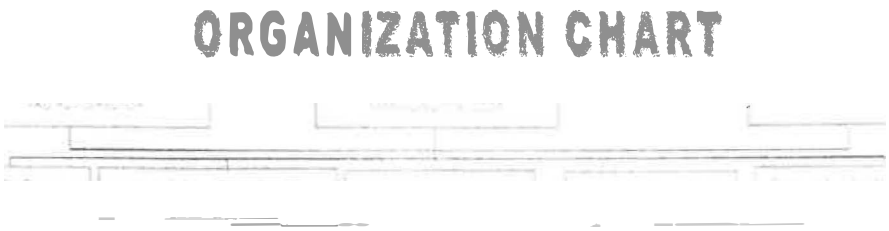
The principal business of MIZURA Sdn. Bhd. is civil construction. Business is focused on building and infrastructure construction. Due to the quality of work and good records, MIZURA Sdn. Bhd. is also registered with the Ministry of Finance, Pusat Khidmat Kontraktor (PKK) – Class "A", Construction Industry Development Board Malaysia (CIDB), Syarikat Perumahan Negara Berhad (SPNB), Multimedia University and Perumahan Kinrara Berhad (PKB).

MIZURA Sdn. Bhd. started business as MIZURA Enterprise (Registration No. 000970042P) in April 1994. The primary business focus then and the people behind the scene are the same. Due to the expansion in business, clients demand and license requirement MIZURA Enterprise has upgrade to private limited company in 22 July 1996 as MIZURA Sdn. Bhd.

Responding to the future 2020 vision and middle class entrepreneurs' requirement lifting, this Company from small but vast teamwork experience to the present diversified management.

Figure 1.1 (Logo of Company)

1.3 Organizational Structure



1.4 Nature of Business

MIZURA Sdn. Bhd. operating for six days per week. Sunday is the weekend holiday for all the staff whom is working on the construction site. The working hour is from 8.00 a.m. until 5.00 p.m. but mostly staff would stay until all of the work done on that day. Once in a month, site will have a meeting with client which is Kementerian Pelajaran Malaysia and Architect and all of the consultant. There, problems encountered and also the solutions needed to be present. If there are no solution for the problem, further discussion should be done. In the evening, all the progress in the site will be recorded in the site diary to hand in to the Clerk Of Work. As a student, I have to adapt this situation for 2 months and face the challenges happen in the site. Sometimes, students also need to collaborate well and gave them any idea that could contribute in solving problems.

1.5 Products

MIZURA Sdn. Bhd. is a company that have been in construction sector since ages. Now there are 3 projects are running at one time including my site which is SMK Nilai Impian, SMK Sungai Udang, and Masjid Putra Height. Mostly MIZURA Sdn. Bhd. only handle a project as a Main Contractor. Figure shows a sample of building that has been made by MIZURA Sdn. Bhd.

Figure 1.2 (Klinik Kesihatan Kuala Sungai Baru)

Figure 1.3 (SMK Sega Raub)

1.6 Conclusion

To be conclude, I am very grateful because undergoing internship programme with a very successful construction company. The result can be seen nowadays where the company was awarded top 3 of best contractor by CIDB. The working environment that have been applied in this company is so relaxing as it does not pressure their staff with works. This can be seen as MIZURA Sdn. Bhd. never fails in bonding their staff with events such as Family Day and Annual Dinner. These are a few initiatives that have been done by the office management in order to release their staff pressure.

CHAPTER 2: TRAINING ATTENDED

2.1 Introduction

"Chapter 2 : Training Attend" is one of the chapters in this final report which explains about the journey and activities during 2 months period. The activities performed based on the logbook daily report was written in this chapter in order to conclude about how does this industrial training gives exposure to student. During the internship, the application of civil engineering's knowledge can be applied in form of constructing the structures. Even there are many more complex problem in site, but the basic knowledge of civil engineering still can be used to solve some of the given problems. The working hours for this site is from 8.00 a.m. until the work is done which is around 5.00 p.m.

2.2 Exposure level (Weekly Report)

Weekly Log No.	Starting Date	Ending Date
1	15/07/2019	19/07/2019
	Description of Activities :	
	The first week, I was ordered by Project Coordinator to go to site SMK Nilai Impian. There, Mr. Adham as the Site Agent is the person incharge here. He was helped by three persons which is Mr. Islahuddin as Project Engineer, Mr.Izzuddin as M&E engineer, and Mr. Khairul as site supervisor. They told me about the background of this site. ➢ SMK Nilai Impian is a project which consist of 24 class rooms and others facilities. ➢ There are few types to undergo such as structure, architecture and infrastructure drawing. ➢ Raft foundation can be seen on structure drawing while brickwork and tiling can be seen in architecture drawing. ➢ SMK Nilai Impian have deal with client (Kementerian Pendidikan Malaysia) that the project will be finish in 24 months strating in March 2018. ➢ Structural section was handled and being monitored by Reza Ridzuan Architect Sdn Bhd. ➢ Infrastructure section was handled and being monitored by PSS Consult Sdn. Bhd. ➢ Mechanical and Electrical (M&E) was handled and being monitored by Two H Consult Sdn. Bhd.	

