



اُونِيُوَرْسِيْتِي تِيكْنُوْلُوْجِي مَارَا  
UNIVERSITI  
TEKNOLOGI  
MARA

**DEPARTMENT OF BUILDING (AP116)**  
**FACULTY OF ARCHITECTURE, PLANNING AND**  
**SURVEYING**

**UITM SERI ISKANDAR, PERAK**

**BUILDING MAINTENANCE**

**Prepared by:**

**MUHAMMAD HAFIZUDDIN BIN AZAMI**

**2019258376**

**DEPARTMENT OF BUILDING  
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING  
UNIVERSITI TEKNOLOGI MARA  
(PERAK)**

**FEBRUARY 2022**

It is recommended that the report of this practical training provided

By

**MUHAMMAD HAFIZUDDIN BIN AZAMI  
(2019258376)**

**BUILDING MAINTENANCE**

Be accepted in partial fulfilment of requirement has for obtaining Diploma in Building.

REPORT SUPERVISOR : \_\_\_\_\_  
Ts NOOR AZAM BIN YAHAYA

PRACTICAL TRAINING COORDINATOR : \_\_\_\_\_  
DR NOR ASMA HAFIZAH BINTI  
HADZAMAN

PROGRAMME COORDINATOR : \_\_\_\_\_  
Dr. DZULKARNAEN BIN ISMAIL

**DEPARTMENT OF BUILDING  
FACULTY OF ARCHITECTURE, PLANNING AND SURVEYING  
UNIVERSITI TEKNOLOGI MARA (PERAK)**

February 2022

**Student's declaration**

I hereby that this report is my own work, expect for extract and summaries for which the original references stated herein, prepared during my practical training session at IE Energy Empire for 20 weeks starting from 23<sup>rd</sup> August 2021 to 7<sup>th</sup> January 2022. It is submitted as one of the prerequisite requirements of BGN 310 and accepted as a partial full of the requirements for obtaining the Diploma in Building.

.....

Name: Muhammad Hafizuddin Bin Azami

Matric No: 2019258376

Date:

## **ACKNOWLEDGEMENT**

First and foremost, I would like to praise and thank to Allah SWT, the Almighty God for giving me strength and because of his blessing, I am finally managed to finish this report for BGN 310 during my practical training sessions. And I would like to appreciate my company during practical training session because giving me chance to learn and gain experience about how contractor work life. IE Energy Empire is my company take me as a part of their practical students.

I would like to express my deepest gratitude and special thank En Faridzul and En Farizan. And with my Supervisor Ayman Zikry because help me a lot and take care of me during my practical training sessions. It is honour for me to work with them and all the opportunity they given to me as a student are very precious.

Besides, I want to thank to all the UiTM lecturer for taught me about my course during my studies.

## **ABSTRACT**

Maintenance one of the important tasks to do in building related to electrical, civil and mechanical. All the types of building maintenance like the electrical, civil and mechanical are the parts of building is main elements for people inside the building. This building name is Kompleks Darul Hidayah at Sentul, Kuala Lumpur. This building is not under defect liability period and already fully operate three years ago. Maintenance work like services genset, check the sewage treatment plant, air conditioner, and also restore the finishing like repaint the building and many more. As a worker, we need to periodic inspection in these building to find out any damage or breakdown anything and quickly repair or services the damage which has been set in Bill of Quantities.

# CONTENTS

<b>Acknowledgement</b>	<b>iv</b>
<b>Abstract</b>	<b>v</b>
<b>Contents</b>	<b>vi</b>
<b>List of Tables</b>	<b>vii</b>
<b>List of Figures</b>	<b>1</b>
<b>Chapter 1</b>	
Background study 1.1	2
Objectives 1.2	3
Scope of Study 1.3	4
Method of Study 1.4	5
<b>Chapter 2</b>	
Introduction of Company 2.1	6
Company Profile 2.2	7
Organization Chart 2.3	7
List of Project 2.4	7-9
<b>Chapter 3</b>	
Introduction of case study 3.1	10
<b>Maintenance work 3.2</b>	<b>11-16</b>
<b>Tools and equipment 3.3</b>	<b>17-20</b>
<b>Problem occurred during maintenance work 3.4</b>	<b>20</b>
<b>Chapter 4</b>	
<b>Conclusion</b>	<b>21</b>
<b>Reference</b>	<b>22</b>

