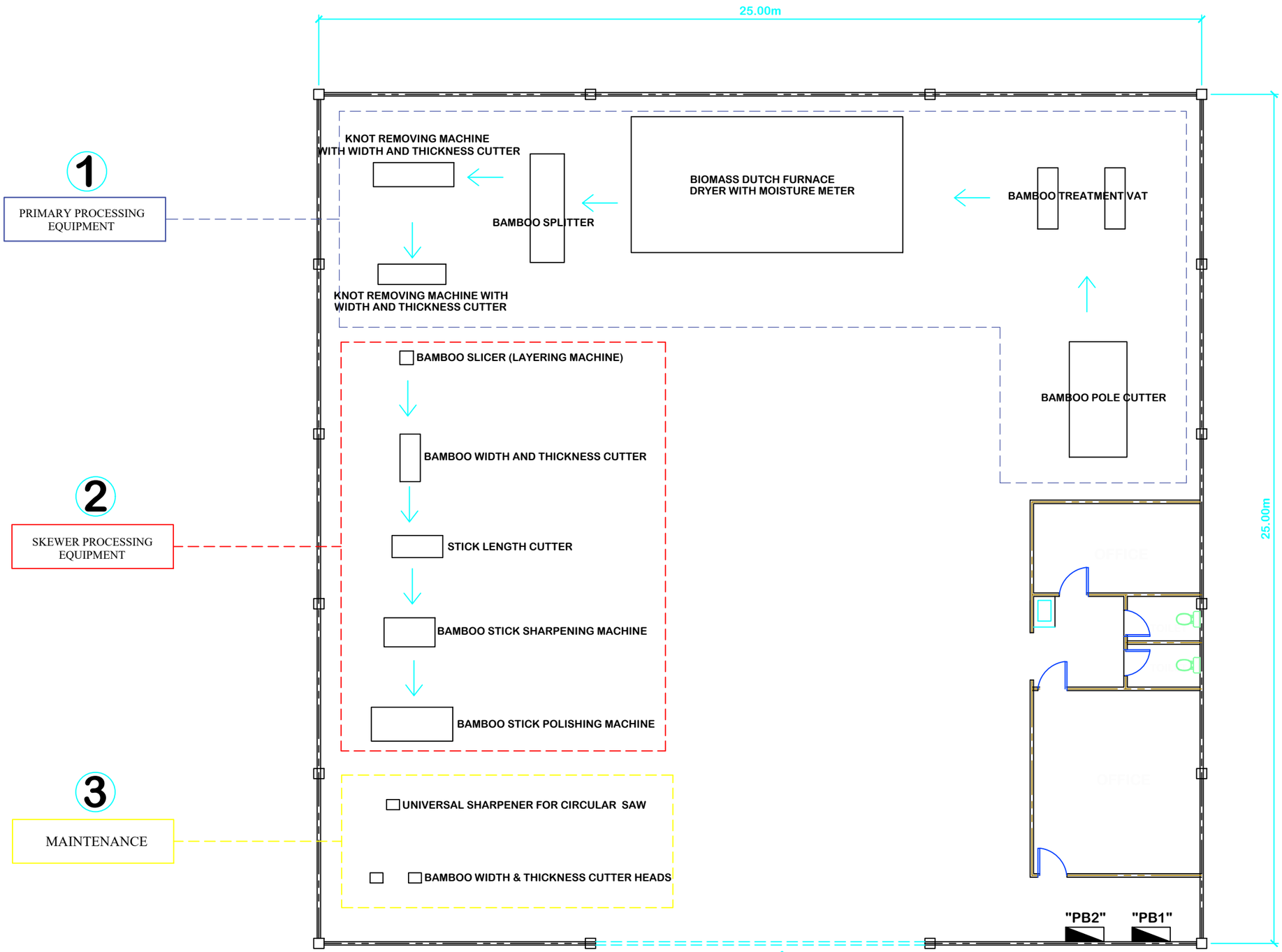