Weekly Log No.	Starting Date	Ending Date
2	22/07/2019	27/07/2019
	Description of Activities :	
	The second week, I start to do the surveying work with the surveyor which is Mr. Azzlin to peg the point for the guard house. ➢ The surveyor teaches me how to find the bearing and the distance of the guard house point using the autocad software from existing point that has been locate in the autocad. ➢ The surveyor starts to find the existing bearing and distance of the point before start to find the bearing and the distance of the guard house. ➢ After the points of the guard house has been found and peg, he makes an offset which is 3 meter from the perimeter to install the formwork of the guard house including the apron of the guardhouse. The project engineer also asked me to monitor workers for brickwork, plastering, rendering, and skim work. He asked me to make sure all the workers done the job correctly with correct elevation and places to do the job. ➢ The project engineer asked me to study the architecture drawing before enter the site and make a copy of the drawing before enter the site. ➢ Then I went to the places where all the workers do their job and I will refer the drawing while monitor them doing their job. ➢ Make sure they clean the surface before start doing the job such as rendering, which was they must clean the surface of the floor with water before they start to render.	

	➢ My task also to inspect the level of thickness are correct such as rendering work which is the required thickness to render is 50mm.

Weekly Log No.	Starting Date	Ending Date
3	29/07/2019	3/08/2018
	Description of Activities :	
	In week 3, I was ordered to assist the surveyor to do the survey and pegging for the level of the perimeter drainage in front of the B2 building & Administration building, and the alignment route of the water reticulation. ➢ The level of floor finish of B2 building was taken by referring the drawing plan. The reading of staff on the floor of B2 building was taken. ➢ Take the level of the steel that has been peg in front of the building which is 900mm from the column of the building as the width of the perimeter drainage. ➢ After the calculation for the level of drainage has been made, the staff was adjusted until the height that has been calculated are achieved. ➢ The bottom of the staff will be marked with a marker at the steel that has been pegged earlier. ➢ The marker that has been marked at the steel rod is the level finished of the brickwork of the drainage. I also been ordered by the Project Engineer to assist them to keep monitoring on workers that do the brickwork, plastering, rendering, and skim work. ➢ The copy of the architecture drawing plan has been made for me, so I will keep referring the drawing plan while monitor them doing their job. ➢ I also has been tasked to make sure them doing their work correctly such as in term of the thickness of the render, make sure they mark for the level of thickness first before start doing their job and so on.	

Weekly Log No.	Starting Date	Ending Date
4	5/08/2019	9/08/2019
	Description of Activities :	
	In week 4, I have attended of two different meeting at the site's meeting room. First is the meeting between the Sub Contractor with the Main Contractor, and the second is meeting between the Client, Clerk of Work, and the Main Contractor. ➢ The meeting with the Sub Contractor was held to discuss about the progress of their job and also to discuss about issues occur during their work progress. ➢ During the meeting also they discuss about the delay of their work which is especially the Eco Inspire Enterprise which their delay that has been observed is 41 days. ➢ The solutions for the delays is the Main Contractor setup a schedule for them to finish their works within the period of time. ➢ Meanwhile, the meeting with the client (Kementeriaan Pendidikan Malaysia) is discussing about an issues from the last meeting and request for the progress about the issues in the site. ➢ The client (Kementeriaan Pendidikan Malaysia) request an additional exhaust fan for each of the bathroom, but to add the exhaust fan are impossible because there are no spaces for the exhaust fan and the client are satisfied with the reason that has been described by the Main Contractor and the Architect. ➢ The meeting was done after they have finish discussing the issues and all the progress in site, and they setup a new date for meeting which is 13/09/2019. The meeting must be held once in a month.	

In that week also I been task to monitor on concreting for the administration apron, and concreting the footing for the bridge.

- The slump test was held before they start to concrete. The required slump for the Grade 35 Normal is 75 ± 25 mm, and the slump obtained during the test is 80 mm.
- The workers start to concrete the apron of the Administration building and the footing for the bridge based on the required size of the structure.

