LIGHTING SYMBOLS:

DL1 7W — 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX5.3

24W — 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 BI PI

DL3 15W — 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W — 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg

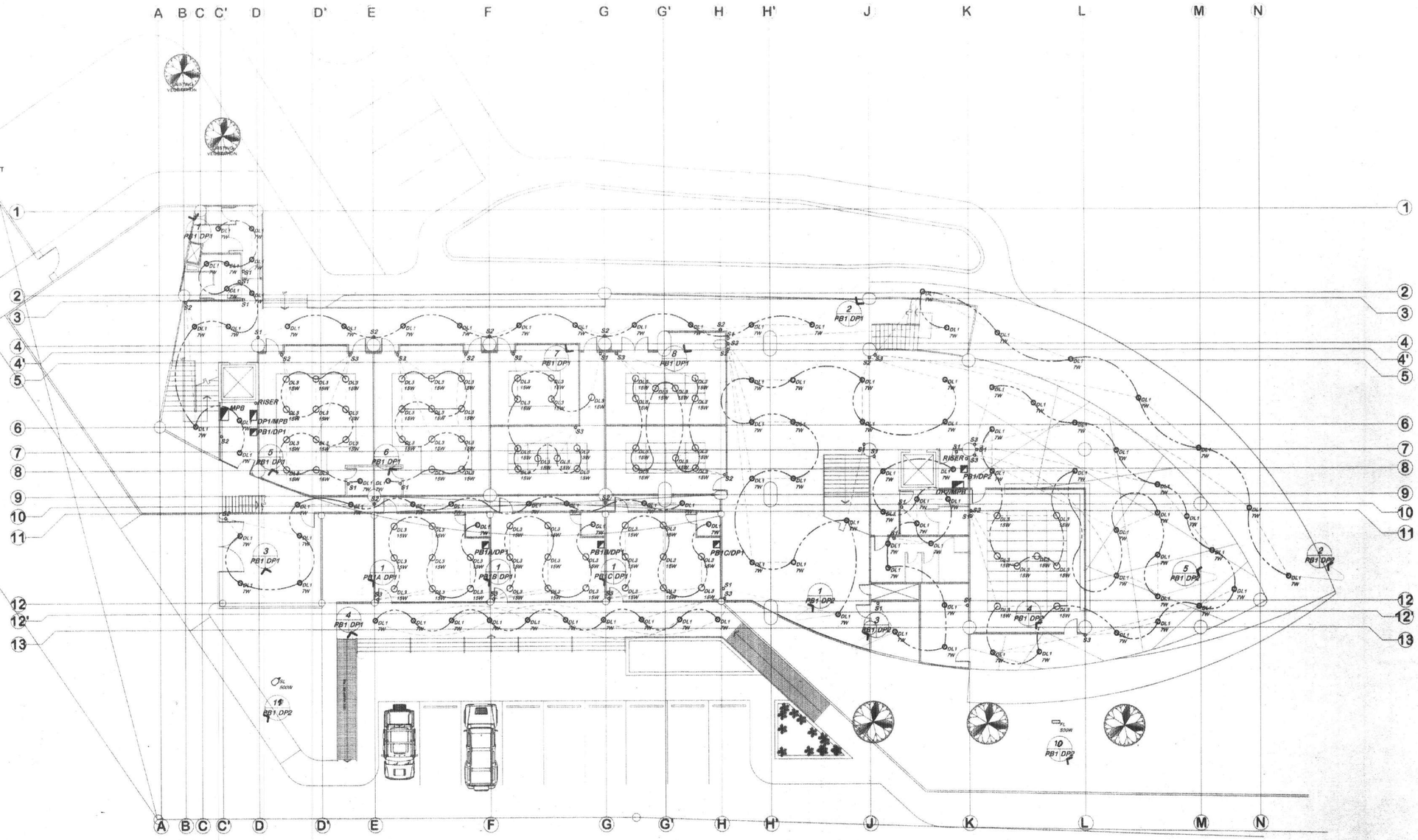
POST

12 PB1 DP2

SL 500W

LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH
- SL 500W STREET LIGHT
- FL 500W FLOODLIGHT



GROUND FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

C.M. Recto Avenue, Lapasan 9000 Cagayan de Oro City
Tel. Nos. (08822) 72-60-65 / (088) 856-1738 / 856-1739 Tele Fax (088) 856-4696
Web Site : www.mpsc.com.edu

PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 | PTR NO. : 9094279 1/8/16
TIN NO. : 181 677 687 | DATE ISSUED:

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

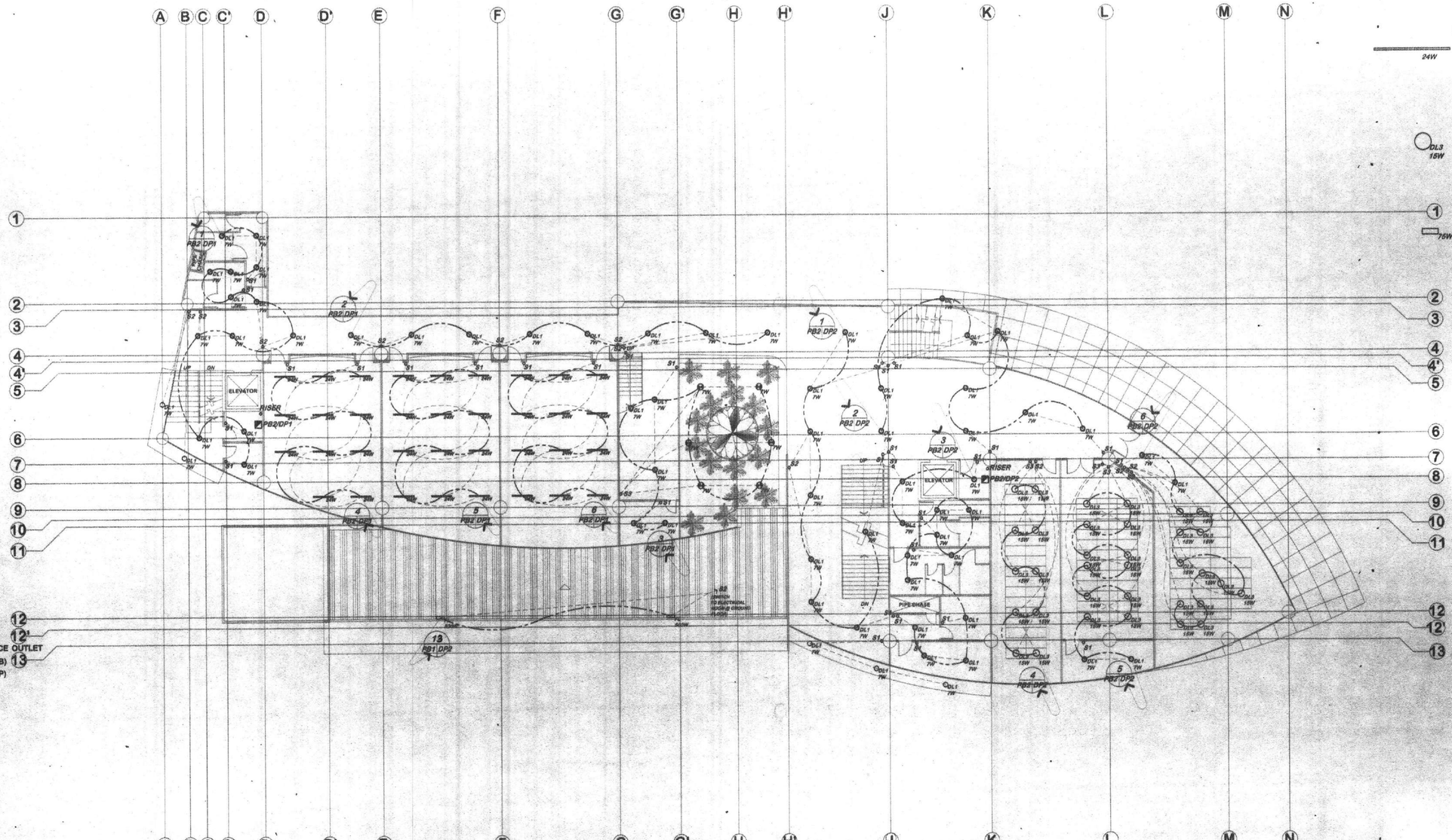
RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-GROUND FLOOR LIGHTING OUTLET LAYOUT

SHEET NO.
E1
E25

107
198



LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 BI PI

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/80°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC / 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 360MMX240MMX85MM
- WEIGHT: 6.6Kg

LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- M — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EL — EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH
- SL 200W — STREET LIGHT
- FL 500W — FLOODLIGHT

SECOND FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

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PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 | PTR NO. : 3046279 | DATE ISSUED: 1/8/16
TIN NO. : 181 677 687

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LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
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RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-SECOND FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E2 E25

108
198

LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

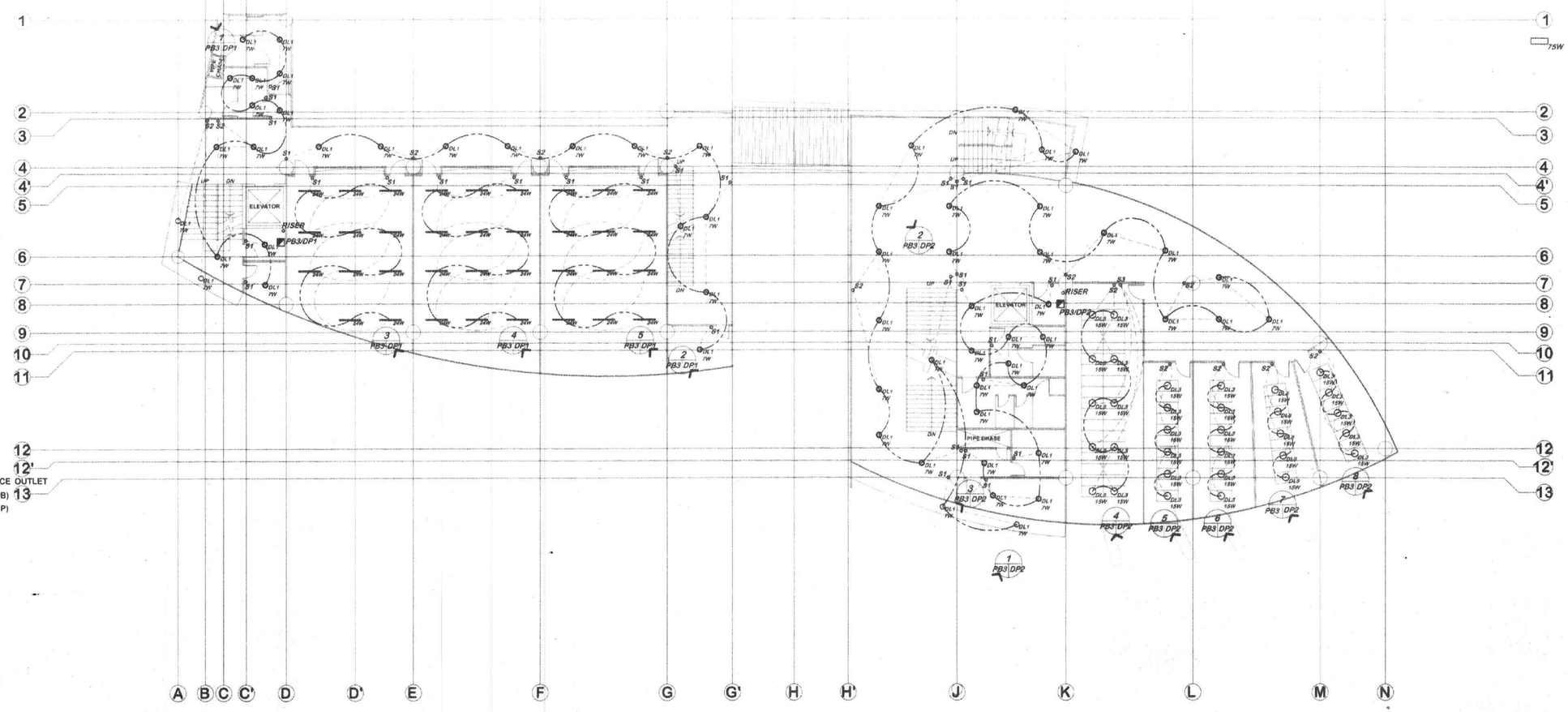
24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg

LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EL — EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH
- SL 600W — STREET LIGHT
- FL 500W — FLOODLIGHT



THIRD FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

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Web Site : www.mpsc.com.edu

PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 0037 PTR NO. : 5096279 LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
TIN NO. : 181 677 687 DATE ISSUED: 1/8/16 OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

RECOMMENDING APPROVAL :

ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
- THIRD FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E3 E25 109 198

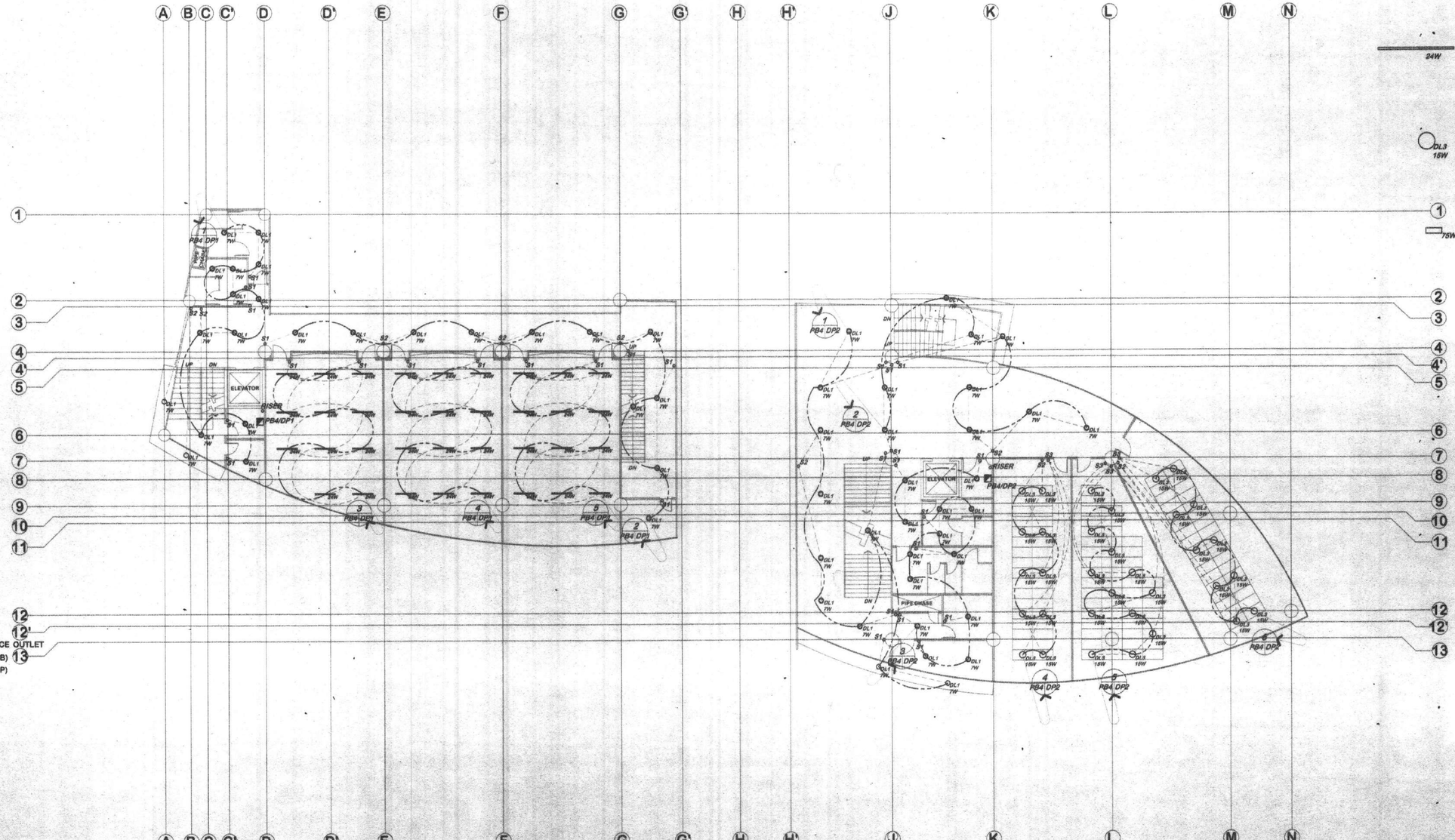
LIGHTING SYMBOLS:

DL1 7W — 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W — 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W — 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~630 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W — 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.6Kg



LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- M — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EL — EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH
- SL 500W — STREET LIGHT
- FL 500W — FLOODLIGHT

FOURTH FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

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PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037
TIN NO. : 181 677 687
PTR NO. : 3040279
DATE ISSUED: 1/8/16

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

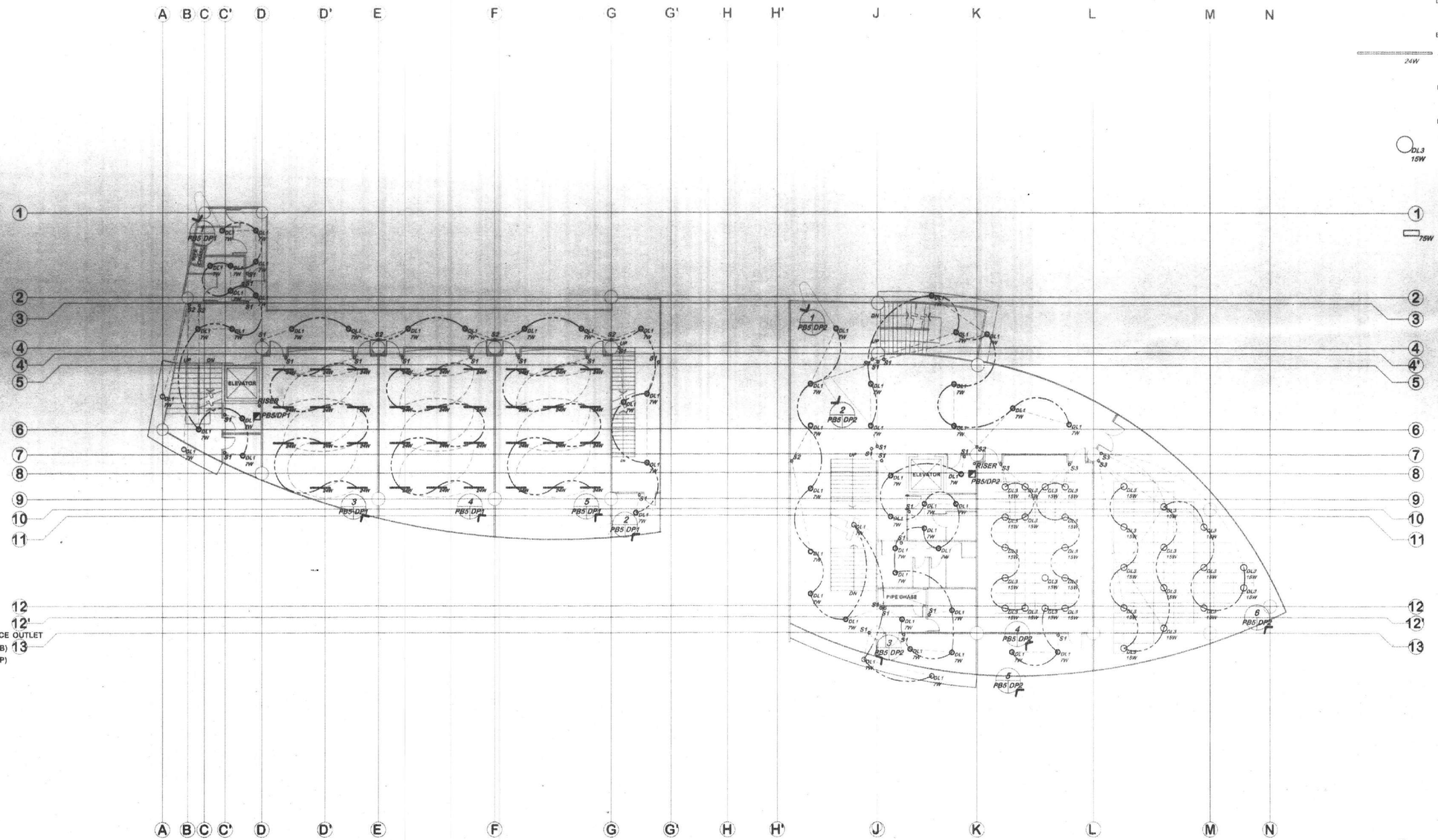
RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
- FOURTH FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E4 E25

110
198



LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC / 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg

LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- M — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EL — EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH
- SL 500W — STREET LIGHT
- FL 500W — FLOODLIGHT

FIFTH FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

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PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 PTR NO. : 3046279
TIN NO. : 181 677 687 DATE ISSUED: 1/8/16

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RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-FIFTH FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E5 E25

111
198

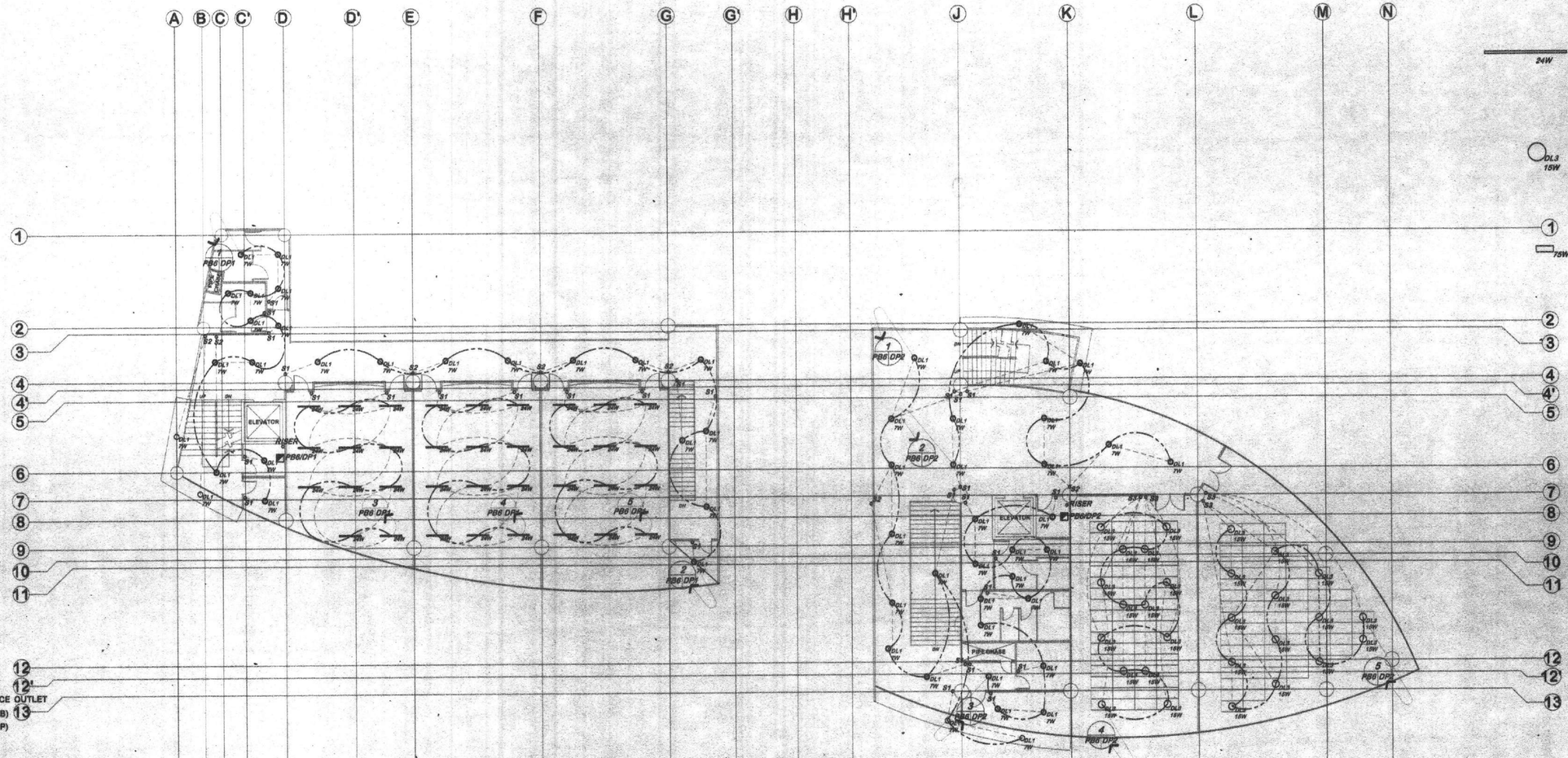
LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~550 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC
- 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg



LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- M — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EL — EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH
- SL 60W — STREET LIGHT
- FL 500W — FLOODLIGHT

SIXTH FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

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PROF. EECTRICAL ENGINEER
PRC REG. NO. : 3 037 | PTR NO. : 3046277 | TIN NO. : 181 677 887 | DATE ISSUED: 1/8/16

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RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-SIXTH FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E6 / E25

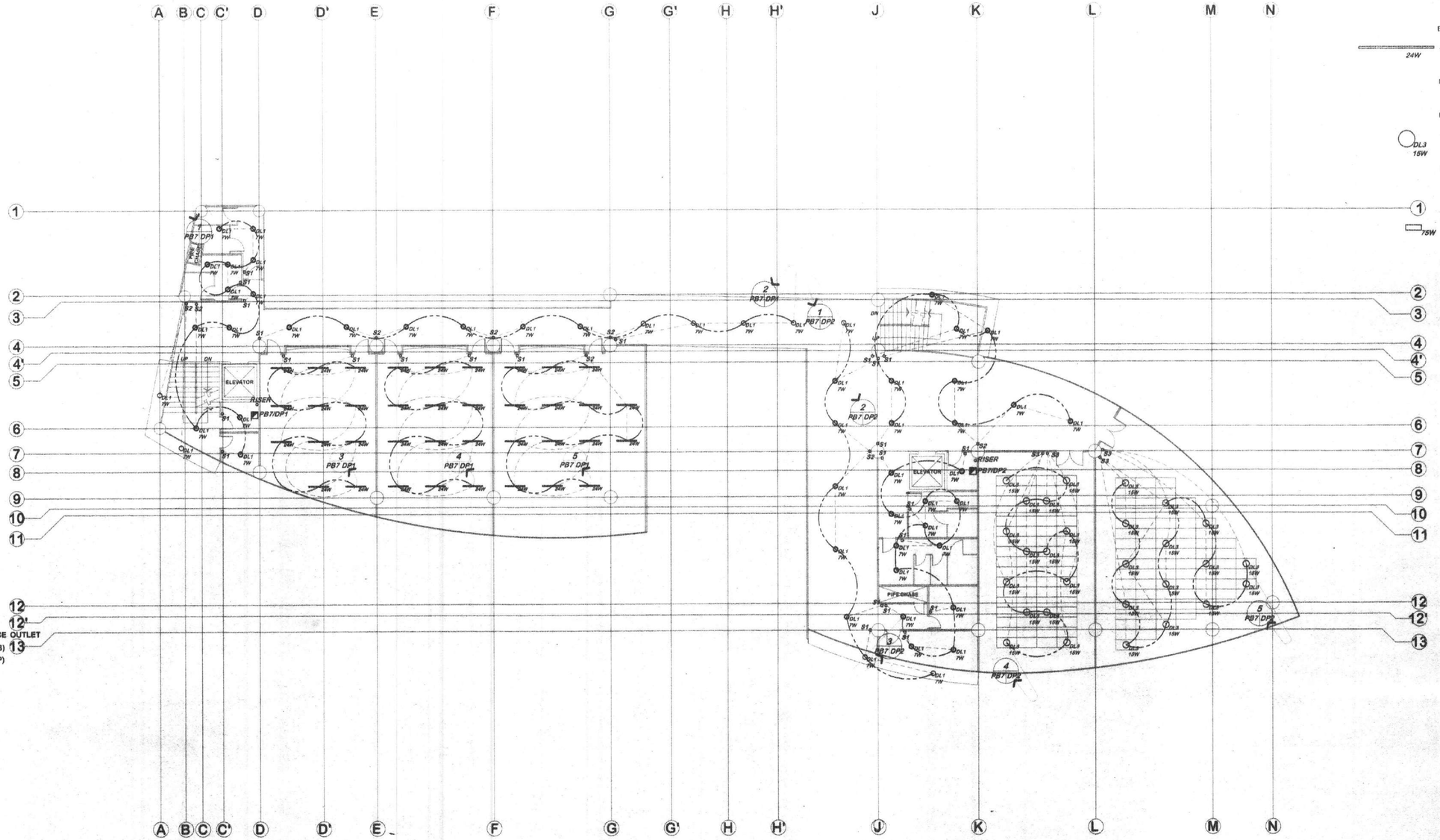
LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 36°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC / 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH
- STREET LIGHT
- FLOODLIGHT

SEVENTH FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

C.M. Recto Avenue, Lapasan 9000 Cagayan de Oro City
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PREPARED BY:

DR. AMBROSIO B. CULTURA II
PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 | PTR NO. : 3076779
TIN NO. : 181 677 687 | DATE ISSUED: 1/8/16

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

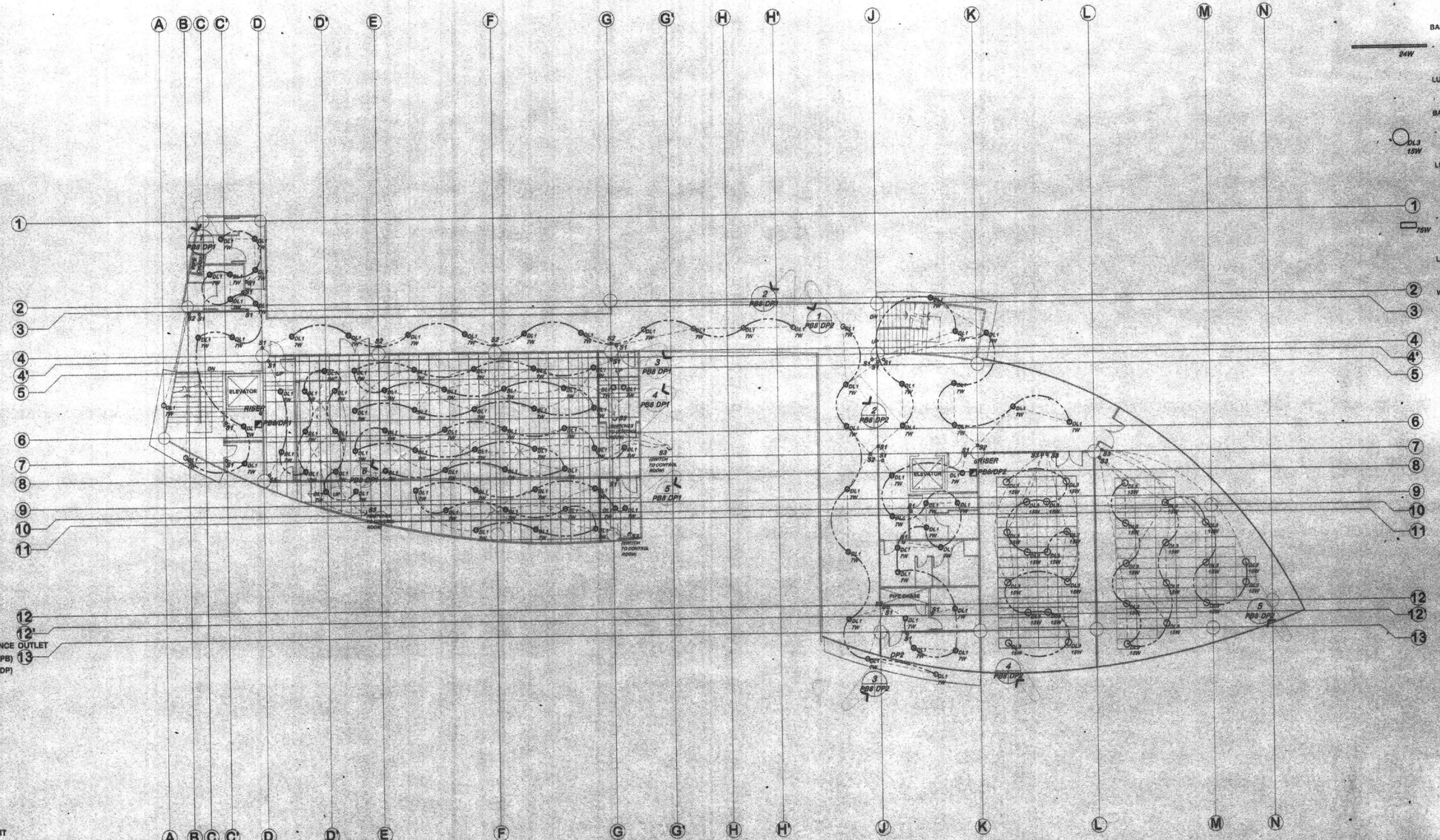
RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-SEVENTH FLOOR LIGHTING OUTLET LAYOUT