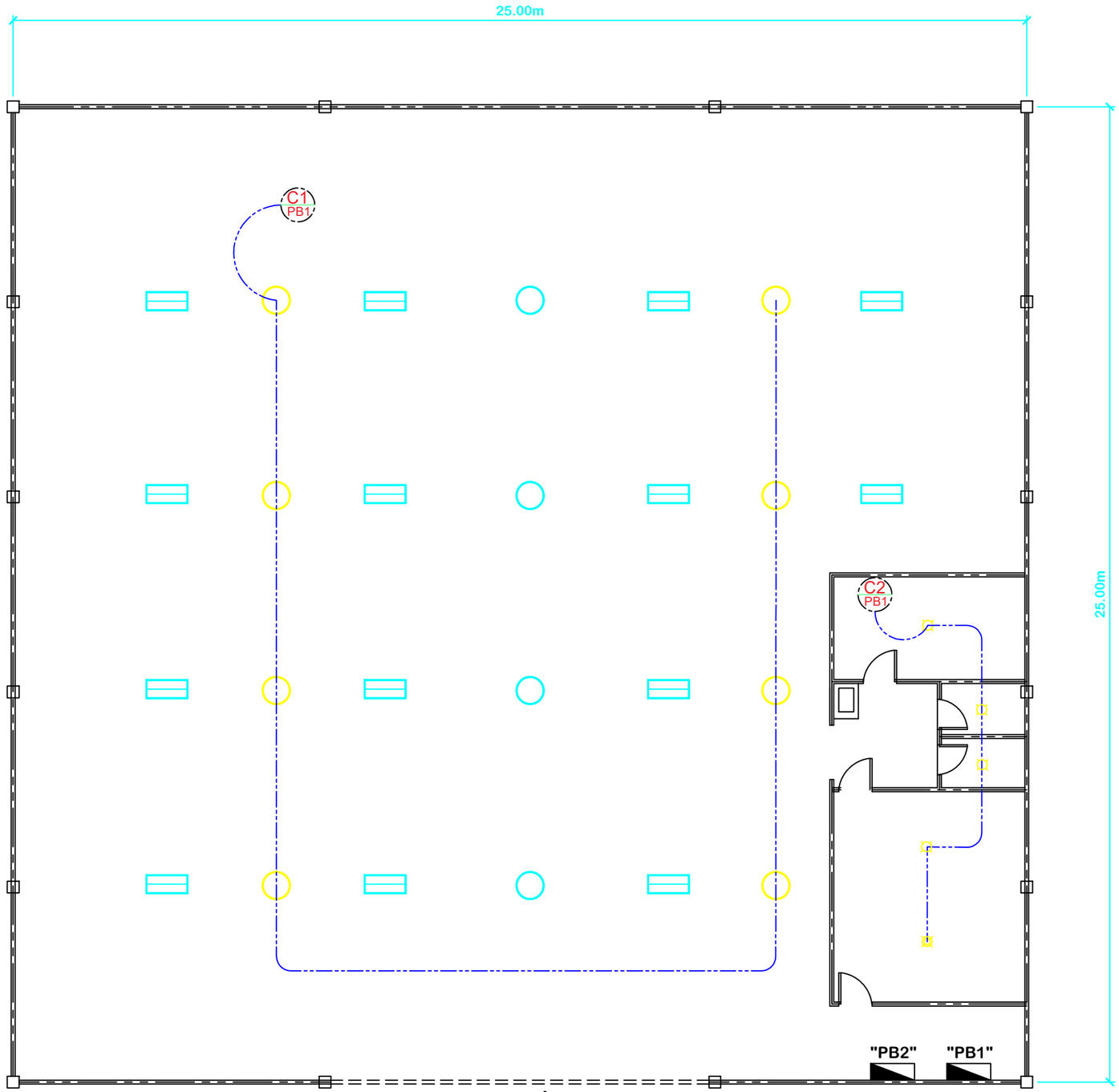