Figure 2.1

Figure 2.2

Figure 2.3

Weekly Log No.	Starting Date	Ending Date
5	13/08/2019	17/08/2019
	Description of Activities :	
	In week 5, the task that I did at the site is monitoring all the workers doing their job such as brickworks, plastering, rendering, and skim coat. ➢ Make sure the workers clean the surface before doing their job. ➢ Inspect the level of thickness especially the rendering work which is 50 mm by referring the architecture drawing plan and make sure they marked the level of thickness at each of side of place they doing their work. ➢ Make sure the workers know the type of finish of the floor such as cement render or tiles and the places to render is correct. ➢ Ask the workers if they have any issues during doing their work and try to solve the problem with the advice of the Project Engineer.  Figure 2.4	

I also monitor the concreting process for the slab of the Guard House

- The workers marked the level of height of the slab during the installation of the formwork.
- The consultant also has done inspect the slab and give the permission to concrete the slab.
- While concreting, the others workers flatten the surface of the concrete and use the vibrator to make sure the concrete fill all the void in the slab.

Figure 2.5

Weekly Log No.	Starting Date	Ending Date
6	19/08/2019	24/08/2019

Description of Activities :

In week 6, I was ordered to assist the surveyor to survey and pegging the alignment route for the drainage and the location to excavate and install the JC9C manhole.

- The bearing and distance of the of each point for the manhole and the sump for the drainage was taken by using the autocad software.
- The surveyor starts to peg the location for each point and make an offset of 1 meter from each point for working spaces and incase the peg are lost.
- After finish pegging the point, the level for the finish level was taken and marked using the levelling staff and dumping level. The level was marked at the steel rod that has been peg as the point earlier.

Figure 2.6

	In that week also I was ordered to monitor the concreting of the roof slab of the ramp at Administration building. ➢ The concreting process was assist using the crane to pour the concrete due to the location to concrete are high and there was no access for others machinery. ➢ The workers using the vibrator to make sure the concrete that has been poured will filled all the void in the formworks. ➢ They also using the screed to flatten the concrete based on the level that has been marked at the formworks.  Figure 2.7 I also been ordered to calculate the amount of tiles needed for the whole building. The formula used is: **AREA OF ROOM ÷ AREA OF TILES** ➢ From the formula, the amount of tiles needed will be obtain ➢ After that, I will total up the tiles needed for each room and get the confirmation of the tiles needed with the Project Engineer and he double check the amount that I calculate.

Weekly Log No.	Starting Date	Ending Date
7	26/08/2019	30/08/2019

Description of Activities :

The seventh week started with a visit from Faculty Supervisor UiTM Shah Alam, Pn Balqis. She pay a visit on the site which is SMK Nilai Impian. The Project Engineer, Mr. Islahuddin join my presentation on that day. There, a simple presentation and logbook evaluation was done and she is satisfying with the result.

I have been ordered in that week to keep on monitoring the workers do the plastering, rendering, brickworks, and skim work.

- Make sure the workers clean the surface before doing their job especially the rendering work.
- Make sure they mark the level of thickness to render or plaster and install the corner bit at each of the edges of the wall.
- I will keep on studying the architecture drawing plan while monitoring they doing their works.

Figure 2.8

Figure 2.9

In that week also I was ordered to monitor on concreting the apron of the B3 building. The amount of concrete required to concrete the apron is 9m³. Slump test was held before concreting the apron.

- The slump required is 75 ± 25 mm, and the slump obtained during the testing is 90 mm.
- After that, the workers start to concrete the apron using the backhoe to transfer the concrete from the concrete truck to the apron.
- The workers used the vibrator to make sure the concrete fill all the void while pouring concrete.
- The used screed to flatten the surface of the apron by referring the level of thickness that has been marked at the formwork.

Figure 2.10

Figure 2.11

Weekly Log No.	Starting Date	Ending Date
8	3/09/2019	6/09/2019

Description of Activities :

For the last weeks of the internship, I was ordered to monitor on concreting the slab of the bridge and the apron of Administration and the B2 building.

- The formwork was installed earlier with 900mm width and 150mm height.
- The workers use the backhoe and excavator to help them do the concrete work.
- The backhoe and excavator will take the concrete from the concrete truck and pour it into the formworks.
- The workers will use the vibrator to make sure the concrete fill all the void in the formworks.
- They use screed to flatten the surface of the concrete by referring the level that has been marked at the formwork.