## List of tables

- Organizational chart 2.3
- Table 2.4.1
- Table 3.3



## **List of Figure**

Figure 2.1 company logo

Figure 2.2 company headquarters office

Figure 3.1 site area

Figure 3.2a service genset monthly

Figure 3.2b checking and inspection sewage treatment plant

Figure 3.2c water booster pump checking and services

Figure 3.2d replaces new the fluorescent light

Figure 3.2e wiring work

Figure 3.2f installation of wire

Figure 3.2g painting work to enhance building looks

Figure 3.2h installation new tiles

Figure 3.2i installation new water faucet

Figure 3.3a technician outfit

## CHAPTER 1.0

### Introduction

#### 1.1 Background of Study

Building is a structure that has a roof and walls and stands more or less permanently in one place. Building can be house, supermarket, workshop, school, office and more. Building maintenance is important process of preserving a condition or situation or the state of being preserved. If maintenance work is ignored by owner of building they might face some serious problem and lot of defection. To make sure the building always in good condition and all the electricity supply work like normally the contractors maintenance need to check the building and report all the problem to certain parties.

Building maintenance is crucial because it maintains the safety and comfort of anybody who lives or works in the building. Proper regular maintenance can save property owners money in the long term and contribute to greater property value from a business aspect. There are three main aspect in building maintenance, electrical, civil and mechanical.

Owner or clients need to do tendering process to get a technician to service and maintenance the building. The owner need bear the cost project which is in Bill of Quantity. As a technician, they need multi skill like install tiles, wiring, services mechanical systems like air conditioner and more. The communication with team and clients also important to develop the technical skills.

A structure that isn't well-maintained can be hazardous to individuals who work or live there. Regular maintenance helps to prevent harmful conditions, whether it's peeling paint, an uneven path, or inadequate air circulation. All the maintenance thing in the building need to do as soon as possible.

## 1.2 Objectives

There are several objectives have been developed from building maintenance as follow;

- i. To keep the machinery, the building, and the services in proper working order.
- ii. To improve and enhance building looks.
- iii. To keep safety for people in the building and help solve the problem if anything happens in a building

### 1.3 Scope of Study

In building maintenance work, the client appointed a project manager of a company. Project manager and also their staff must provide services to client. All the quotation or bill of quantity for item, tools and kit already prepared at the tendering process.

The study carried out Kompleks Darul Hidayah, Sentul, Kuala Lumpur. These project handle by ZZ Megatech System SDN BHD (company no: 891163-P) appointed by Jabatan Agama Islam Wilayah Persekutuan for handling this project. Due to lack of worker, I have been ordered to study under this company. IE Energy Empire and ZZ Megatech were partnership in a company firm. A partnership agreement is the legal document that dictates the way a business is run and details the relationship between each partner (MELISSA HORTON,2021). Both companies were under and subsidiary with Nelam Enterprise as a parent company.

#### 1.4 method of Study

##### i. Observation

This method is done by patrol and checking all around inspection to identify any defect and damage caused by weather and accident. The mechanical part which is elevator lift, air conditioner, genset, telecommunication, firefighting alarm system, water booster pump, sewage treatment plant, rainwater tank system needs to checking by schedules.

Besides that, electrical and civil aspect also need to be checking and prepare the tools and kit to make sure all part in the building like walls, floor, light, electrical supply wasn't had a problem. The person in charge will arrange time and planning for maintenance work.

##### ii. Document review

By using this method, we can know and how previous maintenance work and be a lesson in a future. In a building maintenance work, there are report for one month and the report contain the quotation, claim, complaint form and prove of technician pictures doing the maintenance work. Report is important for clients and project manager to help and develop future forecast, and budget planning.