FLOOR PLAN

SCALE

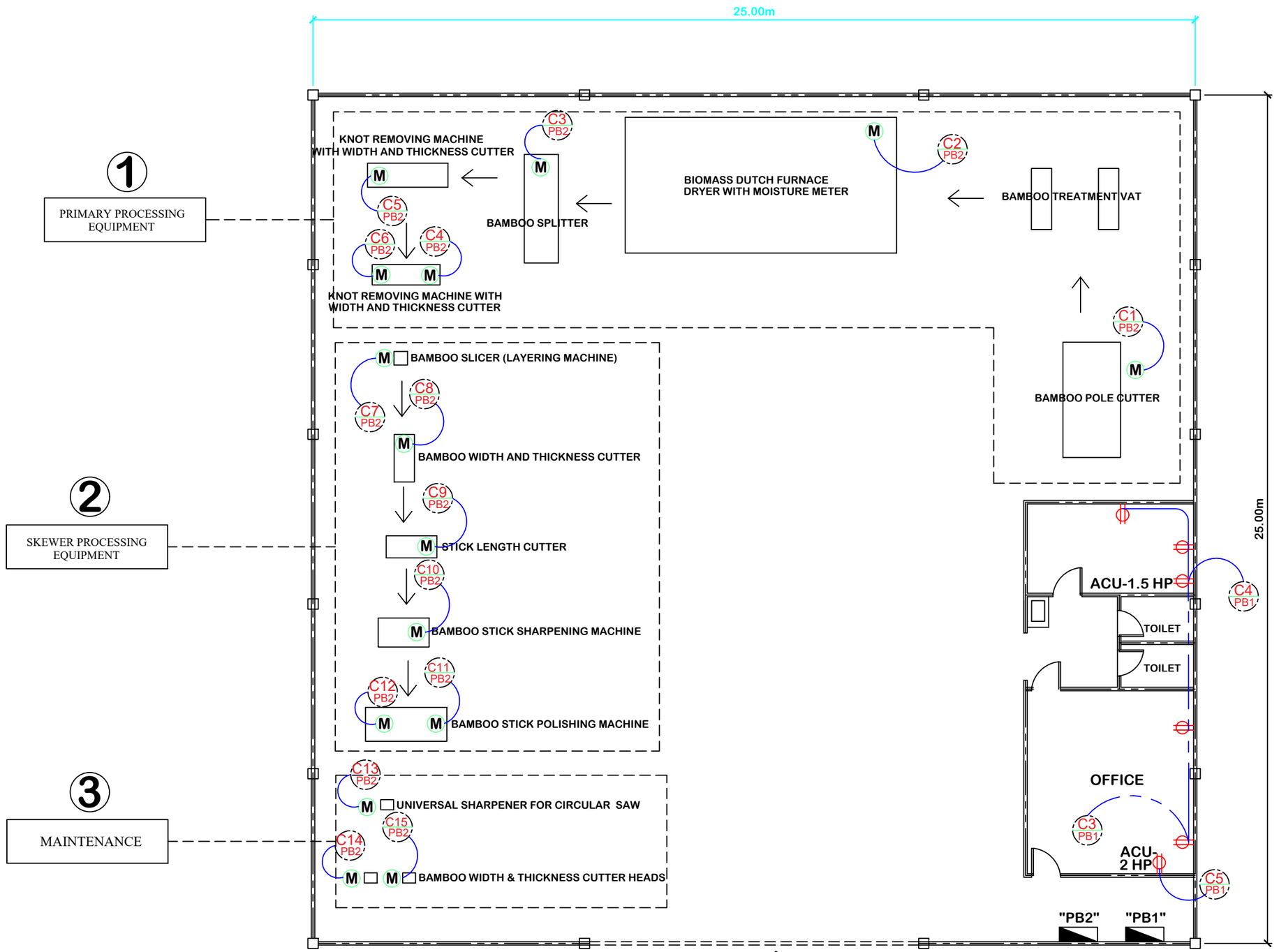
REPUBLIC OF THE PHILIPPINES MUNICIPALITY OF MANOLO FORTICH MUNICIPAL ENGINEER'S OFFICE	SEAL:	PROFESSIONAL ELECTRICAL ENGINEER PRC REG. NO: / PTR NO: TIN: / DATE ISSUED:	PREPARED BY: NORLYN P. DAWAT DRAFTSMAN	REVIEWED BY: CEDRICK A. SESTOSO ENGINEER- I	CHECKED BY: BERNABE C. AUXTERO JR. MUNICIPAL ENGINEER	PROJECT TITLE: ELECTRIFICATION OF BAMBOO PROCESSING HUB LOCATION: TANKULAN, MANOLO FORTICH BUKIDNON	RECOMMENDING APPROVAL BY: JOIE CAESAR M. GAID MUNICIPAL ADMINISTRATOR	APPROVED BY: ROGELIO N. QUIÑO MUNICIPAL MAYOR	SHEET CONTENTS: FLOOR PLAN	SHEET NO. 1 5