Figure 2.12

Figure 2.13

	I also been ordered to monitor unloading material which is cement bricks from the lorry to the site. ➢ The workers unloading the material from the lorry to the site using the excavator. ➢ My task is to make sure the number of pallet of the cement bricks are enough and arrange to place the cement bricks on site. ➢ I also handle the document which is the delivery order to be sign and stamp in the office before giving them the copy of the delivery order back.  Figure 2.14

2.3 Conclusion

To be conclude, this chapter helps students to analyze their activities for 8 weeks during their industrial training. It is also will be the prove for them to indicates that they gained new knowledge and can be applied in the future. Other than that, this chapter can be also known as a summary from the industrial logbook but in form of weekly. The purpose of this chapter is to show the knowledge gained and exposure level towards each of the students. Nowadays, there are many graduated students that does not have any job only because they does not hit the requirement needed by most of the company. In order to create a highly recommended graduated students to the company, experience is the selling price for them and its plays the most important role about how they overcome the real problems situation in the industry. In the end of the day, studies move along with experiences so the knowledge gained need to be applied in real life or class.

CHAPTER 3: TECHNICAL REPORT

3.1 Introduction

The "Chapter 3: Technical Report" is the third chapter in this report which explains about the technical report. Basically, technical report or known as scientific report describes the process and results of the technical or scientific research problem during the industrial training. This chapter also explains more details about the main project that had been done throughout the industrial training period. All of the main projects explained in this chapter took time to be completed because of its complicated process. Other than that, this chapter will explain about any problems that occur during industrial training and also the solutions to overcome the problems. Lastly, this chapter also have about the experience gained during the industrial training which explains about some new knowledge which regards to civil engineering, mechanical engineering, business management and safety.

The nature of work of the organization is based on construction. So, my task at site usually more on supervision, inspection, and documentation. While internship with the organization, I was ordered to do those job every day during the internship program. It is my routine every day when start working, I will enter the site and see all the progress of work on that day.

3.2 Problem encountered and solutions

- Material problem

The material problem that tend to happen at the site is quality and quantity of coarse sand and fine sand delivered to the site are not satisfying. There are two company that supply the both type of sand to the site which is Changsi Sdn. Bhd. and Nilai Genting Sdn. Bhd. Changsi Sdn. Bhd. supply a good quality of both fine sand and coarse sand, but the quantity of the sand delivered to the site are very not satisfying. When the site supervisor inspect the lorry used to delivered the sand, he found that when he measured the side of the lorry, the lorry not following the standard requirement for the height of the normal lorry. Nilai Genting Sdn. Bhd. supply a very satisfying quantity of both of the sand to the site but very bad with the quality of the sand. The sand delivered to the site was not clean properly which is the sand is still mix with the soil. The solution for the problem with the Changsi Sdn. Bhd. is asked the owner to follow the standard the requirement of the side height of the normal lorry. If they ignore, MIZURA Sdn. Bhd. will hold the payment for the company for two months. Meanwhile, the solution for the Nilai Genting Sdn. Bhd. is to ask them to find the sand at another quarry and make sure the sand was cleaned properly and free of soil.

- Misplaced of the rebar column at the Guard House

The problem was discovered after 3 days concreting the slab of the Guard House. The location of the reinforcement bar for the column are misplaced even the Consultant has inspected before concrete the slab. The solution is remove the rebar of the column by cut the rebar and install it at the exact place by drill a hole at the slab for about 150mm and install the rebar of the column.

3.3 Experienced Gained

During the internship programme for 8 weeks with MIZURA Sdn. Bhd. at SMK Nilai Impian, a lot of experienced that I have gained from there such as I can see the skilled workers doing their job such as plastering and rendering. From there, I can observe the material and equipment was used to do their job, and I also know the step to do the job. I also know the machinery used to do their job such as rendering pump, and plastering pump and I have the opportunity to learned to conduct both of the machine by learning with the Site Supervisor and the workers that used to conduct the both of machinery.

After that, I also experience to know how the workers install the formwork and the rebar to the structure such as footing. After install the formwork, lean concreate must be poured at the bottom of the formwork for at least 40mm thick and put a spacer on the lean concrete before install the rebar in the formwork to avoid the rebar contact with the lean concrete.

I also manage to observed the flow of work at the site such as during the excavation work at the site, if they excavate and block the access for other to enter the site, problem will occur such as the lorry can't enter to supply the material during excavation process. From that, I have observed that if want to excavate at the site, make sure there are other access to enter the site while the excavation process or do not block the access of the site. The arrangement to place the material at the site also very important, which is do not block the access and make sure the place free from other people to do their work or not it will delay the work.