SHEET NO. E7 E25

113
196



LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 BI PI

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 18W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~930 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø104.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 8.8Kg

LEGENDS:

DL1 7W / 24W	LIGHTING OUTLET
DL3 15W	
75W	
7W	GARDEN LAMP
	TWO-GANG CONVENIENCE OUTLET
	MAIN PANEL BOARD (MPB)
	DISTRIBUTION PANEL (DP)
	PANEL BOARD (PB)
	CIRCUIT BREAKER
M	ELECTRIC METER
	SERVICE ENTRANCE
	GROUND LINE
S_1	SINGLE GANG SWITCH
S_2	TWO - GANG SWITCH
S_3	THREE - GANG SWITCH
S_{3W}	THREE - WAY SWITCH
	CIRCUIT HOME RUN
	RISER
	AIR CONDITIONING UNIT
EL	EMERGENCY LAMP
CP	CENTRIFUGAL PUMP
FP	FIRE PUMP
JP	JOCKEY PUMP
BP	BOOSTER PUMP
ATS	AUTOMATIC TRANSFER SWITCH
SL 200W	STREET LIGHT
FL 800W	FLOODLIGHT

EIGHTH FLOOR LIGHTING OUTLET LAYOUT

SCALE 1:100M

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TIN NO. : 181 677 687 | DATE ISSUED: 1/3/12

PROJECT: PROPOSED STUDENT CENTER & EDUCATION COMPLEX
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RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
-EIGHTH FLOOR LIGHTING OUTLET LAYOUT

SHEET NO.
E8
E25
114
198

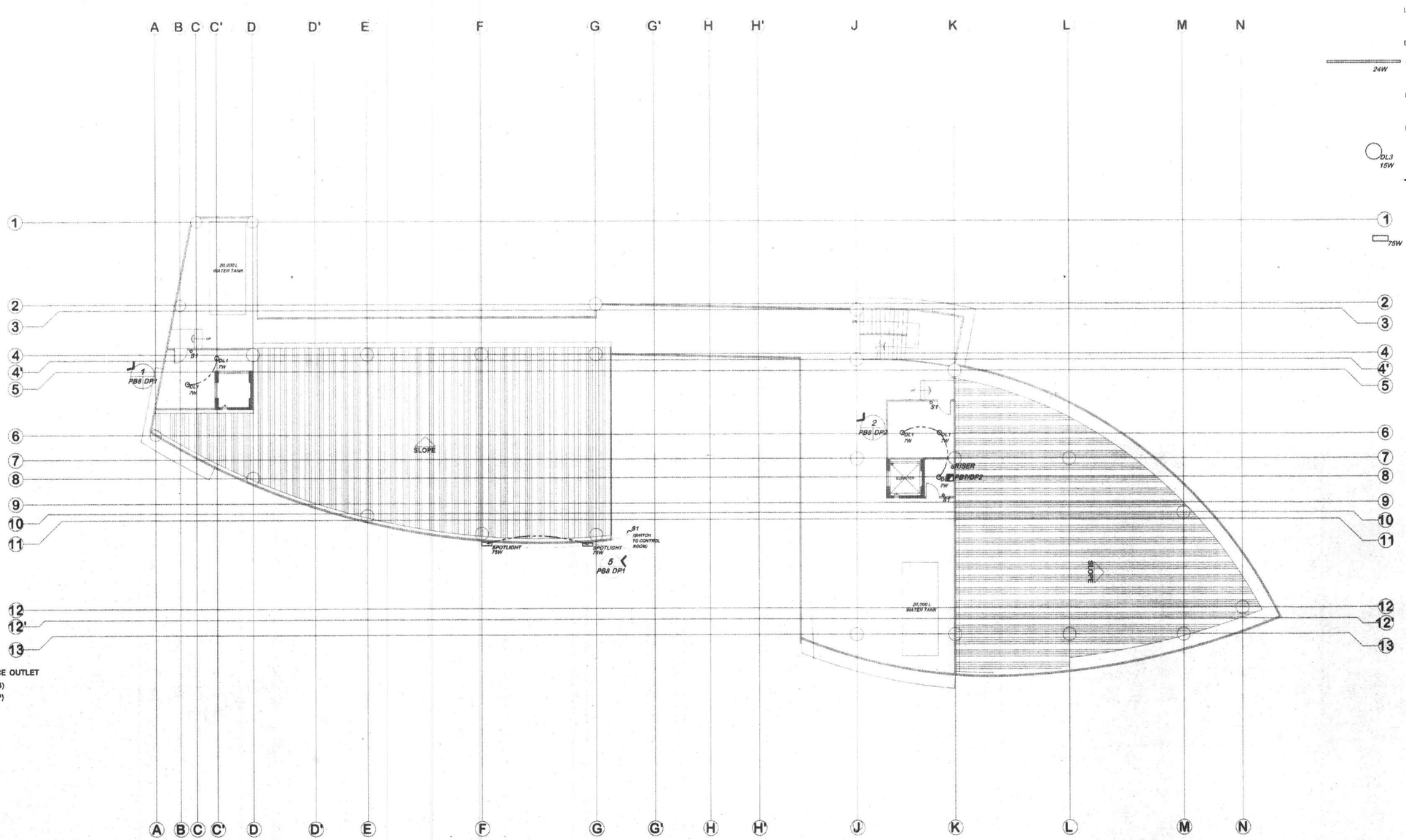
LIGHTING SYMBOLS:

DL1 7W
- 7W MR16 E27
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMENS: ~520 LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 40°,120°
- DIMENSION: Ø50MMXH45.5MM
- BASE: GX 5.3

24W
- 24W LED TUBE T8 4FT
- INPUT VOLTAGE: 100-220V AC
- POWER CONSUMPTION: 7W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~1900 LM
- LED CHIP: EPISTAR(TAIWAN)
- BEAM ANGLE: 120°
- DIMENSION: Ø26MMXH1200MM
- BASE: G13 Bi Pi

DL3 15W
- 15W LED DOWNLIGHT (TILTABLE)
- DRIVER INPUT: DC 700mA/24V
- POWER CONSUMPTION: 15W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~530 LM
- LED CHIP: EDISON(TAIWAN)
- BEAM ANGLE: 38°/60°
- DIMENSION: Ø124.5MMXH34.5MM
- WEIGHT: 310g

75W
- 75W LED FLOODLIGHT
- INPUT VOLTAGE: 100-240V AC / 12 DC/24V DC
- POWER CONSUMPTION: 75W
- COLOR TEMPERATURE: 3000K/6000K
- LUMEN: ~5400LM
- LED CHIP: CREE(US)
- BEAM ANGLE: 130°
- DIMENSION: 380MMX240MMX85MM
- WEIGHT: 6.8Kg



LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL2 15W
- 75W
- 7W — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- M — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH

ROOF DECK LIGHTING OUTLET LAYOUT

SCALE 1:150M

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TIN NO. : 181 677 687 DATE ISSUED: 1/8/16

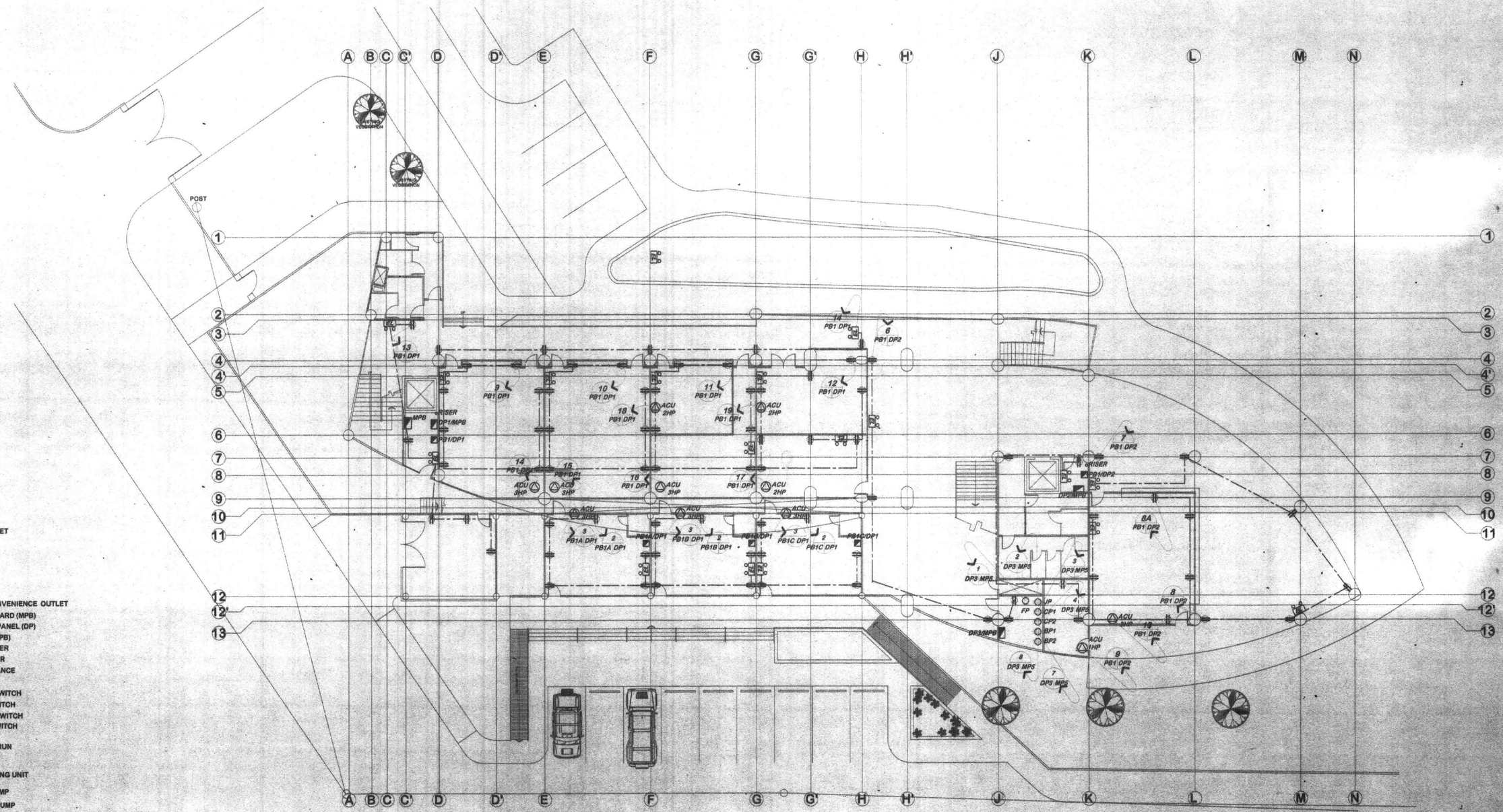
PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-ROOF DECK LIGHTING OUTLET LAYOUT

SHEET NO. E9 E25



LEGENDS:

- DL1 1W — LIGHTING OUTLET
- 24W
- DL2 15W
- 75W
- PW — GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- (M) — ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH

GROUND FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:150M

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TIN NO. : 181 677 687 DATE ISSUED:

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL :

ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

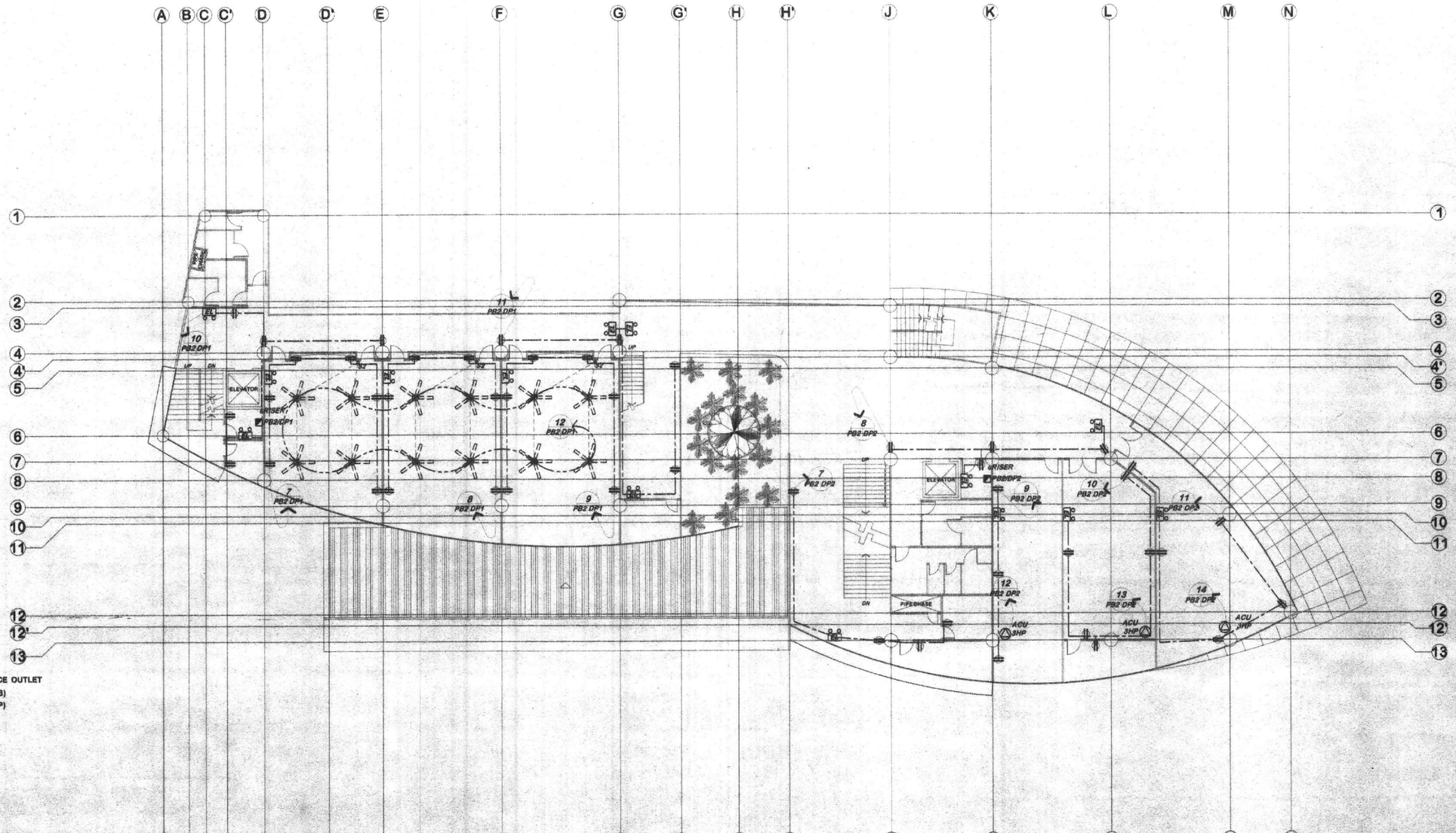
APPROVED :

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-GROUND FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO. E10 E25

116 198



LEGENDS:

OL1 7W / 24W	LIGHTING OUTLET
OL2 18W / 78W	
7W	GARDEN LAMP
	CEILING FAN
	TWO-GANG CONVENIENCE OUTLET
	MAIN PANEL BOARD (MPB)
	DISTRIBUTION PANEL (DP)
	PANEL BOARD (PB)
	CIRCUIT BREAKER
M	ELECTRIC METER
	SERVICE ENTRANCE
	GROUND LINE
S_1	SINGLE GANG SWITCH
S_2	TWO - GANG SWITCH
S_3	THREE - GANG SWITCH
S_{3W}	THREE - WAY SWITCH
	CIRCUIT HOME RUN
	RISER
	AIR CONDITIONING UNIT
	EMERGENCY LAMP
CP	CENTRIFUGAL PUMP
FP	FIRE PUMP
JP	JOCKEY PUMP
BP	BOOSTER PUMP
ATS	AUTOMATIC TRANSFER SWITCH

SECOND FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:150M

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PREPARED BY:

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PRC REG. NO. : 5 037 | PTR NO. : 3046279
TIN NO. : 101 877 587 | DATE ISSUED: 1/8/16