## CHAPTER 2.0

### COMPANY BACKGROUND

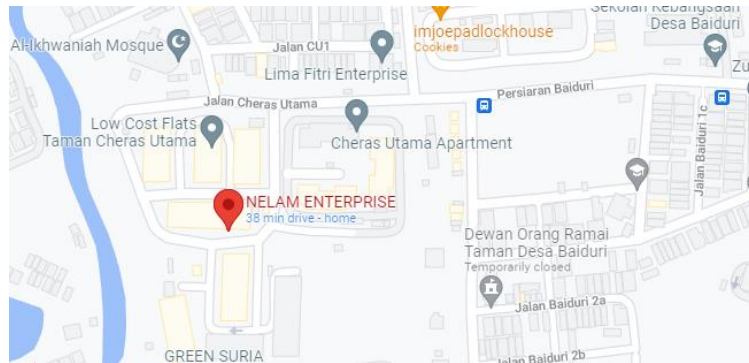
#### 2.1 Introduction of company



*Figure 2.1 company logo*

ZZ Megatech System SDN BHD (company no: 891163-P) were the partnership with IE Energy Empire (company no: 002602514-W) and subsidiary under parent company which is Nelam Enterprise (company no: 001255258-U). This company office located at Jalan CU1, Taman Cheras Utama, 43200, Kuala Lumpur.