3.4 Conclusion

In a nutshell, the internship program taught me a lot of thing that cannot be learned at another places. The knowledge and experienced that I gained from the internship program teach me on how the role of an engineer which is the problem solver. There must be solution for any problem. During this 8 weeks of period, students can clearly see how the civil engineering working field. All the stuff that has been learned during the internship program can be applied during the studies or when working on the future. This industrial training should be a compulsory program for each student in every faculty because it gave a lot experiences to the students.

CHAPTER 4: CONCLUSION

4.1 Introduction

"Chapter 4 : Conclusion" is a chapter about explaining the knowledge gained during the industrial training. In this chapter also gives some comments and recommendation to the students who will face the industrial training later. This is important because to avoid any mistakes or regrets to the students if they are not satisfied with the amount of knowledge that can be applied during internship or the organization they applied is not in civil industry. In the other words, this chapter might give a brighter view to the students about the internship and its environment also reminding them to carefully apply their internship organization.

4.2 Lesson learned

- Communication

During the 8 weeks of internship, I abled to improve my communication skills. It is because the majority of workers are not from Malaysia and cannot fully talking or understanding Malay word. So it takes me a few weeks to understand and communicate with them, and now I can communicate with them without any problem. I also learned a proper way to communicate during the presentation that I learned from the meeting was held with the client.

- Surveying

I learned how to setup the equipment for the survey in the proper way. I learned to setup the tripod at any type of earth surface with the help of the surveyor. The surveyor also teaches me how to get the accurate reading and must be ± 5mm in term of the distance. He also teaches me to find the bearing and distance from the autocad software, and now I can find both without any problem.

- Safety

Safety in site must be practiced properly, because if we not practiced we will face any danger in anytime that might lead us to the death. Safety equipment must be wear while in the site and make sure all the workers wear all the safety equipment.

4.3 Knowledge Gained

- Know the standard requirement of JKR

The standard requirement for each brickwork of wall that has length more than 4 meter, there are must be stiffener of concrete in the middle of the wall. On the frame of the door and the window also must have the lintel beam on them. I also know the required strength for each cube that has been undergoes curing for 7 days and 28 days.

- Interpret drawing

I able to interpret the drawing on the site, which is the structure that been construct. At first, it takes me a few weeks to interpret from the drawing to the site. We must have high in imagination to interpret the drawing. The first task I do to interpret the drawing is doing the inspection of the formwork and the rebar of the footing of the Astaka. Now, I able to interpret the drawing at the site in term of structure or design.

- Manage the site

The Project Engineer and the Site Agent also has taught me how to handle the documentation such as the delivery order, the request for inspection and many more. I also able to arrange to unloading material which is the equipment and machinery used to unload it, and to place it on site to avoid any problem such as block the access to the site and make sure the material was placed not effects any to do their job such as the excavation work.

4.4 Suitability of Organization

Based on the experience of going internship program at MIZURA Sdn. Bhd., this organization is suitable to students who are taking Civil Engineering, Electrical Engineering, and Mechanical Engineering. This is because the company run construction and maintenance at the same time. This company also provide allowance to the practical students who internship with them. The working environment in the company is very good which is all the staff love to share the knowledge and they also are very friendly.

After that, this organization also always applied the safety when in the site which is they will make sure to wear the safety equipment before entering the site. They also provide the safety equipment to all the visitor such as safety shoes and safety helmet before entering the site. The toolbox safety talk was held once in a month between the staff and the workers in order to remind them to always wear the safety equipment while working in site.

To be concluded, MIZURA Sdn. Bhd. is a suitable place for students to do the internship program there. A lot of experienced and knowledge can be gain during the internship with them. The company also is the best company to apply work in the future based on the environment and the achievement of the company.

4.5 Limitation and Recommendations

MIZURA Sdn. Bhd. is strongly recommended by me because we can learn a lot of thing and gained experiences in site. The company are suitable for students who take Civil Engineering, Electrical Engineering, and Mechanical Engineering. All the staff love to share their knowledge and very friendly.

The limitations in this program as for students who take code EC110, the duration for internship is only for 8 weeks. 8 weeks are not enough for the students, because there are so many things to explore during the internship. I also not fully explore about the construction in the site because of the duration.

REFERENCE

- Books

1. Industrial Training Student Handbook Faculty of Civil Engineering UiTM Pasir Gudang.

- Staff

1. Staff of MIZURA Sdn. Bhd.
2. Clerk of Work

Appendices

Installation of formworks and rebar for the beam of Astaka

(Figure 4.1)

SMK Nilai Impian after finish construction (Figure 4.2)

SMK Nilai Impian after finish construction (Figure 4.3)

Meeting with client (Figure 4.4)

Meeting with Sub Contractor (Figure 4.5)