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

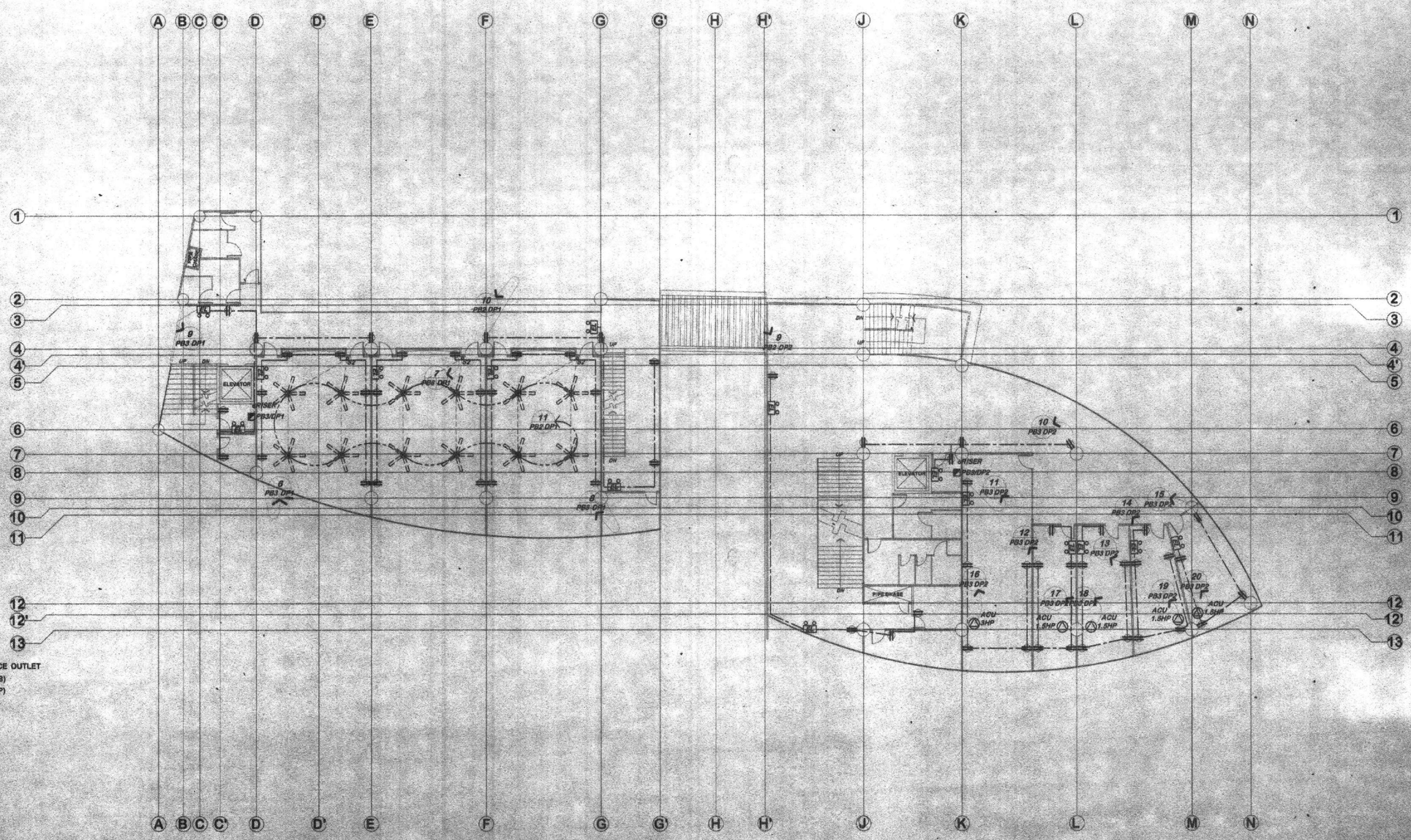
RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-SECOND FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO.
E11
E25

117
198



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

THIRD FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

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PREPARED BY:

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PRC REG. NO. : 3037 PTR NO. : 3076279
TIN NO. : 101 677 687 DATE ISSUED: 1/8/16

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL :

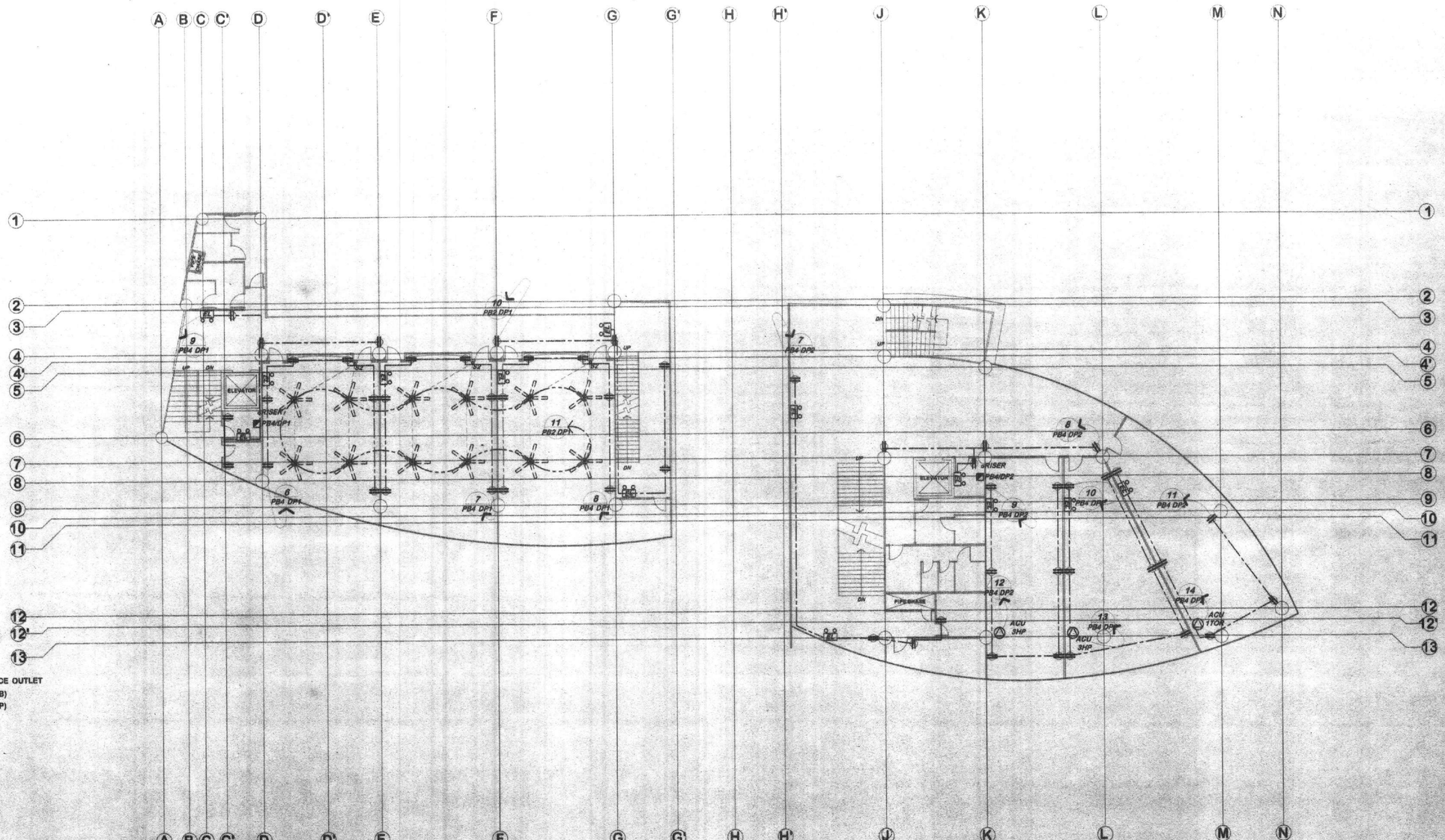
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE : ELECTRICAL
SHEET CONTENTS :
THIRD FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO.
E12
E25
118
198



LEGENDS:

- DL1 7W — LIGHTING OUTLET
- 24W
- DL3 16W
- 7SW
- 7W — GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 — SINGLE GANG SWITCH
- S_2 — TWO - GANG SWITCH
- S_3 — THREE - GANG SWITCH
- S_{3W} — THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP — CENTRIFUGAL PUMP
- FP — FIRE PUMP
- JP — JOCKEY PUMP
- BP — BOOSTER PUMP
- ATS — AUTOMATIC TRANSFER SWITCH

FOURTH FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

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TIN NO. : 181 677 687

PROJECT: PROPOSED STUDENT CENTER & EDUCATION COMPLEX

PTR NO. : 3094209
DATE ISSUED: 1/3/11
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

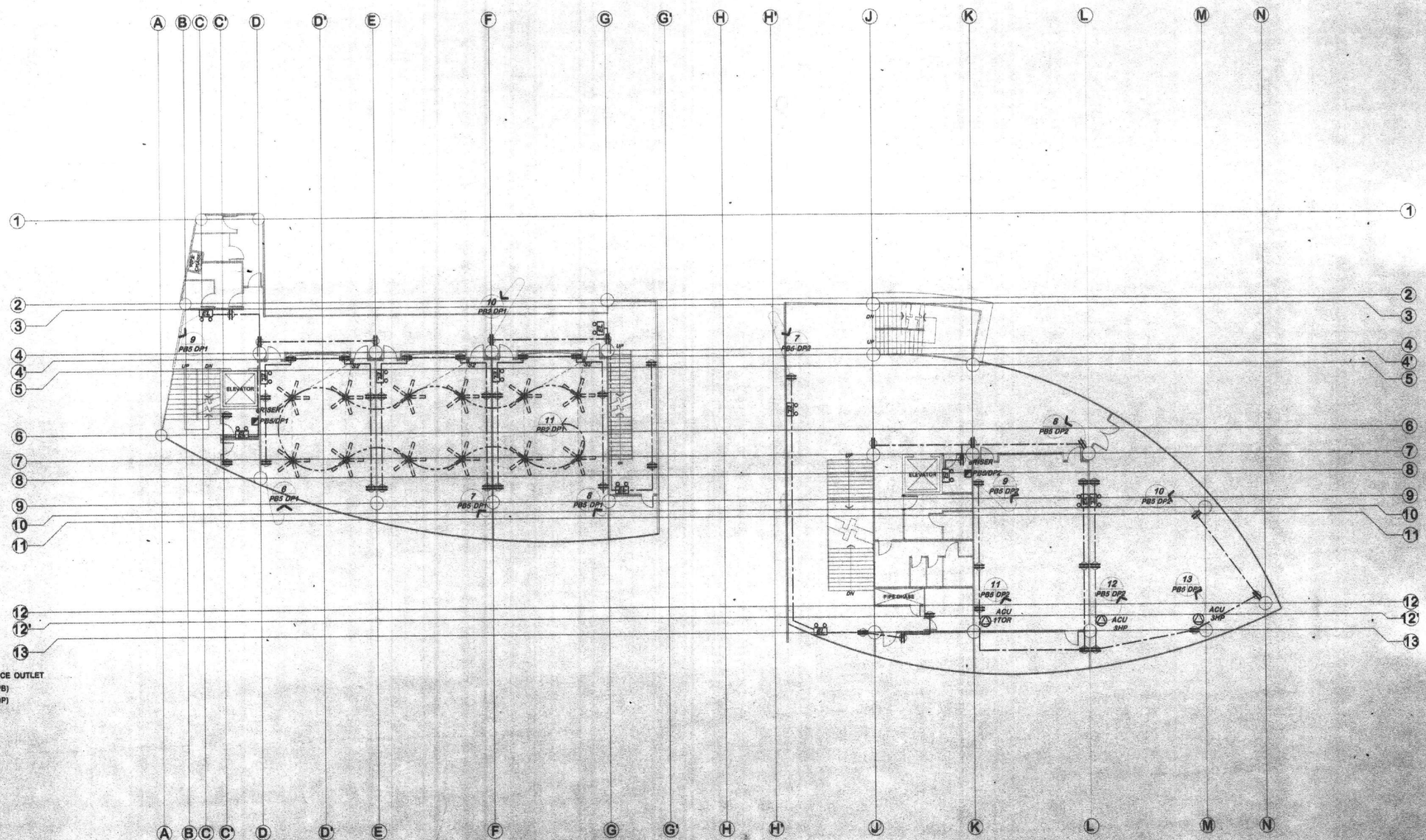
RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
-FOURTH FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO. E13 E25

118
198



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

FIFTH FLOOR CONVENIENCE OUTLET LAYOUT
SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

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Web Site : www.mpsc.com.edu

PREPARED BY:
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PRC REG. NO. : 3 037 | PTR NO. 3040779 | TIN NO. : 181 677 887 | DATE ISSUED: 1/5/16

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

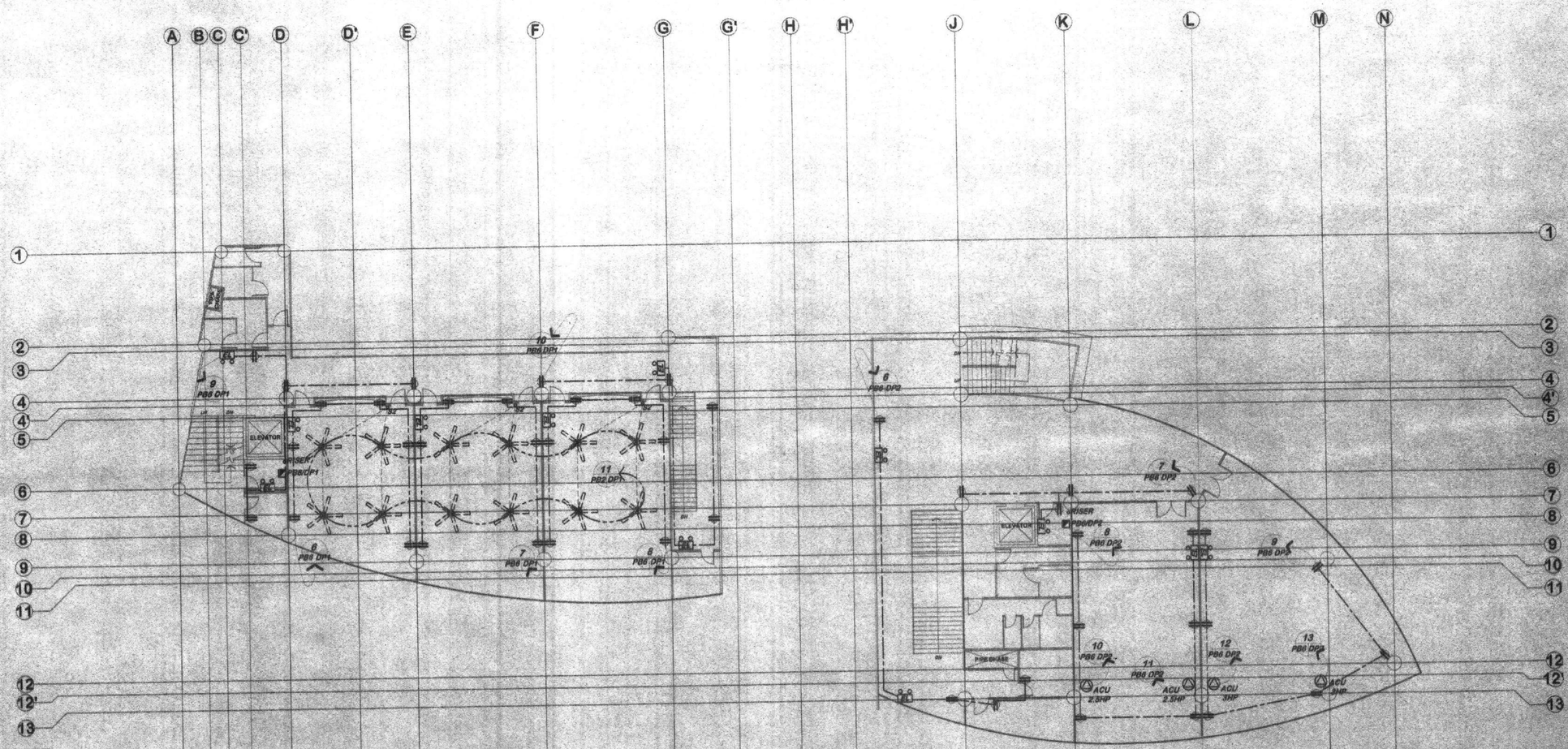
RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-FIFTH FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO. E14 E25

119
198



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

SIXTH FLOOR CONVENIENCE OUTLET LAYOUT
SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

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PREPARED BY:
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PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 PTR NO. 3049279 1/8/19
TIN NO. : 181 877 687 DATE ISSUED:

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

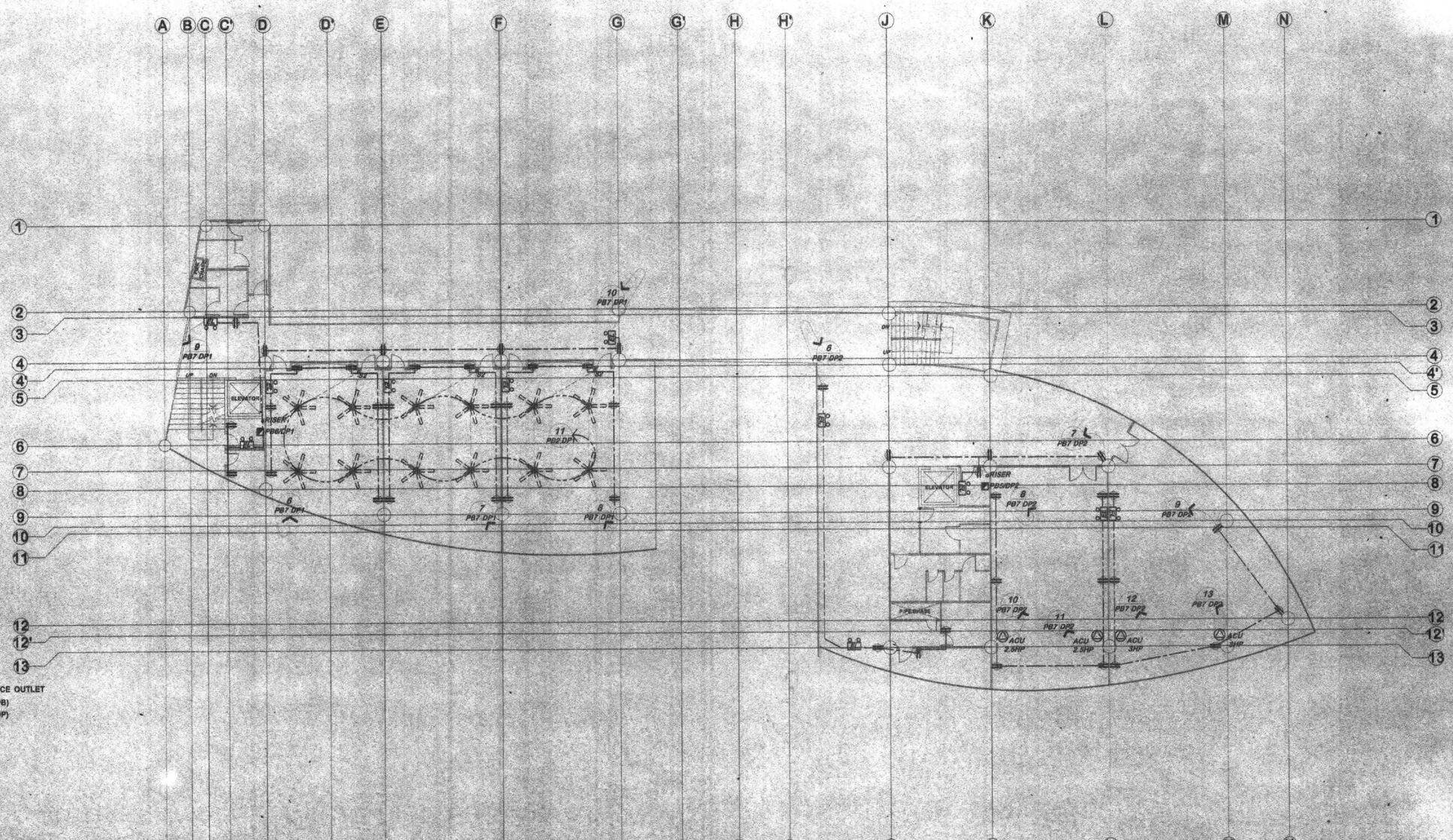
RECOMMENDING APPROVAL :
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED :
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
-SIXTH FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO.
E15
E25

120
198



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- R RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

SEVENTH FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:150M

REPUBLIC OF THE PHILIPPINES
MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY

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PREPARED BY:

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PRC REG. NO. : 0 037 PTR NO. : 3044277 1/5/15
TIN NO. : 181 677 887 DATE ISSUED:

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:

ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

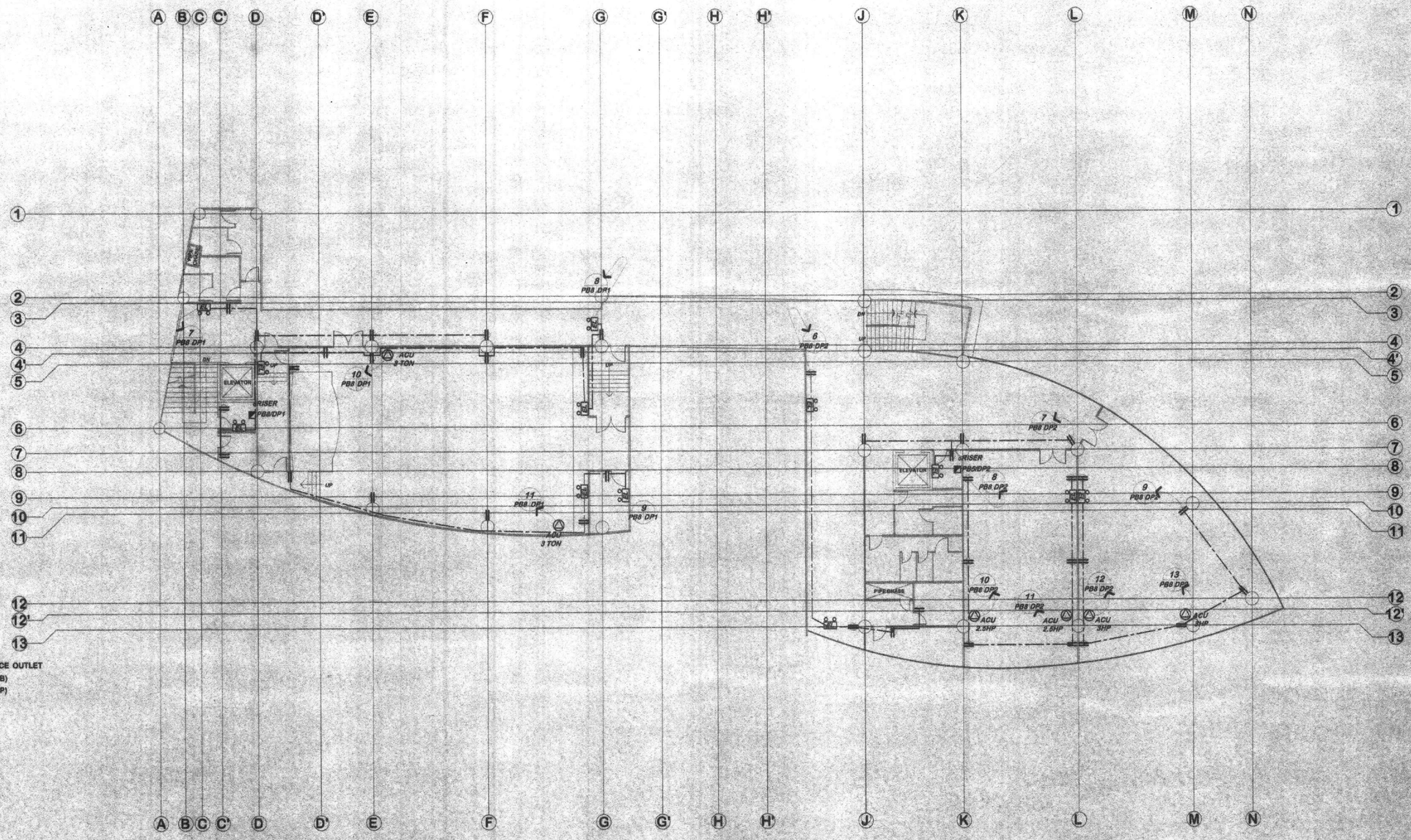
APPROVED:

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
SEVENTH FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO.
E16
E25

121
198



LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

EIGHTH FLOOR CONVENIENCE OUTLET LAYOUT

SCALE 1:100M

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TIN NO. : 181 677 587 DATE ISSUED:

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:

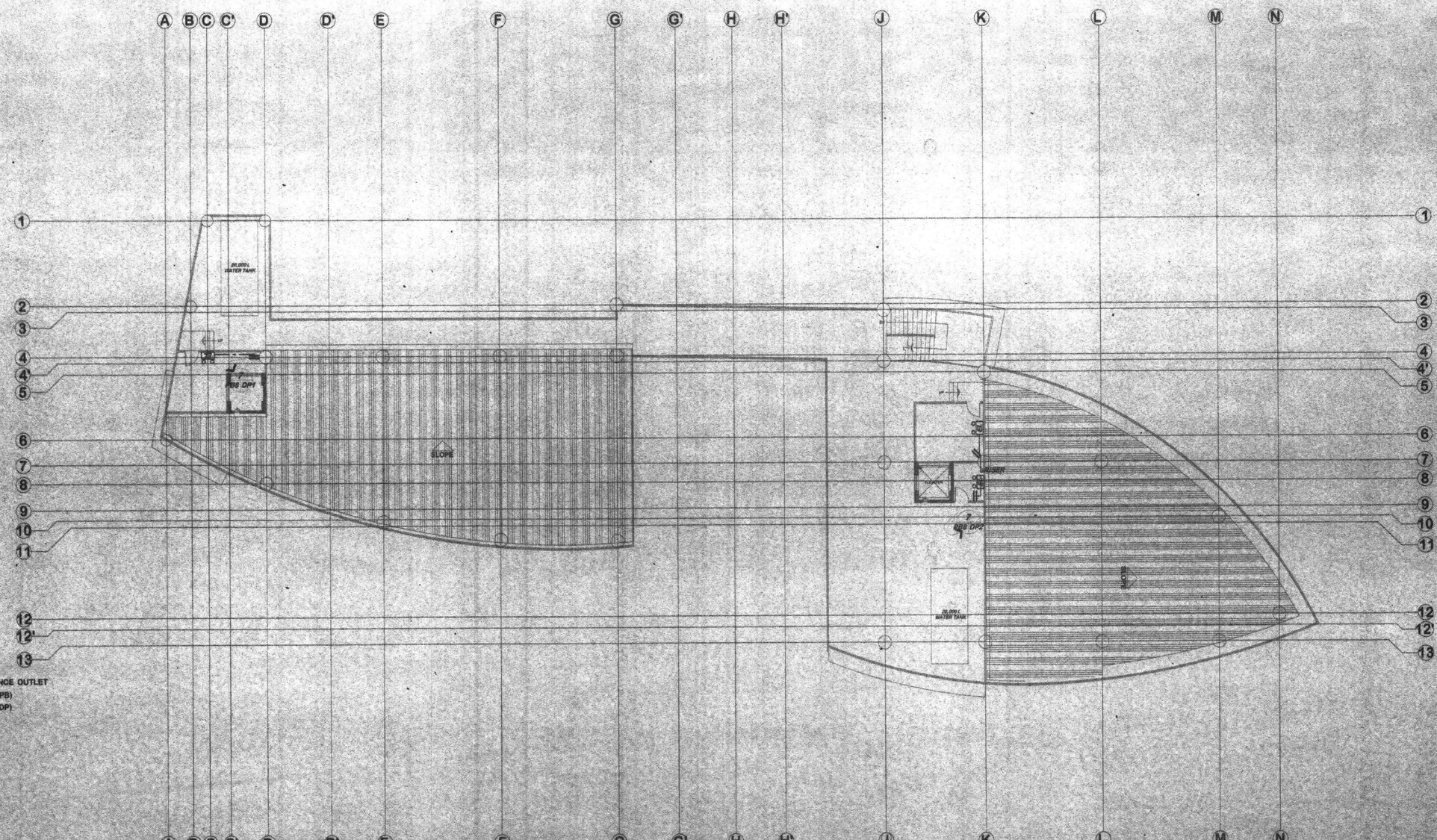
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
EIGHTH FLOOR CONVENIENCE OUTLET LAYOUT

SHEET NO.
E17
E25
123
198


A B C C' D D' E F G G' H H' J K L M N
1 2 3 4 4' 5 6 7 8 9 10 11 12 12' 13
SLOPE
SLOPE
SLOPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 1(PB1)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	B	C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB1 DP1	1	LIGHTING OUTLET	13	230	2,340	10.17				20	4	2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	10	230	1,800		7.83			20	1	4			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	12	230	2,160			9.39		20		3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	10	230	1,800	7.83				20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	12	230	2,160			9.39		20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	LIGHTING OUTLET	11	230	1,980	8.61				20	1	1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	8	LIGHTING OUTLET	11	230	1,980		8.61			20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	9	230	1,620			7.04		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	9	230	1,620	7.04				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CONVENIENCE OUTLET	9	230	1,620		7.04			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	CONVENIENCE OUTLET	9	230	1,620			7.04		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	13	CONVENIENCE OUTLET	7	230	1,260	5.49				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	14	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	15	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	16	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	17	ACU - 3 HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	18	ACU - 2 HP	1	230	1,492			6.49		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	19	ACU - 2 HP	1	230	1,492	6.49				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	20	ACU - 2 HP	1	230	1,492		6.49			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	21	SPARE														
	22	SPARE														
			SUBTOTAL		40,840	56.14	54.57	66.86			6	16	3			

COMPUTATION:

$I_L = \frac{40,840w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 102.52 \times 1.25$

$= 128.15\ AMPS$

THEREFORE USE 150 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3-38 mm² THHN COPPER WIRE ON 40mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 1A(PB1A)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	B	C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB1A DP1	1	LIGHTING OUTLET	9	230	1,620	7.04				20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	CONVENIENCE OUTLET	7	230	1,260	5.48				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	3	ACU - 3 HP	1	230	3,910	17.0				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	4	SPARE														
	5	SPARE														
			SUBTOTAL		6,790	29.52							1			

COMPUTATION:

$I_L = \frac{6,790w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 29.5 \times 1.25$

$= 36.9\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 2 PST, 230 V,
USE 2 - 22.0 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 1B(PB1B)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	B	C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB1B DP1	1	LIGHTING OUTLET	9	230	1,620		7.04			20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	3	ACU - 3 HP	1	230	3,910		17.0			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	4	SPARE														
	5	SPARE														
			SUBTOTAL		6,790		29.52						1			

COMPUTATION:

$I_L = \frac{6,790w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 29.5 \times 1.25$

$= 36.9\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 2 PST, 230 V,
USE 2 - 22.0 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 1C(PB1C)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	B	C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB1C DP1	1	LIGHTING OUTLET	9	230	1,620			7.04		20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	3	ACU - 3 HP	1	230	3,910			17.0		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	4	SPARE														
	5	SPARE														
			SUBTOTAL		6,790	7.04	5.48	17.0					1			

COMPUTATION:

$I_L = \frac{6,790w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

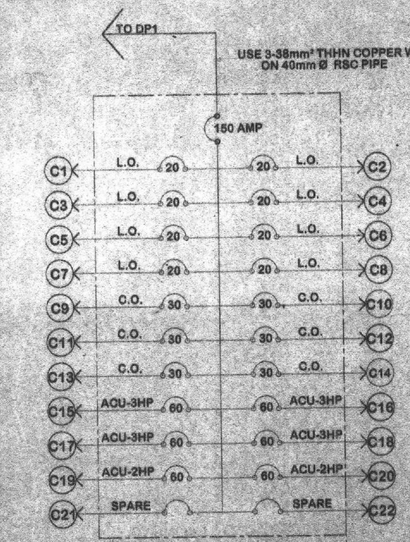
$I_L = \frac{P}{(\sqrt{3})(V_L)}$

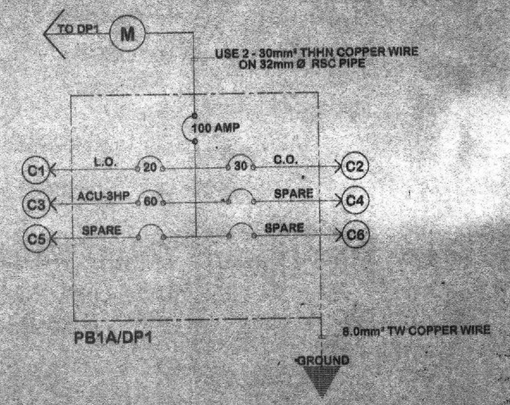
$= 29.5 \times 1.25$

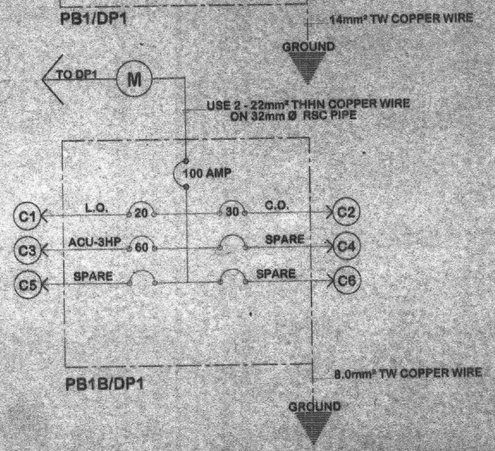
$= 36.9\ AMPS$

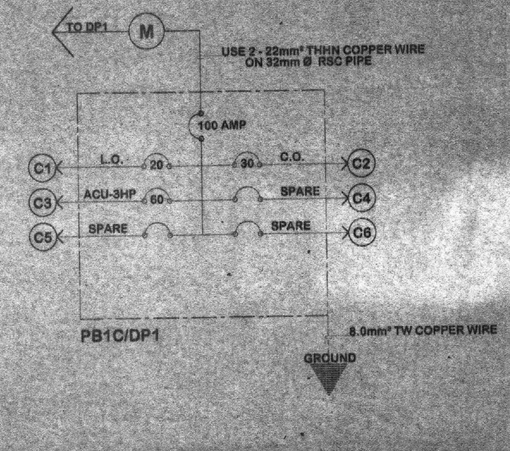
THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 2 PST, 230 V,
USE 2 - 22.0 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SINGLE LINE DIAGRAMS