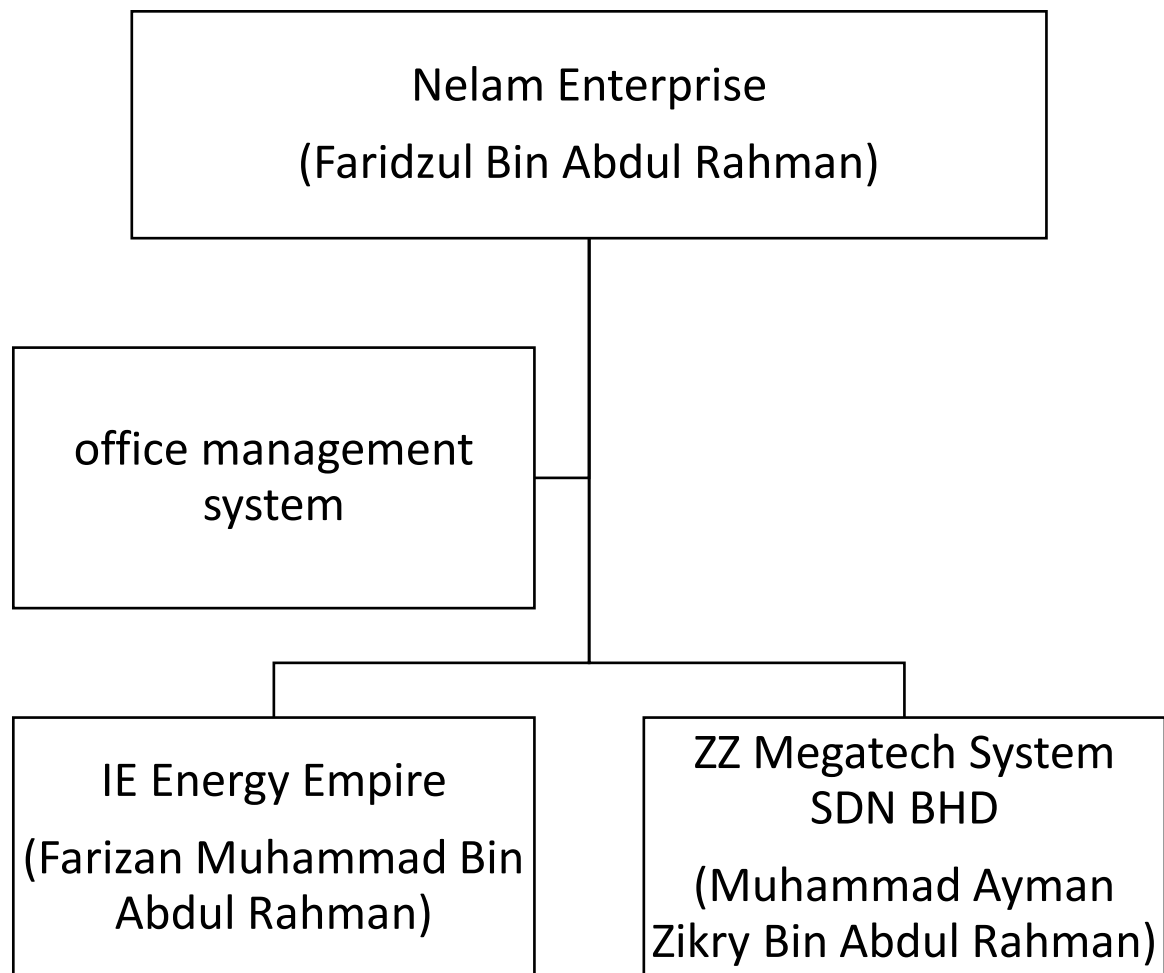
#### 2.2 Company Profile



*Figure 2.2 company headquarters office*

This company provide electrical and mechanical as a main contractor. All the workers are local people and malay. This company also give job opportunities to all people around. Most of the contractor are age around 18-26 which is student and university graduate have been given opportunity to handle the project.

### 2.3 Organization chart



*Organizational chart 2.3*

### 2.4 List of Project

#### 2.4.1 Completed Projects

no	Project title	Project Value	Start date	Completion date	Project duration	Client
1	Kerja-kerja pendawaian dan pemasangan set lengkap floor box ,suis soket outlet, point network dan telefon	RM 13100.00	27 <sup>th</sup> March 2020	4 <sup>th</sup> May 2020	One week	Kerajaan Malaysia Inden Kerja

2	Kerja.Kerja Pembaikan Elektrik Di Smk Putra'aya Presint 9 (1)	RM19925.50	20 <sup>th</sup> April 2020	5 <sup>th</sup> May 2020	14 days	Kementerian Pendidikan Malaysia
3	Cadangan Kerja-Kerja Pendawaian Semula Elektrik Dan Kerja-Kerja Berkaitan Di Sekolah Rendah Agama Tengku Ampuan Jemaah, Jaiian Dewan Sultan Sulaiman, Kg • Baru, Wiiayah Persekutuan Kuala Lumpur	RM361290.00	23 <sup>rd</sup> October 2018	11 <sup>th</sup> February 2019	16 weeks	Jabatan Agama Islam Wilayah Persekutuan
4.	sebutharga Bagi Kerja-kerja Pendawaian Eiektrik Bagi Suis Soket,Telefon Dan Mata Rangkaian (ict) Serta Lain-laain Keria Berkaitan Di Bangunan Perdana Putra, Putrajaya.	RM16500.00	12 <sup>th</sup> September 2019	19 <sup>th</sup> September 2019	One week	Kerajaan Malaysia Inden Kerja
5	Perkhidmatan kerja-kerja membekal dan menghantar alat ganti untuk system hawa dingin di bangunan medan mara, Jalan Mara, Kuala Lumpur	RM12463.00	22 <sup>nd</sup> October 2019	5 <sup>th</sup> November 2019	Two weeks	Majlis Amanah Rakyat
6	Kerja-kerja pembaikan dan penyelenggaraan kitchen hood, filter dan kerja kerja berkaitan di cafeteria E14, Kompleks E, Putrajaya	RM238800.00	7 <sup>th</sup> November 2019	2 <sup>nd</sup> January 2020	Eight weeks	JKR Wilayah Persekutuan Putrajaya
7	kerja-kerja membaikpulih sistem & peralatan elektrik dan lain-lain yang berkaitan di kampung berembang, pusat kawalan smart	RM60700.00	22 <sup>nd</sup> October 2019	3 <sup>rd</sup> October 2019	Six weeks	Pusat Kawalan Smart, Jabatan Pengairan dan Saliran, Wilayah Persekutuan Kuala Lumpur



