

LEGEND AND SYMBOLS:

GENERAL NOTES

2x28W LED FLUORESCENT, FULLY RECESSED, 300x1200mm MODULAR LUMINAIRE WITH ALUMINUM LOUVERS

22W LED LAMP, ROUND SURFACE MOUNT DOWNLIGHT LUMINAIRE

40W LED LAMP, ROUND SURFACE MOUNT DOWNLIGHT LUMINAIRE

CHANDELIER, PENDANT MOUNTED (LOW CEILING)

CHANDELIER, PENDANT MOUNTED (HIGH CEILING)

DUPLEX CONVENIENCE OUTLET, 15A, 230V, W/ GROUNDING, FLUSH MOUNT

2x20W HALOGEN LAMP EMERGENCY LIGHT

ONE GANG SWITCH, 10A, 230V, FLUSH MOUNT

TWO GANG SWITCH, 10A, 230V, FLUSH MOUNT

GROUND ROD

GROUND PIT WITH GROUND ROD FOR GROUNDING TEST

ENCLOSED CIRCUIT BREAKER (FOR ACCU)

PANELBOARD

REPUBLIC OF THE PHILIPPINES
Office of the Building Official
LANAO DEL NORTE
RECOMMENDING ISSUANCE
ELECTRICAL HEAD SECTION
DATE
ISSUED BY
BUILDING OFFICIAL
DATE

- ALL ELECTRICAL INSTALLATION WORKS HEREIN SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE FIRE CODE OF THE PHILIPPINES, AND THE RULES AND REGULATIONS OF THE ENFORCING LOCAL GOVERNMENT AND UNDER THE IMMEDIATE SUPERVISION OF A DULY LICENSED ELECTRICAL ENGINEER.
- THE ELECTRICAL SERVICE VOLTAGE SHALL BE THREE-PHASE, 230 VOLTS, 60HZ.
- THE ELECTRICAL WIRING INSTALLATION SHALL BE DONE IN RIGID METAL CONDUITS AND POLYVINYL CHLORIDE(PVC) CONDUITS. FLEXIBLE METALLIC CONDUITS SHALL BE USED WHERE REQUIRED. ALL INSTALLATIONS SHALL BE CONCEALED FROM VIEW. CUT ENDS OF THE CONDUITS SHALL BE REAMED AND SMOOTHED AND WHEN NECESSARY SHALL BE FITTED WITH INSULATED BUSHINGS TO PREVENT CUTTING, INJURING, OR SCRAPING OFF INSULATION OF CONDUCTORS INSTALLED IN THESE DEVICES. SPLICING OF CONDUCTORS INSIDE CONDUITS AND RACEWAYS SHALL NOT BE PERMITTED.
- WHENEVER NECESSARY PULL BOXES SHALL BE PROVIDED EVEN IF NOT INDICATED IN PLANS.
- ALL SERVICE EQUIPMENT, SWITCHES, PANELBOARDS, LIGHTING FIXTURES AND ALL NON-CURRENT METAL PARTS SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE. PANELBOARD SHALL BE MARKED AS PER PLAN AND THE CORRECT LOAD REGISTER SHALL BE POSTED THEREIN.
- ANY DISCREPANCY IN RATING OF EQUIPMENT AND APPARATUS SHALL BE VERIFIED WITH THE OWNER OR ANY REPRESENTATIVES, AND CHANGES SHALL BE MADE ACCORDINGLY.
- ALL WIRES SHALL BE COPPER AND THERMOPLASTIC INSULATED TYPE "THW" UNLESS OTHERWISE INDICATED. WIRES SHALL BE COLOR CODED. RECOMMENDED COLORS FOR POWER ARE BLACK, BLUE, OR RED, AND FOR GROUND WIRE IS GREEN OR WHITE.
- ALL MATERIALS TO BE USED AND THE EQUIPMENT TO BE INSTALLED SHALL BE BRAND NEW AND MUST BE OF THE APPROVED TYPE FOR THE PARTICULAR LOCATION AND PURPOSE INDICATED.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE HIS WORKS WITH OTHER TRADERS TO AVOID CONFLICT WITH STRUCTURAL, CIVIL, & ARCHITECTURAL ELEMENTS OF THE PROJECT
- ALL FEEDERS AND BRANCH CIRCUITS SHALL BE INSTALLED AS INDICATED ON THE PLANS. BRANCH CIRCUIT HOMERUN WIRES SHALL BE INSTALLED IN INDIVIDUAL HOMERUN CONDUITS.