LIGHTING LAYOUT PLAN

SCALE

REPUBLIC OF THE PHILIPPINES MUNICIPALITY OF MANOLO FORTICH MUNICIPAL ENGINEER'S OFFICE	SEAL:	PROFESSIONAL ELECTRICAL ENGINEER PRC REG. NO: / PTR NO: TIN: / DATE ISSUED:	PREPARED BY: NORLYN P. DAWAT DRAFTSMAN	REVIEWED BY: CEDRICK A. SESTOSO ENGINEER- I	CHECKED BY: BERNABE C. AUXTERO JR. MUNICIPAL ENGINEER	PROJECT TITLE: ELECTRIFICATION OF BAMBOO PROCESSING HUB LOCATION: TANKULAN, MANOLO FORTICH BUKIDNON	RECOMMENDING APPROVAL BY: JOIE CAESAR M. GAID MUNICIPAL ADMINISTRATOR	APPROVED BY: ROGELIO N. QUIÑO MUNICIPAL MAYOR	SHEET CONTENTS: LIGHTING LAYOUT PLAN	SHEET NO. 2 / 5



CONVENIENCE LAYOUT PLAN

SCALE

REPUBLIC OF THE PHILIPPINES MUNICIPALITY OF MANOLO FORTICH MUNICIPAL ENGINEER'S OFFICE	SEAL:	PROFESSIONAL ELECTRICAL ENGINEER PRC REG. NO: / PTR NO: TIN: / DATE ISSUED:	PREPARED BY: NORLYN P. DAWAT DRAFTSMAN	REVIEWED BY: CEDRICK A. SESTOSO ENGINEER- I	CHECKED BY: BERNABE C. AUXTERO JR. MUNICIPAL ENGINEER	PROJECT TITLE: ELECTRIFICATION OF BAMBOO PROCESSING HUB LOCATION: TANKULAN, MANOLO FORTICH BUKIDNON	RECOMMENDING APPROVAL BY: JOIE CAESAR M. GAID MUNICIPAL ADMINISTRATOR	APPROVED BY: ROGELIO N. QUIÑO MUNICIPAL MAYOR	SHEET CONTENTS: POWER LAYOUT PLAN	SHEET NO. 3 / 5

SCHEDULE OF LOADS AND DESIGN COMPUTATION

PB1

CKT.NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	VA	AMPERES			PROTECTION	SWITCHES				SIZE OF WIRE	SIZE OF CONDUIT
					A	B	C	PER CIRCUIT	S1	S2	S3	S3W		
1	LIGHTING OUTLET	8	230	800	3.48			15					2 - 2.0 MM^2 THHN COPPER WIRE	20 MMØ
2	LIGHTING OUTLET	5	230	500	2.17			15					2 - 2.0 MM^2 THHN COPPER WIRE	20 MMØ
3	CONVENIENCE OUTLET	4	230	1440	6.26			20					2 - 3.5 MM^2 THHN COPPER WIRE	20 MMØ
4	ACU 1.5 HP	1	230	2300		10		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
5	ACU 2.0 HP	1	230	2760			12	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
6	SPARE	1	230					30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
	TOTAL			7,800 VA	11.91 A	10 A	12 A							

TOTAL LINE CURRENT:
It = 1.732 [12 + 0.25(12)]
It = 25.98 AMPERE

MAIN FEEDER WIRE USE:
3-8mm^2 THHN/THW COPPER WIRE 25MM DIA. RSC.