8	Membekal, menghantar, memasang dan kerja-kerja pendawaian elektrik bagi penyaman udara di Ibu Pejabat GiatMara, Kuala Lumpur	RM40500.00	20 <sup>th</sup> September 2019	5 <sup>th</sup> October 2019	two weeks	GIATMARA SDN BHD
9	surat lantikan kontraktor bagi cadangan kerja-kerja menukar motor elektrik menaiktaraf itar kuasa motor, menyelenggara sistem kipas lawas untuk medan selera ditingkat 2, bangunan medan mara, kuasa lumpur.	RM18370.00	19 <sup>th</sup> March 2018	9 <sup>th</sup> April 2018	Three weeks	Pejabat Mara Negeri Wilayah Persekutuan
10	Kerja-kerja pembaikan dan pendawaian system elektrik Sek. Men. Keb.Taman Yarl, Jalan Awan Larat, Kuala Lumpur	RM100000.00	31 <sup>st</sup> December 2018	24 <sup>th</sup> December 2018	One week	Director JKR Wilayah Persekutuan Kuala Lumpur
11	Kerja- kerja senggaraan bilik B002, B235 dan B430 di Kediaman Desasiswa KPTM Bangi	RM3220.00			One week	Kolej Poly-Tech Mara
12	kerja-kerja pendawaian serta kerja-kerja lain berkaitan di klinik kesihatan cheras baru, untuk jabatan kesihatan wilayah persekutuan kuala lumpur & putrajaya	RM27420.00	2 <sup>ND</sup> October 2018	27 <sup>th</sup> November 2018	Three weeks	Jabatan Kesihatan Wilayah Persekutuan Kuala Lumpur Dan Putrajaya

Table 2.4.1

## CHAPTER 3

### 3.1 Introduction to Case Study

Majlis Agama Islam Wilayah Persekutuan was assigned ZZ Megatech Systems SDN BHD as a contractor for Building Maintenance. The project site located at Jalan Sentul Pasar, Mukim Setapak, 51200 Kuala Lumpur. This building name Kompleks Darul Hidayah. The objective for this building is provide residence dormitory for people who convert their religious to Islam. The initiative for this building to give place for them to provide food and religious class. This people called 'Muallaf'. The project already carried out on 1<sup>st</sup> March 2021 until 28<sup>th</sup> February 2022. The agreement with client and project manager deal with a year contract. The quotation is total RM600000.00 (Six Hundred Thousand).



*Figure 3.1 site area*

### 3.2 Maintenance work

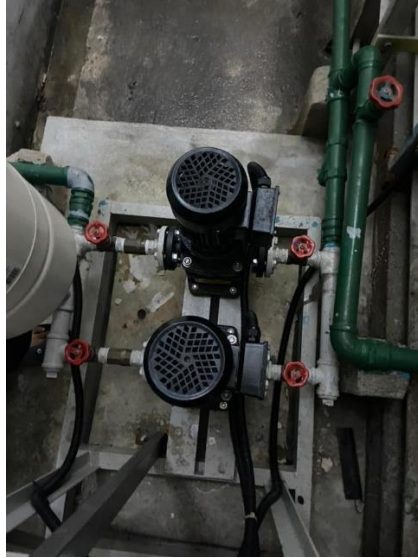
- Mechanical
  - i. Genset
  - ii. Air Conditioner
  - iii. Water Booster Pump
  - iv. Firefighting Alarm System
  - v. ICT Server
  - vi. Sewage Treatment Plant
  - vii. Rainwater System Tank
  - viii. Elevator Lift



*Figure 3.2a service genset monthly*



*Figure 3.2b checking and inspection sewage treatment plant*



*Figure 3.2c water booster pump checking and services*

- Electrical
  - i. Fluorescent Light
  - ii. Socket 3 pin
  - iii. Emergency signboard
  - iv. Emergency Light
  - v. Wiring
  - vi. Switch 2 gang, 1 gang, 3 gang
  - vii. Downlight



*Figure 3.2d replaces new the fluorescent light*



*Figure 3.2e wiring work*



*Figure 3.2f installation of wire*

- Civil
  - i. Painting
  - ii. Exterior Wall
  - iii. Beam
  - iv. Floor and Tiles
  - v. Roof
  - vi. Ceiling
  - vii. Waterproofing
  - viii. Doors
  - ix. Window
  - x. Water Faucet
  - xi. Drainage and Gutter
  - xii. Sidewalk, Driveway and Parking Lot



*Figure 3.2g painting work to enhance building looks*



*Figure 3.2h installation new tiles*



*Figure 3.2i installation new water faucet*

All of the item on above is checklist for building maintenance work. Mechanical aspect mostly needs to services monthly. Civil and electrical work sometimes there are unknown condition. Then, the technician needs to check and inspection all the building part to know there are some problems or no. sometimes client or people in the building can inform to the technician about defect or anything broken.