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TIN NO. : 181 677 687 DATE ISSUED: 1/8/16

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER: MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
-SCHEDULE OF LOADS AND DESIGN COMPUTATION
-SINGLE LINE DIAGRAMS

SHEET NO.
E19
E25

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 2(PB2)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB2 DP1	1	LIGHTING OUTLET	15	230	2,700	11.47				20	4	2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	6	230	1,440		6.26			20	4				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	3		1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	11	230	1,980	8.61				20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	12	230	2,160			9.39		20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	230	1,260	5.48				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	7	230	1,260	5.48				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	13	SPARE														
	14	SPARE														
			SUBTOTAL		20,880	31.31	26.61	32.87			11	12	1			

COMPUTATION:

$I = \frac{20,880w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I = \frac{P}{(\sqrt{3})(V_L)}$

$= 52.414 \times 1.25$

$= 65.52\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 3(PB3)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB3 DP1	1	LIGHTING OUTLET	14	230	2,520	10.96				20	5	2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	11	230	1,980		8.61			20	4	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	12	230	2,160	9.39				20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	230	1,260	5.47				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.47			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	SPARE														
	13	SPARE														
			SUBTOTAL		19,080	30.51	23.47	28.94			15	5				

COMPUTATION:

$I = \frac{19,080w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I = \frac{P}{(\sqrt{3})(V_L)}$

$= 47.86 \times 1.25$

$= 59.87\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 4(PB4)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB4 DP1	1	LIGHTING OUTLET	14	230	2,520	10.96				20	5	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	11	230	1,980		8.61			20	4	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	12	230	2,160	9.39				20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	230	1,260	5.47				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.47			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	SPARE														
	13	SPARE														
			SUBTOTAL		19,080	30.51	23.47	28.94			15	5				

COMPUTATION:

$I = \frac{19,080w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I = \frac{P}{(\sqrt{3})(V_L)}$

$= 47.89 \times 1.25$

$= 59.87\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 5(PB5)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	S2	S3	S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB5 DP1	1	LIGHTING OUTLET	14	230	2,520	10.96				20	5	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	11	230	1,980		8.61			20	4	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	12	230	2,160	9.39				20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	230	1,260	5.47				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.47			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	SPARE														
	13	SPARE														
			SUBTOTAL		19,080	30.51	23.47	28.94			15	4				

COMPUTATION:

$I = \frac{19,080w}{(\sqrt{3})(230\ V)}$

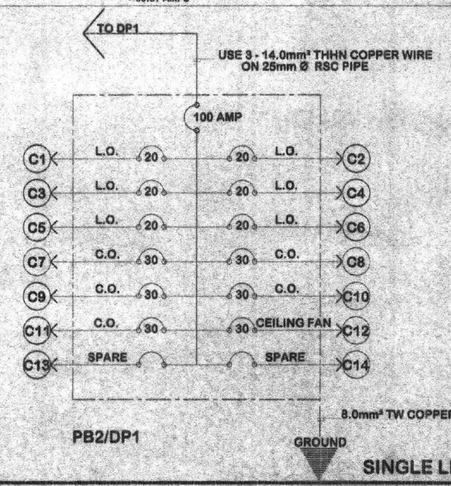
$P = (\sqrt{3})(V_L)(I_L)$

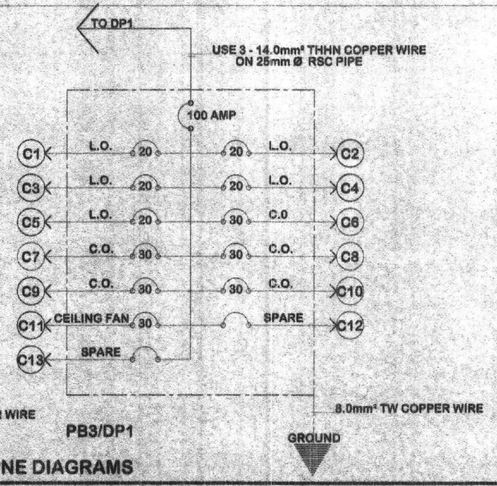
$I = \frac{P}{(\sqrt{3})(V_L)}$

$= 47.89 \times 1.25$

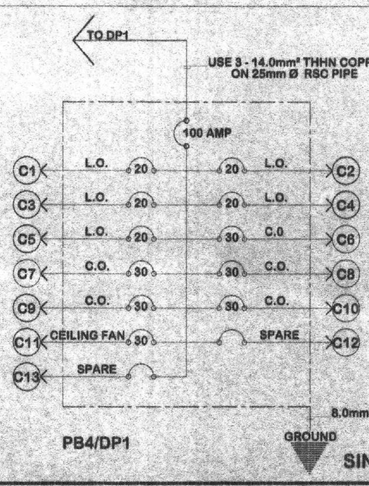
$= 59.87\ AMPS$

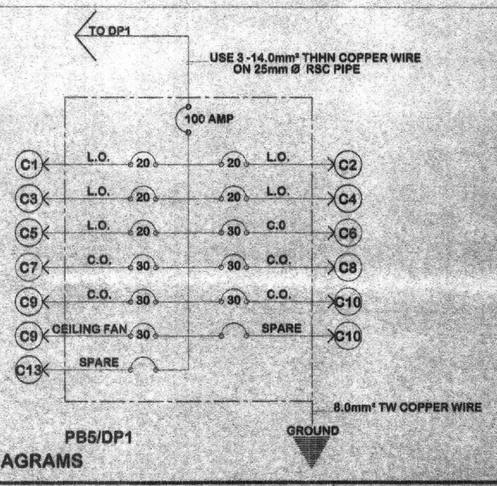
THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE





SINGLE LINE DIAGRAMS





SINGLE LINE DIAGRAMS

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PROF. ELECTRICAL ENGINEER
PRC REG. NO. : 3 037 PTR NO. 2047229 1/8/16
TIN NO. : 181 677 687 DATE ISSUED:

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:

ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:

DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL

SHEET CONTENTS:
- SCHEDULE OF LOADS AND DESIGN COMPUTAION
- SINGLE LINE DIAGRAMS

SHEET NO.
E20
E25

126
198

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 6(PB6)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB6 DP1	1	LIGHTING OUTLET	12	230	2,520	10.96				20	5	2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	11	230	1,980		8.61			20	4	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	12	230	2,160	9.39				20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	12	230	2,160		9.39			20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	230	1,260	5.47				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.47			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	SPARE														
	13	SPARE														
			SUBTOTAL		19,080	30.51	23.47	28.94			15	8				

COMPUTATION:

$I_L = \frac{19,080w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 47.89 \times 1.25$

$= 59.87\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 7(PB7)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB7 DP1	1	LIGHTING OUTLET	14	230	2,520	10.96				20	5	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	10	230	1,800		7.83			20	2	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	11	230	1,980			8.61		20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	12	230	2,160	9.39				20	2				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	14	230	2,160		10.96			20	1	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	7	220	1,260			6.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	7	220	1,260	5.47				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	220	1,260		5.47			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	5	220	900			5.47		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	5	220	900	4.09				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CEILING FAN	12	230	2,160			9.39		30		3			2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	SPARE														
	13	SPARE														
			SUBTOTAL		19,080	30.51	23.47	28.94			15	8				

COMPUTATION:

$I_L = \frac{19,080w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 47.89 \times 1.25$

$= 59.87\ AMPS$

THEREFORE USE 100 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 -14.0 mm² THHN COPPER WIRE ON 25mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 8(PB8)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB8 DP1	1	LIGHTING OUTLET	14	230	2,520	10.96				20	6	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	12	230	2,160		9.39			20	3	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	14	230	2,520			10.96		20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	14	230	2,520	10.96				20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	14	230	2,520		10.96			20	1		1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	11	230	1,980			8.61		30	2	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	10	230	1,800	7.83				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	8	230	1,440		6.26			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	ACU- 3TOR	1	230	10,563	15.34	15.34	15.34		60					3 - 8.0 mm² THHN COPPER WIRE	32 MM
	11	ACU- 3TOR	1	230	10,563	15.34	15.34	15.34		60					3 - 8.0 mm² THHN COPPER WIRE	32 MM
	12	SPARE														
			SUBTOTAL		39,846	60.43	57.29	55.73			12	5	3			

COMPUTATION:

$I_L = \frac{39,846w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$= 100.02 \times 1.25$

$= 125.03\ AMPS$

THEREFORE USE 150 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 38 mm² THHN COPPER WIRE ON 40mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 1(PB2)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB1 DP2	1	LIGHTING OUTLET	14	230	2,520	11.48				20	2	3			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	8	230	1,440		6.26			20	1		1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	12	230	2,160			9.82		20	6				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	14	230	2,520	11.48				20	1		2		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	15	230	2,700		12.27			20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	8	230	1,080			4.91		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	6	230	1,080	4.91				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	9	230	1,620		7.36			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8A	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	ACU- 1HP	1	230	1,840	8.0				30					2 - 5.5 mm² THHN COPPER WIRE	20 MM
	10	LIGHTING OUTLET	1	230	180		0.78			30	1				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	11	LIGHTING OUTLET	1	230	180			0.78		30	1				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	12	LIGHTING OUTLET	1	230	180		0.78			30	1				2 - 3.5 mm² THHN COPPER WIRE	20 MM
	13	LIGHTING OUTLET	2	230	360			1.57		30	1				2 - 3.5 mm² THHN COPPER WIRE	20 MM
	14	ACU - 3 HP	1	230	5,940	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
			SUBTOTAL		15,120	27.91	26.16	14.75			14	4	4			

COMPUTATION:

$I_L = \frac{15,120w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V_L)(I_L)$

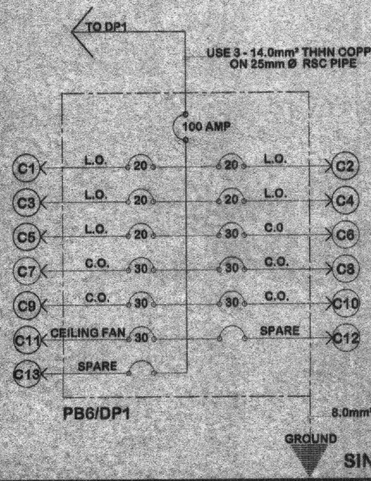
$I_L = \frac{P}{(\sqrt{3})(V_L)}$

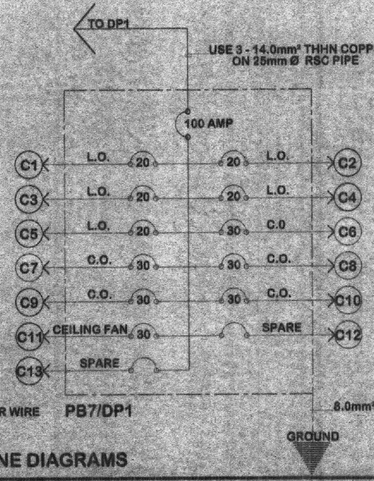
$= 37.95 \times 1.25$

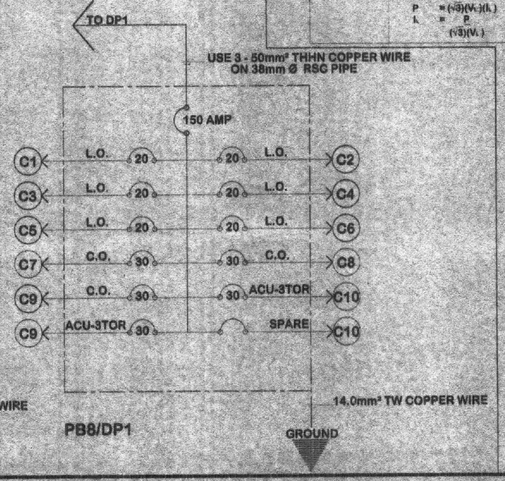
$= 47.44\ AMPS$

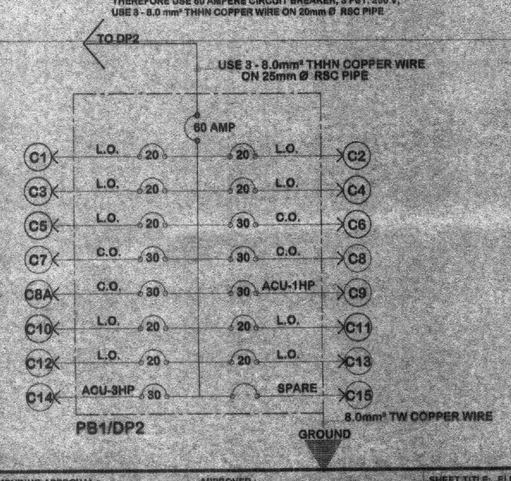
THEREFORE USE 60 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 8.0 mm² THHN COPPER WIRE ON 20mm Ø RSC PIPE

SINGLE LINE DIAGRAMS









SINGLE LINE DIAGRAMS

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TIN NO. : 181 677 887 DATE ISSUED: 1/8/16

PROJECT : **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

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SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
- SCHEDULE OF LOADS AND DESIGN COMPUTAION
- SINGLE LINE DIAGRAMS

SHEET NO.
E2.1
E2.2

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SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 2(PB2)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB2 DP2	1	LIGHTING OUTLET	11	230	1,980	8.61				20	4	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	9	230	1,620		7.04			20	5				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	10	230	1,800	7.83				20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	14	230	2,520		10.96			20	1		2		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	14	230	2,520			10.96		20	1	5			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	5	230	900	3.91				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	4	230	720			3.13		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	14	ACU - 3 HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	15	SPARE		230												
	16	SPARE		230												
			SUBTOTAL		29,370	42.05	44.40	41.26			18	5	3			

COMPUTATION:

$I = \frac{29,370w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V.)(I.)$

$I = \frac{P}{(\sqrt{3})(V.)}$

$= 73.73 \times 1.25$

$= 92.16\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 3(PB3)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB3 DP2	1	LIGHTING OUTLET	13	230	2,340	10.17				20	6	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	10	230	1,800		7.83			20	1	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	10	230	1,800	7.83				20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	6	230	1,080		4.70			20		1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	6	230	1,080			4.70		20		1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	LIGHTING OUTLET	5	230	900	3.91				20		1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	8	LIGHTING OUTLET	5	230	900		3.91			20					2 - 2.0 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	6	230	1,080			4.70		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	5	230	900	3.91				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	CONVENIENCE OUTLET	6	230	1,080			4.70		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	13	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	14	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	15	CONVENIENCE OUTLET	5	230	900			3.91		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	16	ACU - 3 HP	1	230	2,235	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	17	ACU - 1.5 HP	1	230	1,119		10.00			30					2 - 5.5 mm² THHN COPPER WIRE	20 MM
	18	ACU - 1.5 HP	1	230	1,119			10.00		30					2 - 5.5 mm² THHN COPPER WIRE	20 MM
	19	ACU - 1.5 HP	1	230	1,119	10.00				30					2 - 5.5 mm² THHN COPPER WIRE	20 MM
	20	ACU - 1.5 HP	1	230	1,119		10.00			30					2 - 5.5 mm² THHN COPPER WIRE	20 MM
	21	SPARE		230												
	22	SPARE		230												
			SUBTOTAL		32,550	67.52	45.84	38.18			14	8	1			

COMPUTATION:

$I = \frac{32,550w}{(\sqrt{3})(230\ V)}$

$P = (\sqrt{3})(V.)(I.)$

$I = \frac{P}{(\sqrt{3})(V.)}$

$= 81.708 \times 1.25$

$= 102.14\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 4(PB4)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB4 DP2	1	LIGHTING OUTLET	10	230	1,800	7.83				20	4	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	9	230	1,620		7.04			20	3	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	10	230	1,800	7.83				20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	13	230	2,340		10.17			20			2		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	10	230	1,800			7.83		20		1	1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	5	230	900		3.91			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	7	230	1,260	5.48				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	CONVENIENCE OUTLET	6	230	1,080		4.70			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	14	ACU - 3 HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	15	SPARE		230												
	16	SPARE		230												
			SUBTOTAL		29,010	42.54	42.82	41.01			18	5	3			

COMPUTATION:

$I = \frac{24,917w}{(\sqrt{3})(230\ V)}$

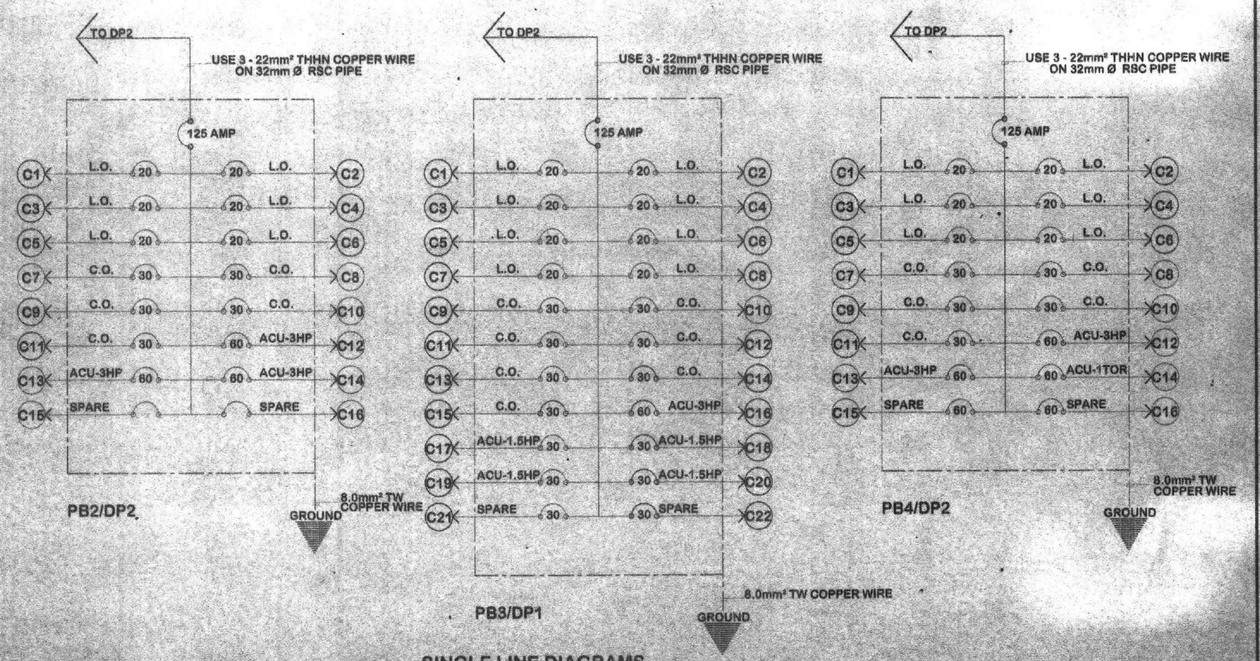
$P = (\sqrt{3})(V.)(I.)$

$I = \frac{P}{(\sqrt{3})(V.)}$

$= 65.39 \times 1.25$

$= 81.73\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST, 230 V,
USE 3 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE



SINGLE LINE DIAGRAMS

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PREPARED BY:
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PRC REG. NO. : 3 037 PTR NO. 3040779
TIN NO. : 181 677 687 DATE ISSUED 1/8/16

PROJECT: **PROPOSED STUDENT CENTER & EDUCATION COMPLEX**

LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
-SCHEDULE OF LOADS AND DESIGN COMPUTATION
-SINGLE LINE DIAGRAMS

SHEET NO. E22 E25

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 5(PB5)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB5 DP2	1	LIGHTING OUTLET	10	230	1,800	7.83				20	4	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	9	230	1,620		7.04			20	3	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	8	230	1,440	6.26				20			1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	10	230	1,800		7.83			20	1		1		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	LIGHTING OUTLET	14	230	2,520			10.96		20			2		2 - 2.0 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	6	230	1,080	4.70				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	5	230	900		3.91			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	CONVENIENCE OUTLET	7	230	1,260	5.48				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	11	ACU - 3 HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	14	SPARE		230												
	15	SPARE		230												
	16	SPARE		230												
			SUBTOTAL		27,750	41.27	35.78	43.61			15	2	4			

COMPUTATION:

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$I_L = \frac{27,750w}{(\sqrt{3})(230\ V)}$

$= 69.66 \times 1.25$

$= 87.06\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 6(PB6)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB6 DP2	1	LIGHTING OUTLET	10	230	1,800	7.83				20	4	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	9	230	1,620		7.04			20	3	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	14	230	2,520	10.96				20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	14	230	2,520		10.96			20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	6	230	1,080			4.70		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	5	230	900	3.91				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	ACU - 2.5HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	11	ACU - 2.5HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	14	SPARE		230												
	15	SPARE		230												
	16	SPARE		230												
			SUBTOTAL		30,940	56.70	40.48	37.35			14	6				

COMPUTATION:

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

$I_L = \frac{30,940w}{(\sqrt{3})(230\ V)}$

$= 77.67 \times 1.25$

$= 97.09\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 7(PB7)

	CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
PB7 DP2	1	LIGHTING OUTLET	8	230	1,440	6.26				20	3	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	2	LIGHTING OUTLET	9	230	1,620		7.04			20	3	1			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 2.0 mm² THHN COPPER WIRE	20 MM
	4	LIGHTING OUTLET	14	230	2,520	10.96				20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	5	LIGHTING OUTLET	14	230	2,520		10.96			20		2			2 - 2.0 mm² THHN COPPER WIRE	20 MM
	6	CONVENIENCE OUTLET	6	230	1,080			4.70		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	7	CONVENIENCE OUTLET	5	230	900	3.91				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	8	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
	10	ACU - 2.5HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	11	ACU - 2.5HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
	14	SPARE		230												
	15	SPARE		230												
	16	SPARE		230												
			SUBTOTAL		30,580	55.13	40.48	37.35			14	6				

COMPUTATION:

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

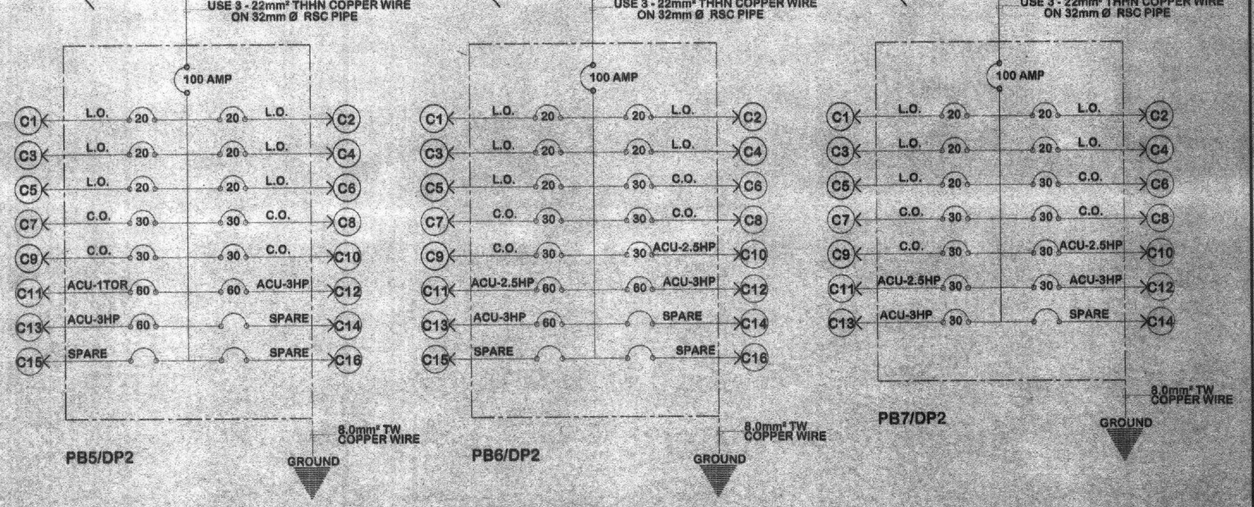
$I_L = \frac{22,786w}{(\sqrt{3})(230\ V)}$

$= 60.74 \times 1.25$

$= 60.00\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 2 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE

SINGLE LINE DIAGRAMS



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TIN NO. : 101 677 687 DATE ISSUED: 1/8/10

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MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS :
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-SINGLE LINE DIAGRAMS

SHEET NO.
E23
E25

129
198

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR PANEL BOARD 8(PB8)

PB8 / DP2

CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
1	LIGHTING OUTLET	8	230	1,440	6.26				20	2	1			2 - 3.5 mm² THHN COPPER WIRE	20 MM
2	LIGHTING OUTLET	12	230	2,160		9.39			20	3	1			2 - 3.5 mm² THHN COPPER WIRE	20 MM
3	LIGHTING OUTLET	13	230	2,340			10.17		20	7				2 - 3.5 mm² THHN COPPER WIRE	20 MM
4	LIGHTING OUTLET	14	230	2,520	10.95				20		2			2 - 3.5 mm² THHN COPPER WIRE	20 MM
5	LIGHTING OUTLET	14	230	2,520		10.95			20		2			2 - 3.5 mm² THHN COPPER WIRE	20 MM
6	CONVENIENCE OUTLET	6	230	1,080			4.70		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
7	CONVENIENCE OUTLET	9	230	1,620	7.04				30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
8	CONVENIENCE OUTLET	7	230	1,260		5.48			30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
9	CONVENIENCE OUTLET	7	230	1,260			5.48		30					2 - 3.5 mm² THHN COPPER WIRE	20 MM
10	ACU - 2.5HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
11	ACU - 2.5HP	1	230	3,910		17.00			60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
12	ACU - 3 HP	1	230	3,910			17.00		60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
13	ACU - 3 HP	1	230	3,910	17.00				60					2 - 8.0 mm² THHN COPPER WIRE	25 MM
14	SPARE		230												
15	SPARE		230												
16	SPARE		230												
	SUBTOTAL			31,840	58.26	42.88	37.75			13	6				

COMPUTATION: $I_L = \frac{31,840w}{(\sqrt{3})(230\ V)}$

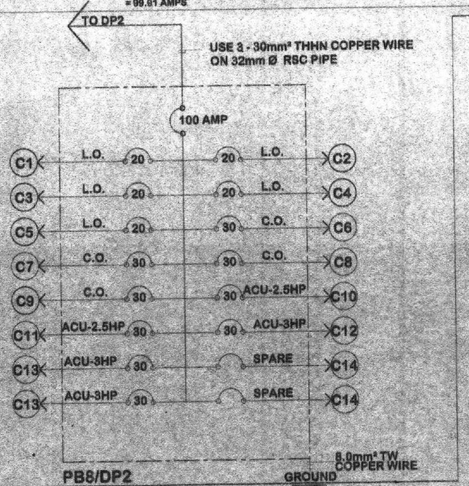
$P = (\sqrt{3})(V_L)(I_L)$

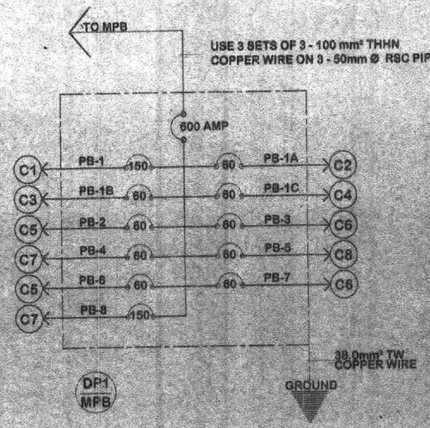
$I_L = \frac{P}{(\sqrt{3})(V_L)}$

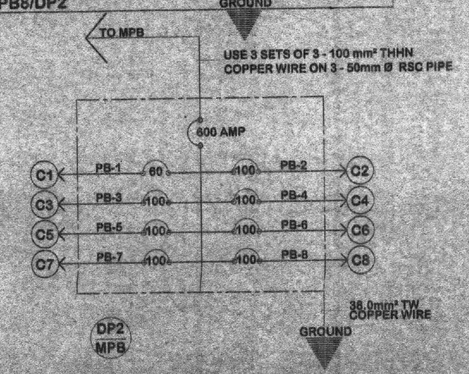
$= 79.93 \times 1.25$

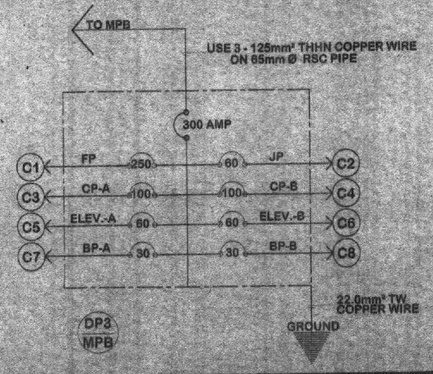
$= 99.91\ AMPS$

THEREFORE USE 125 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 2 - 22 mm² THHN COPPER WIRE ON 32mm Ø RSC PIPE









SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR DISTRIBUTION PANEL 1(DP1)

DP1 / MPB

DP NO.	DESCRIPTION	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SIZE OF WIRE	SIZE OF CONDUIT
PB-1	PANEL BOARD 1 - GROUND FLOOR	40,840	66.14	54.57	66.96		150	2 - 50mm² THHN COPPER WIRE	38 mm
PB-1A	PANEL BOARD 1A - COMMERCIAL A	6,790	29.52				60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-1B	PANEL BOARD 1B - COMMERCIAL B	6,790		29.52			60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-1C	PANEL BOARD 1C - COMMERCIAL C	6,790			29.52		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-2	PANEL BOARD 2 - SECOND FLOOR	18,720	31.31	26.81	32.67		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-3	PANEL BOARD 3 - THIRD FLOOR	15,920	30.51	23.47	28.94		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-4	PANEL BOARD 4 - FOURTH FLOOR	15,920	30.51	23.47	28.94		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-5	PANEL BOARD 5 - FIFTH FLOOR	15,920	30.51	23.47	28.94		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-6	PANEL BOARD 6 - SIXTH FLOOR	15,920	30.51	23.47	28.94		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-7	PANEL BOARD 7 - SEVENTH FLOOR	15,200	29.73	24.26	28.94		60	2 - 8.0mm² THHN COPPER WIRE	25 mm
PB-8	PANEL BOARD 8 - EIGHTH FLOOR	39,846	60.43	57.27	55.73		150	3 - 50mm² THHN COPPER WIRE	38 mm
		187,460	352.72	312.74	329.68				

FOR CONDUCTOR:
$I_L = \frac{187,740w}{(\sqrt{3})(230\ V)} \times 0.25\ (26.56)$
$= 470.57 \times 6.64$
$= 477.21\ AMPS$

FOR PROTECTION:
$I_L = \frac{187,740w}{(\sqrt{3})(230\ V)} \times 2.5\ (26.56)$
$= 470.57 \times 2.5(26.56)$
$= 536.9\ AMPS$

THEREFORE USE 600 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 SETS OF 3 - 100 mm² THHN COPPER WIRE ON 3 - 50mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR DISTRIBUTION PANEL 2(DP2)

DP2 / MPB

DP NO.	DESCRIPTION	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SIZE OF WIRE	SIZE OF CONDUIT
PB-1	PANEL BOARD 1 - GROUND FLOOR	16,960	27.81	26.18	14.73		60	2 - 8.0 mm² THHN COPPER WIRE	25 mm
PB-2	PANEL BOARD 2 - SECOND FLOOR	29,370	42.05	44.40	41.26		100	2 - 30mm² THHN COPPER WIRE	32 mm
PB-3	PANEL BOARD 3 - THIRD FLOOR	32,550	57.52	45.84	38.18		100	2 - 30mm² THHN COPPER WIRE	32 mm
PB-4	PANEL BOARD 4 - FOURTH FLOOR	29,010	42.84	42.82	41.01		100	3 - 30mm² THHN COPPER WIRE	32 mm
PB-5	PANEL BOARD 5 - FIFTH FLOOR	27,750	41.27	35.75	43.61		100	3 - 30mm² THHN COPPER WIRE	32 mm
PB-6	PANEL BOARD 6 - SIXTH FLOOR	30,940	56.70	40.45	37.35		100	2 - 30mm² THHN COPPER WIRE	32 mm
PB-7	PANEL BOARD 7 - SEVENTH FLOOR	30,980	55.13	40.48	37.95		100	2 - 30mm² THHN COPPER WIRE	32 mm
PB-8	PANEL BOARD 8 - EIGHTH FLOOR	31,840	58.26	42.88	37.35		100	2 - 30mm² THHN COPPER WIRE	32 mm
		229,000	391.38	318.79	290.84				