PROTECTION USE:
40AT CIRCUIT BREAKER 3-PHASE, 60Hz, BOLT-ON TYPE
1-5.5mm^2 THHN/THW COPPER WIRE FOR GROUNDING

PB2

CKT.NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	VA	AMPERES			PROTECTION	SWITCHES				SIZE OF WIRE	SIZE OF CONDUIT
					A	B	C	PER CIRCUIT	S1	S2	S3	S3W		
1	MOTOR 5 HP	1	230	6440	28			40					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
2	MOTOR 3 HP	1	230	3910		17		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
3	MOTOR 3 HP	1	230	3910			17	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
4	MOTOR 3 HP	1	230	3910	17			30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
5	MOTOR 3 HP	1	230	3910		17		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
6	MOTOR 3 HP	1	230	3910			17	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
7	MOTOR 3 HP	1	230	3910		17		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
8	MOTOR 2 HP	1	230	2760		12		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
9	MOTOR 2 HP	1	230	2760			12	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
10	MOTOR 2 HP	1	230	2760	12			30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
11	MOTOR 0.5 HP	1	230	1127		4.9		30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
12	MOTOR 2 HP	1	230	2760			12	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
13	MOTOR 1.5 HP	1	230	2300	10			30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
14	MOTOR 1.5 HP	1	230	2300			10	30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
15	MOTOR 0.25 HP	1	230	667	2.9			30					2 - 5.5 MM^2 THHN COPPER WIRE	20 MMØ
	TOTAL			47,794 VA	69.9 A	67.9 A	68 A							

TOTAL LINE CURRENT:
It = 1.732 [69.9 + 0.25(28)]
It = 133.19 AMPERE

MAIN FEEDER WIRE USE:
3-60mm^2 THHN/THW COPPER WIRE ON 63mmØ RSC.

PROTECTION USE:
200AT CIRCUIT BREAKER 3-PHASE, 60Hz, BOLT-ON TYPE
1-22mm^2 THHN/THW COPPER WIRE FOR GROUNDING

MPB

PB.NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	VA	AMPERES			PROTECTION	SWITCHES				SIZE OF WIRE	SIZE OF CONDUIT
					A	B	C	PER CIRCUIT	S1	S2	S3	S3W		
1	PB1		230	7800	11.91	10	12	15					2 - 2.0 MM^2 THHN COPPER WIRE	20 MMØ
2	PB2		230	47794	69.9	67.9	68	15					2 - 2.0 MM^2 THHN COPPER WIRE	20 MMØ
	TOTAL			55,594 VA	81.81 A	77.9 A	80 A							

TOTAL LINE CURRENT:
It = 1.732 [81.81 + 0.25(28)]
It = 153.82 AMPERE

MAIN FEEDER WIRE USE:
3-80mm^2 THHN/THW COPPER WIRE ON 63mmØ RSC.

PROTECTION USE:
250AT MAIN CIRCUIT BREAKER 3-PHASE, 60Hz, BOLT-ON TYPE
1-22mm^2 THHN/THW COPPER WIRE FOR GROUNDING

NOTE:
3-PHASE CIRCUIT BREAKER TYPE PANEL BOARD FOR BALANCED DISTRIBUTION OF SINGLE PHASE LOADS.