### 3.3 Tools and equipment

No	Tools and Equipment	Function
1	Cordless and Driller 	<ul style="list-style-type: none"> <li>- To drill the walls or hard materials</li> <li>- Faster than screwdriver</li> </ul>
2	Spanner Set 	<ul style="list-style-type: none"> <li>-to use open or close the nut or bolt</li> </ul>
3	Hammer 	<ul style="list-style-type: none"> <li>- general carpentry, framing, nail pulling, cabinet making, assembling furniture,</li> </ul>
4	Screwdriver set 	<ul style="list-style-type: none"> <li>- turning screws with slotted heads</li> </ul>

5	<p>Ladder</p> 	<ul style="list-style-type: none"> <li>- to go up in high place</li> </ul>
6	<p>Test pen</p> 	<ul style="list-style-type: none"> <li>- used to test circuits quickly to ensure that the circuit or conductor is live or not guided from indicator bulb or LED</li> </ul>
7	<p>Allen key</p> 	<ul style="list-style-type: none"> <li>- used for tightening and loosening hexagonal bolts and other compatible fasteners.</li> </ul>
8	<p>Chisel</p> 	<ul style="list-style-type: none"> <li>- cutting tool with a sharpened edge at the end of a metal blade</li> </ul>






9	Utility Knife 	<ul style="list-style-type: none"> <li>- general manual work purposes like cutting</li> </ul>
10	Cable Cutter 	<ul style="list-style-type: none"> <li>- to cut wire</li> </ul>
11	Blacktape 	<ul style="list-style-type: none"> <li>- to insulate electrical wires and other materials that conduct electricity</li> </ul>
12	Pliers 	<ul style="list-style-type: none"> <li>- used for gripping something round like a pipe or rod,</li> </ul>
13	Long Nose Pliers 	<ul style="list-style-type: none"> <li>- Use to grip small objects, reach awkward places</li> </ul>

Table 3.3

As a technician, we need to wear safety boot and suitable cloth during maintenance work for safety and protection. Wearing safety is a must because the technician or contractor need to work at site and we don't know the condition on the floor that maybe contain dangerous or sharp objects.



*Figure 3.3a technician outfit*

#### 3.4 Problem occurred during maintenance work

- Transportation
  - Transportation is important to bring item or tools.
- Lack of workers
  - Workers didn't come to work and facing some problems to work out on something due to lack of technician
- Bad Weather
  - Some maintenance work postponed due to rain like painting, and other inspection at outdoor.

## **CHAPTER 4**

### **CONCLUSION**

As a conclusion, we know that building maintenance work is important to owner or clients to make the buildings looks in good condition. To sum up everything that has been stated, people inside the building they can work easily or anything else. Indirectly, maintenance work gave them comfortable and safety without doubt.

For the exact purpose of maintenance work, can make the technician learn and improve skills in the future because it might help a lot of people who need the technician. We can assume all the maintenance work from tendering process can develop healthy environment and safety for people around the building.

## REFERENCE

Unknown (2015), The Important Of Maintenance In Every Building Construction Essay,

- <https://www.ukessays.com/essays/construction/the-important-of-maintenance-in-every-building-construction-essay.php#:~:text=CONCLUSION,value%20of%20the%20property%20itself.>

Grainger Editorial Staf (2020), A Preventive Maintenance Checklist,

- <https://www.grainger.com/know-how/industry/manufacturing/kh-preventive-maintenance-checklist>

Interplay Learning (2021), Building Maintenance: Everything You Need to Know,

- <https://www.interplaylearning.com/blog/facilities-maintenance/building-maintenance-everything-you-need-to-know>

theconstructor.org (Gopal Mishra), The objectives of building maintenance works are,

- <https://theconstructor.org/building/building-maintenance-objective/6901/>