FOR CONDUCTOR:
$I_L = \frac{229,000w}{(\sqrt{3})(230\ V)} \times 0.25\ (17.0)$
$= 574.84 \times 0.25(17.0)$
$= 579.09\ AMPS$

FOR PROTECTION:
$I_L = \frac{235,050w}{(\sqrt{3})(230\ V)} \times 2.50\ (17.0)$
$= 585.04 \times 2.50(17.0)$
$= 607.50\ AMPS$

THEREFORE USE 600 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 SETS OF 3 - 100 mm² THHN COPPER WIRE ON 3 - 50mm Ø RSC PIPE

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR DISTRIBUTION PANEL 3(DP3- PUMP ROOM)

DP3 / MPB

CKT. NO.	DESCRIPTION	NO. OF OUTLETS	VOLTS	WATTS	AMPERES A	AMPERES B	AMPERES C	3Ø	PROTECTION PER CIRCUIT	SWITCHES S1	SWITCHES S2	SWITCHES S3	SWITCHES S3W	SIZE OF WIRE	SIZE OF CONDUIT
1	FIRE PUMP-40HP	1	230	23,920			104.0		250					3 - 38 mm² THHN COPPER WIRE	32 MM
2	JOCKEY PUMP-5HP	1	230	3,496			15.2		60					3 - 5.0 mm² THHN COPPER WIRE	25 MM
3	CENTRIFUGAL PUMP A-10HP	1	230	6,440			28.00		100					3 - 14 mm² THHN COPPER WIRE	32 MM
4	CENTRIFUGAL PUMP B-10HP	1	230	6,440			28.00		100					3 - 14 mm² THHN COPPER WIRE	32 MM
5	ELEVATOR A- 60AMP	1	230	13,800			60.00		60					3 - 8.0 mm² THHN COPPER WIRE	25 MM
6	ELEVATOR B- 60AMP	1	230	13,800			60.00		60					3 - 8.0 mm² THHN COPPER WIRE	25 MM
7	BOOSTER PUMP A- 1HP	1	230	966			4.20		30					3 - 5.5 mm² THHN COPPER WIRE	20 MM
8	BOOSTER PUMP B- 1HP	1	230	966			4.20		30					3 - 5.5 mm² THHN COPPER WIRE	20 MM
	SUBTOTAL			69,828			303.60								

COMPUTATION: DP3/MPB

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

FOR CONDUCTOR:
$I_L = \frac{99,820w}{(\sqrt{3})(230\ V)}$
$= 208.75\ AMPS \times 1.25$
$= 260.44\ AMPS$

FOR PROTECTION:
$I_L = \frac{58,020w}{(\sqrt{3})(230\ V)} \times 2.50\ (50.0)$
$= 574.84 \times 150$
$= 290.55\ AMPS$

THEREFORE USE 300 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 - 125 mm² THHN COPPER WIRE ON 65mm Ø RSC PIPE

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MINDANAO UNIVERSITY OF SCIENCE & TECHNOLOGY
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PREPARED BY:
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PROF. ELECTRICAL ENGINEER
PRC REG.NO. : 3-037 PTR NO. : 3046279
TIN NO. : 121 677 687 DATE ISSUED: 1/11/19

PROJECT: PROPOSED STUDENT CENTER & EDUCATION COMPLEX
LOCATION: C.M. RECTO AVENUE LAPASAN, CAGAYAN DE ORO CITY
OWNER : MINDANAO UNIVERSITY OF SCIENCE AND TECHNOLOGY

RECOMMENDING APPROVAL:
ATTY. JONATHAN S. OCHE
DIRECTOR, ADMINISTRATION

APPROVED:
DR. RICARDO E. ROTORAS
MUST PRESIDENT

SHEET TITLE: ELECTRICAL
SHEET CONTENTS:
SCHEDULE OF LOADS AND DESIGN COMPUTAION SINGLE LINE DIAGRAMS

SHEET NO.
E24
E25

136
198

SCHEDULE OF LOADS AND DESIGN COMPUTATION FOR MAIN PANEL BOARD (MPB)

MPB	DP NO.		WATTS	AMPERES A	B	C	3Ø	PROTECTION PER CIRCUIT	SIZE OF WIRE	SIZE OF CONDUIT
	DP1		187,460	358.72	312.74	329.68	96.02	600	3 SETS OF 3 - 100 mm² THHN COPPER WIRE	3-50 mm
	DP2		229,500	381.38	318.79	290.84		600	3 SETS OF 3 - 100 mm² THHN COPPER WIRE	3-50 mm
	DP3		69,828				303.60	250	3 - 125 mm² THHN COPPER WIRE	65 mm
		SUBTOTAL	486,288	740.10	631.53	620.52	399.62			

COMPUTATION: FOR MAIN FEEDER

$P = (\sqrt{3})(V_L)(I_L)$

$I_L = \frac{P}{(\sqrt{3})(V_L)}$

FOR CONDUCTOR:

$I_L = \frac{486,288w}{(\sqrt{3})(230\ V)}$

= 1,220.69 x 1.25 + 0.25 (104.0)

=1,246.72 AMPS

FOR PROTECTION:

I_L = 1,220.69 x 2.50 (104.0)

=1,480.69 AMPS

THEREFORE USE 1,500 AMPERE CIRCUIT BREAKER, 3 PST. 230 V,
USE 3 SETS OF 3- 325mm² THHN COPPPER WIRE ON 3-90mm Ø RSC PIPE

COMPUTATION FOR TRANSFORMER AND GENSET

COMPUTATION FOR TRANSFORMER:

$S_{(KVA)} = \frac{(\sqrt{3})(I_L)(V_{L-L(V)})}{1,000}$ $S_{(KVA)}$ = 496.64 KVA

$S_{(KVA)} = \frac{(\sqrt{3})(1,246.72)(230)}{1,000}$ $S_{(KVA)}$ = 500 KVA

THEREFORE
USE 3-200 KVA TRANSFORMER

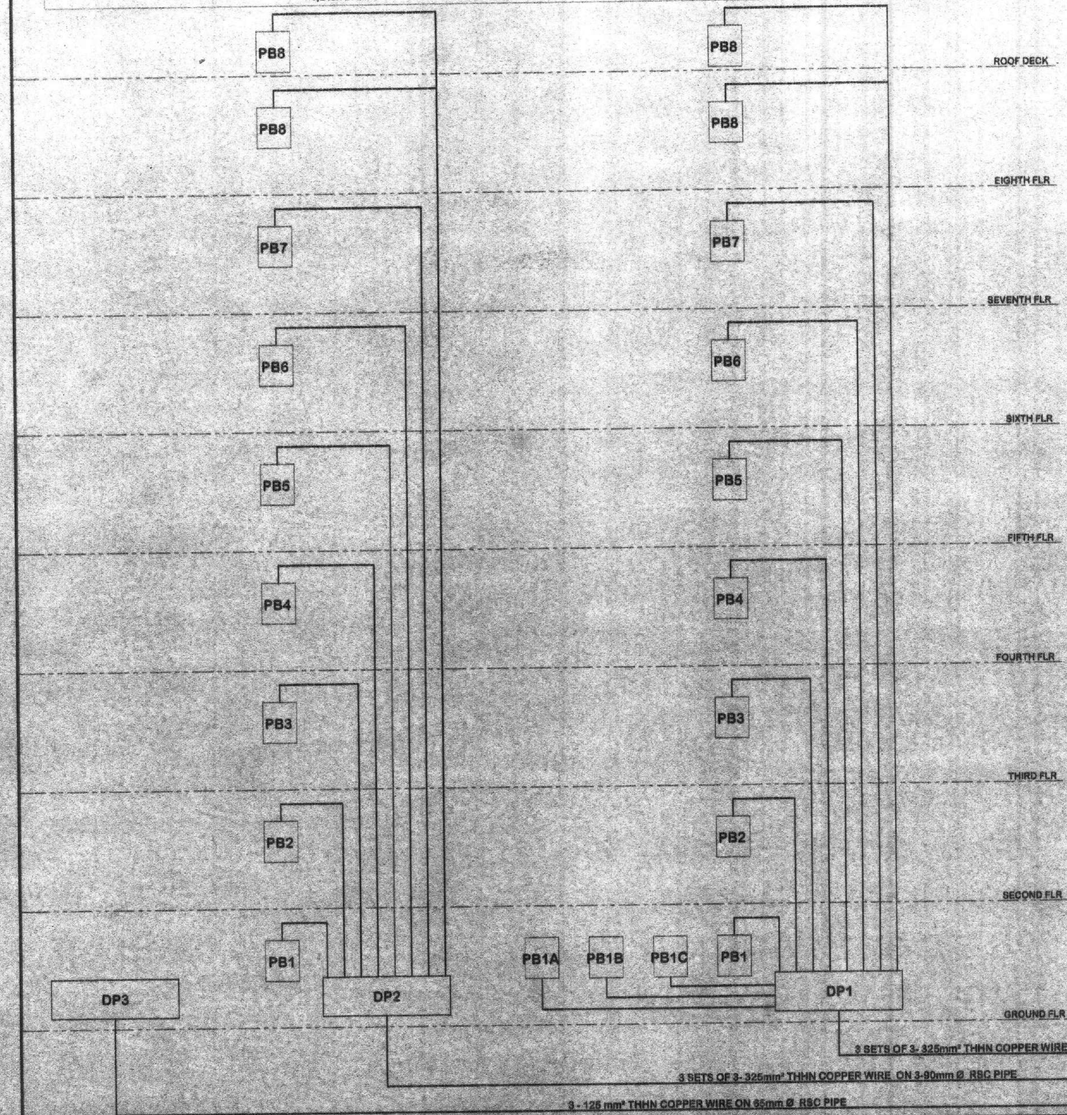
COMPUTATION FOR GENSET:

$T_{(KVA)} = \frac{(\sqrt{3})(I_L)(V_{L-L(V)})}{1000}$ $T_{(KVA)}$ = 496.64 KVA

$T_{(KVA)} = \frac{(\sqrt{3})(1,246.72)(230)}{1000}$ $T_{(KVA)}$ = 500 KVA

THEREFORE
USE 2 - 250 KVA GENSET

KVA: 2 - 250
ENGINE TYPE: PERKINS 1306A-E87TAG6
VOLTS: 400/230 V
R.P.M.: 1500
CYCLES HZ: 50 Hz
FUEL CONSUMPTION: 53.3 LITER PER HOUR



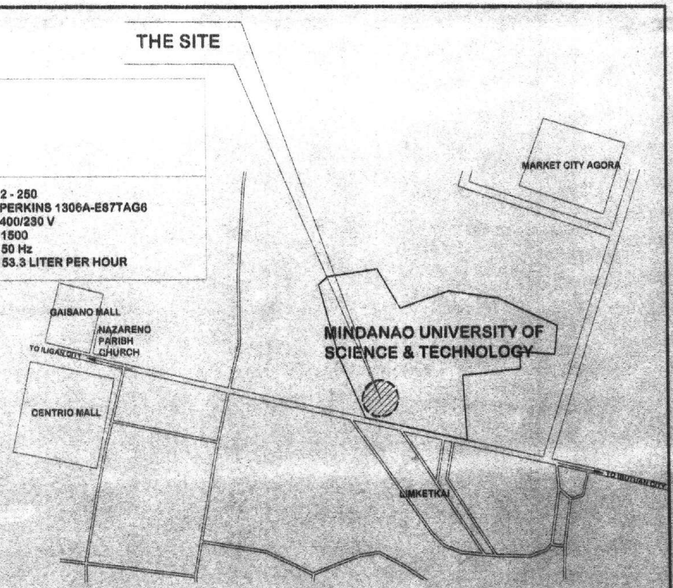
ELECTRICAL SPECIFICATIONS:

1. ALL INSTALLIONS SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE AND PERTINENT REQUIREMENT OF THE LOCAL POWER AUTHORITY.
2. ALL WIRE INSTALLIONS SHALL BE DONE IN RIGID PVC CONDUIT.
3. ALL NONE-CURRENT CARRYING PARTS OF ELECTRICAL APPLIANCES DEVICES SHALL BE PROVIDED WITH PERMANENT PLUGS.
4. ALL ELECTRICAL MATERIALS AND FIXTURES SHALL BE FREE FROM DEFECTS.
5. NECESSARY BOXES,FITTINGS,ETC. SHALL BE PROVIDED AS REQUIRED ,EVEN IF NOT SHOWN IN THE DRAWINGS.
6. ALL ELECTRICAL INSTALLATIONS SHALL BE DONE BY EXPERIENCE ELECTRICIAN WITH THE DIRECT SUPERVISION OF A DULY LICENSED ELECTRICAL ENGINEER.

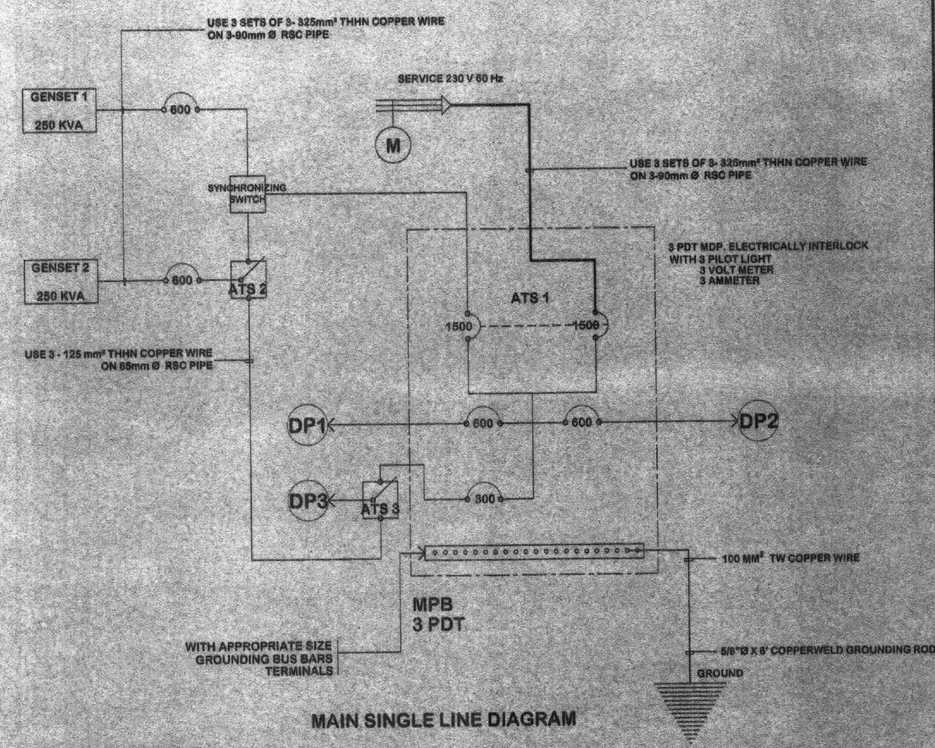
LEGENDS:

- LIGHTING OUTLET
- GARDEN LAMP
- CEILING FAN
- TWO-GANG CONVENIENCE OUTLET
- MAIN PANEL BOARD (MPB)
- DISTRIBUTION PANEL (DP)
- PANEL BOARD (PB)
- CIRCUIT BREAKER
- ELECTRIC METER
- SERVICE ENTRANCE
- GROUND LINE
- S_1 SINGLE GANG SWITCH
- S_2 TWO - GANG SWITCH
- S_3 THREE - GANG SWITCH
- S_{3W} THREE - WAY SWITCH
- CIRCUIT HOME RUN
- RISER
- AIR CONDITIONING UNIT
- EMERGENCY LAMP
- CP CENTRIFUGAL PUMP
- FP FIRE PUMP
- JP JOCKEY PUMP
- BP BOOSTER PUMP
- ATS AUTOMATIC TRANSFER SWITCH

THE SITE



VICINITY MAP



MAIN SINGLE LINE DIAGRAM

REPUBLIC OF THE PHILIPPINES
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PRC REG. NO. : 8 037 PTR NO. : 3062279 7/8/16
TIN NO. : 181 677 887 DATE ISSUED:

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- MAIN SINGLE LINE DIAGRAMS
- LEGENDS
- SPECIFICATIONS
- RISER DIAGRAM
- VICINITY MAP

SHEET NO. E25 E25

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