SIZING OF TRANSFORMER:
ASSUMING A UTILIZATION FACTOR @ PEAK HOUR IN ANY GIVEN TIME IS 80%:

KVA RATING = $\frac{153.82 \times 230 \times 1.732}{1000}$ = 61.275 KVA

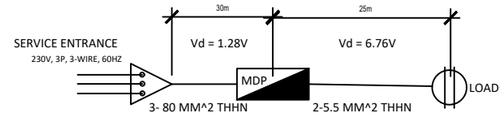
USED:
3-25 KVA TRANSFORMER THREE PHASE, 60HZ,
POLE MOUNTED, OIL IMMERSED TYPE

VOLTAGE DROP CALCULATION

UTILITY PROVIDER TO MCB <2%
MCB TO BRANCH CIRCUIT <3%

VD= $\frac{K \times L \times It \times z}{305m}$

%VD= Vd/Vs x 100



WHERE:
K : constant 2 for single phase
L : lenght of wires (m)
It : line current
Z : cable impedance

Assuming a distance of service entrance @ 30m & 80mm2 Cu. wire

Vd = $\frac{1.732 \times 30m \times 80.07 \times 0.094}{305m}$ = 1.28 V

%Vd = 1.28/230 x 100 = 0.56%

MCB to farthest load @30m & 5.5mm^2 Cu. wire

Vd = $\frac{1.732 \times 25m \times 28 \times 1.7}{305m}$ = 6.76V

%Vd = 6.76/230 x100 = 2.94%

Total %Vd = 0.56% + 2.94% = 3.5%

The computed voltage drop of the building with the total 3.5 percentage (%) of voltage drop meet the required allowable VD of the Philippine Electrical Code.

SHORT CIRCUIT CALCULATION

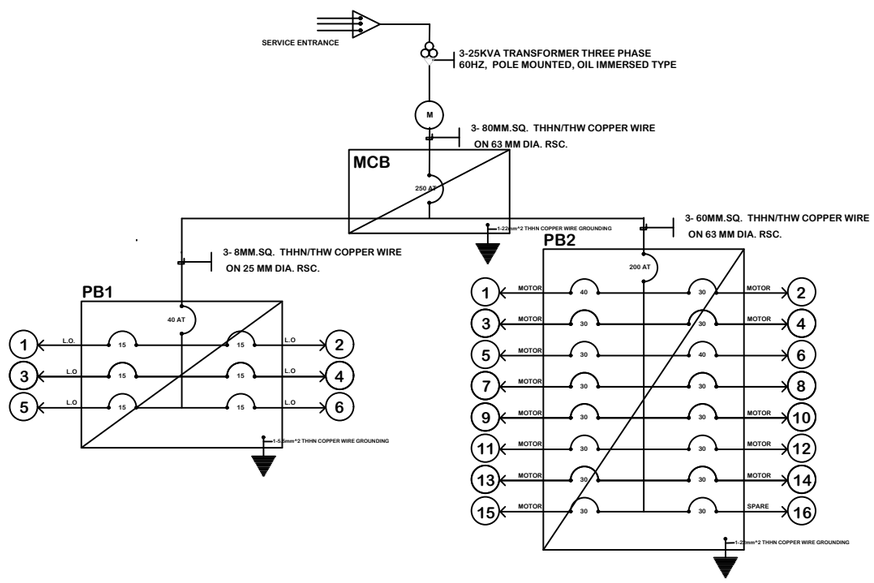
Isc = $\sqrt{\frac{P \times .8}{Z}} \times \frac{305 \times K}{L}$

Isc = $\sqrt{\frac{55{,}594VA \times .8}{0.094}} \times \frac{305 \times 1.732}{30}$ = 12,112 AIC

Isc= 12.112 KAIC

USED CIRCUIT BREAKER W/ ATLEAST 20KAIC RATING

SINGLE LINE DIAGRAM



REPUBLIC OF THE PHILIPPINES MUNICIPALITY OF MANOLO FORTICH MUNICIPAL ENGINEER'S OFFICE	SEAL:	PROFESSIONAL ELECTRICAL ENGINEER PRC REG. NO: / PTR NO: TIN: / DATE ISSUED:	PREPARED BY: NORLYN P. DAWAT DRAFTSMAN	REVIEWED BY: CEDRICK A. SESTOSO ENGINEER- I	CHECKED BY: BERNABE C. AUXTERO JR. MUNICIPAL ENGINEER	PROJECT TITLE: ELECTRIFICATION OF BAMBOO PROCESSING HUB LOCATION: TANKULAN, MANOLO FORTICH BUKIDNON	RECOMMENDING APPROVAL BY: JOIE CAESAR M. GAID MUNICIPAL ADMINISTRATOR	APPROVED BY: ROGELIO N. QUIÑO MUNICIPAL MAYOR	SHEET CONTENTS: SCHEDULE OF LOADS VOLTAGE DROP & SHORT CIRCUIT ANALYSIS SINGLE LINE	SHEET NO. 4 5

LOCATION PLAN:

GENERAL NOTES & SPECIFICATION:

1. ALL ELECTRICAL WORKS SHALL COMPLY IN ACCORDANCEWITH THESE PLANS AND SPECIFICATIONS. THE APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE (PEC). THE RULES AND REGULATIONS OF THE LOCAL COMPANY. THE ELECTRICAL WORKS SHALL BE UNDER IMMEDIATE SUPERVISION OF A DULLY REGISTERED ELECTRICAL ENGINEER OR MASTER ELECTRICIAN.
2. THE ELECTRICAL SERVICE POWER IS THREE-PHASE, 3-WIRE + GROUND 230V, AC, 60HZ.
3. WIRING METHOD SHALL BE AS FOLLOWS:
   * FEEDER AND RISERS - RIGID STEEL CONDUIT
   *LIGHTING, POWER RECEPTACLE, BRANCH CKT. - POLYVINYL CHLORIDE CONDUIT
4. ALL WIRES BE COPPER AND THERMOPLASTIC INSULATED TYPE "THHN" UNLESS OTHERWISE INDICATED IN THE PLAN. THE MINIMUM SIZE OF WIRE FOR POWER AND LIGHTING CIRCUIT SHALL BE 3.5mm2 AND 2.0mm2 RESPECTIVELY AND INSULATED FOR 600 VOLTS. SMALLEST RACEWAY SHALL BE 20 mm2.
5. ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE OF USAGE.
6. NECESSARY BOXES, FITTINGS, ETC. SHALL BE PROVIDED AS REQUIRED EVEN IF NOT SHOWN IN THE DRAWING.
7. EQUIPMENT GROUNDING SYSTEM SHALL BE PROVIDED TO ELECTRICAL SYSTEM AS PER ELECTRICAL CODE REQUIRMENT.
8. MOUNTING HIEGHT OF WIRING DEVICES SHALL BEAS FOLLOWS:
   *LIGHT SWITCH - 1.20M ABOVE FINISHED FLOOR
   *CONVENIENCE OUTLET - 0.30M ABOVE FINISHED FLOOR
   *PANELBOARD - 1.80M ABOVE FINISHED FLOOR

SYMBOLS:

- PANEL BOARD
- CIRCUIT BREAKER
- KILO WATT HOUR METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- LIGHTING OUTLET
- CONVENIENCE OUTLET

REPUBLIC OF THE PHILIPPINES MUNICIPALITY OF MANOLO FORTICH MUNICIPAL ENGINEER'S OFFICE	SEAL:	PROFESSIONAL ELECTRICAL ENGINEER PRC REG. NO: / PTR NO: TIN: / DATE ISSUED:	PREPARED BY: NORLYN P. DAWAT DRAFTSMAN	REVIEWED BY: CEDRICK A. SESTOSO ENGINEER- I	CHECKED BY: BERNABE C. AUXTERO JR. MUNICIPAL ENGINEER	PROJECT TITLE: ELECTRIFICATION OF BAMBOO PROCESSING HUB LOCATION: TANKULAN, MANOLO FORTICH BUKIDNON	RECOMMENDING APPROVAL BY: JOIE CAESAR M. GAID MUNICIPAL ADMINISTRATOR	APPROVED BY: ROGELIO N. QUIÑO MUNICIPAL MAYOR	SHEET CONTENTS: LOCATION PLAN GENERAL NOTES LEGEND	SHEET NO. 5 5