FOR REVIEW
[Signature]

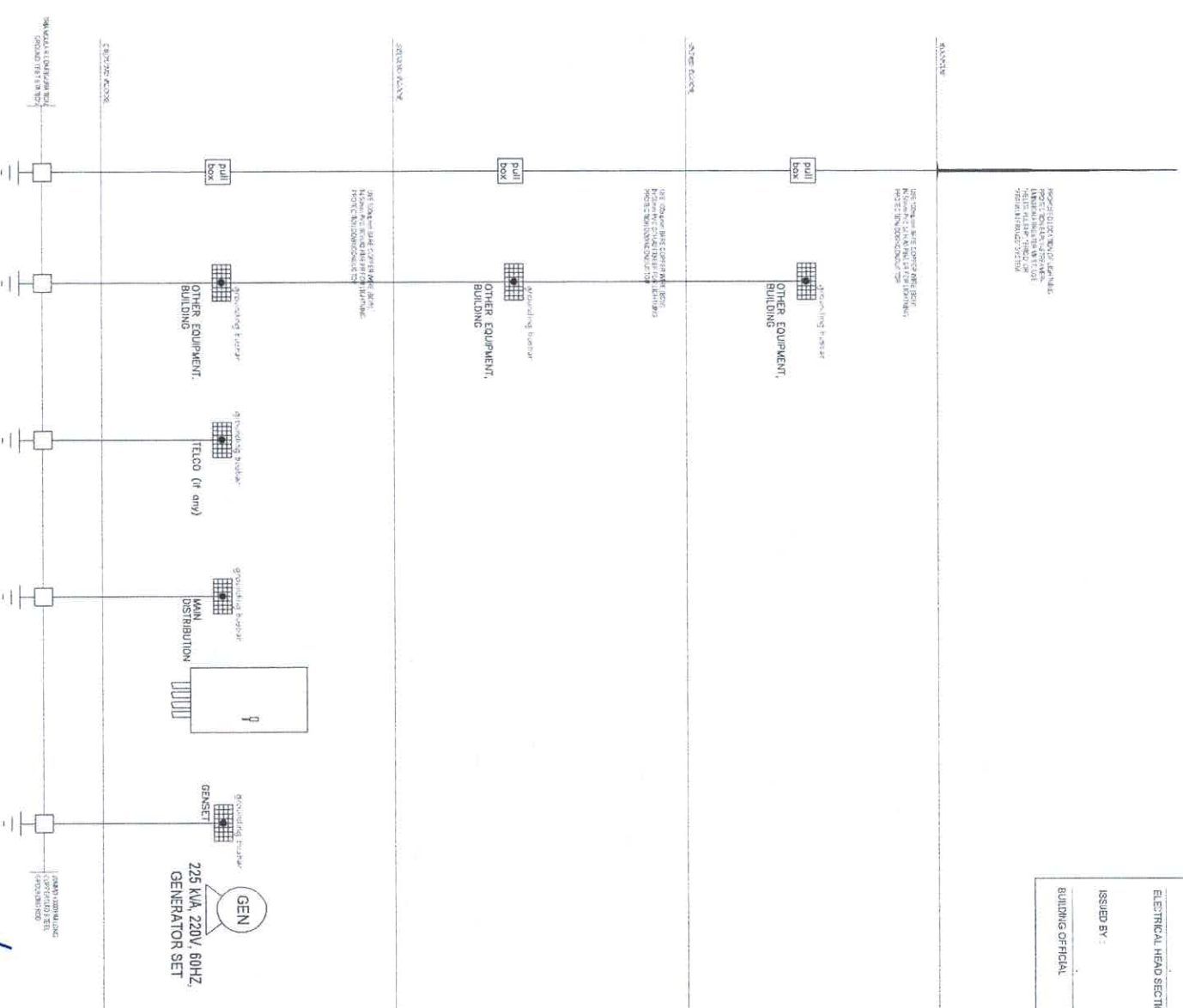
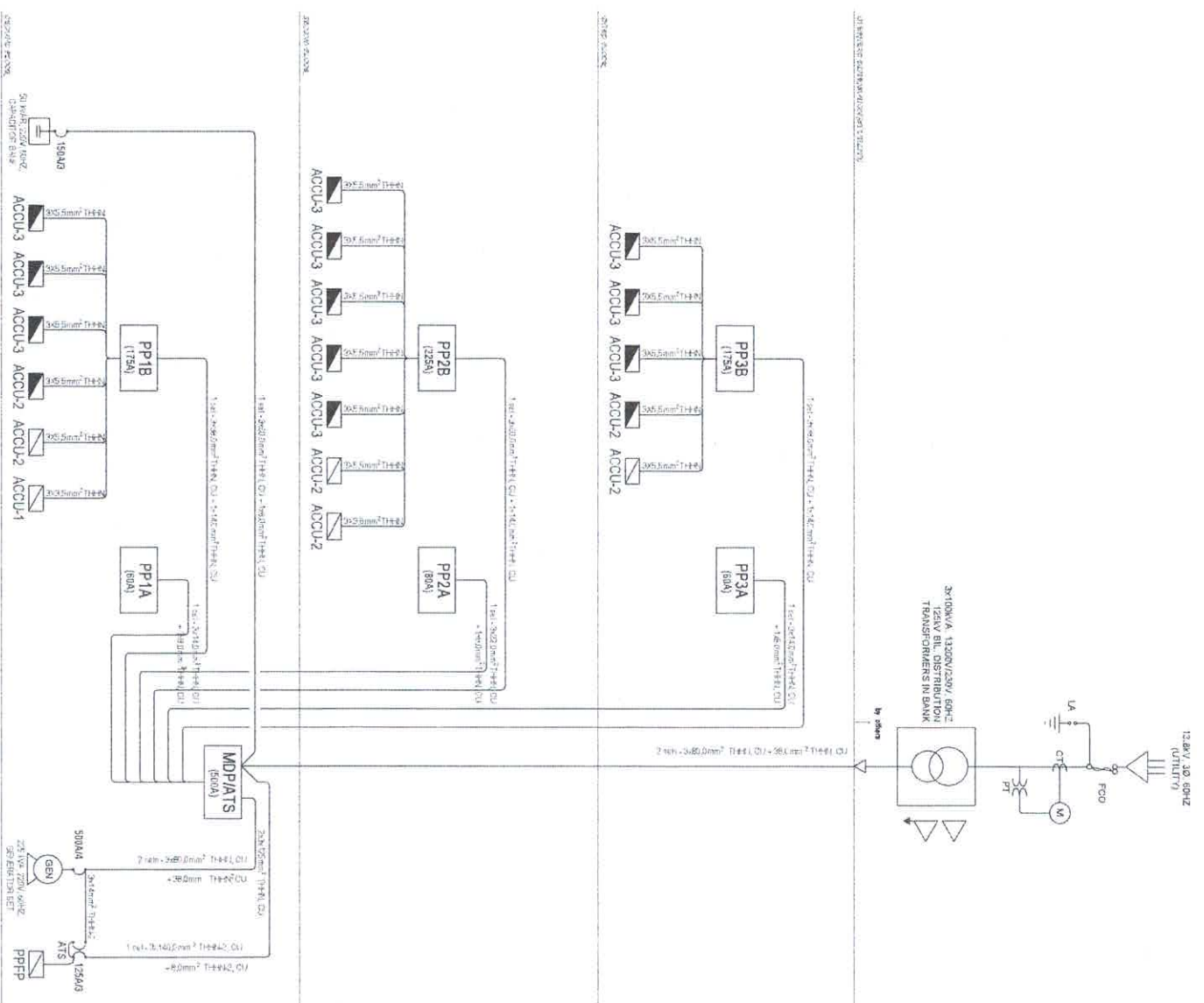
FROM THE OFFICE OF:	ANGEL S. COLLERA PROFESSIONAL ELECTRICAL ENGINEER	THIS PROFESSIONAL ELECTRICAL ENGINEER'S SEAL SHOULD BE PLACED ON EACH DRAWING SHEET IN ACCORDANCE WITH THE REQUIREMENTS OF THE PHILIPPINE ELECTRICAL CODE, THE FIRE CODE OF THE PHILIPPINES, AND THE RULES AND REGULATIONS OF THE ENFORCING LOCAL GOVERNMENT AND UNDER THE IMMEDIATE SUPERVISION OF A DULY LICENSED ELECTRICAL ENGINEER.	SEAL	PROJECT TITLE: A PROPOSED 3-STOREY SCIENCE RESEARCH FACILITY	OWNER: PHILIPPINE SCIENCE HIGH SCHOOL-CENTRAL MINDANAO CAMPUS	ADDRESS: NANAKA BALOH LANAO DEL NORTE	SHEET CONTENTS: AS-SHOWN	REVISIONS NO. DESCRIPTION DATE	SHEET NO. E-1 1 14 ELECTRICAL
ELU BUILDERS, Incorporated CONTRACTORS - ENGINEERS - ARCHITECTS	PRC : 1895 PTR : 0175662 TTN : 191723068	VALIDITY: 09-04-2020 DATE: 1-04-2019 PLACE ISSUE: CEBU CITY		LOCATION: NANAKA BALOH LANAO DEL NORTE					

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY:

BUILDING OFFICIAL DATE



POWER RISER DIAGRAM

GROUNDING SYSTEM ONE LINE DIAGRAM

FROM THE OFFICE OF:

ANGEL S. COLLERA

PROFESSIONAL ELECTRICAL ENGINEER

ELJ BUILDERS, Incorporated
CONTRACTORS • ENGINEERS • ARCHITECTS

PRC : 1695
PTR : 0175662
TIN : 191723068

SEAL

PROJECT TITLE:

A PROPOSED 3-STORY SCIENCE
RESEARCH FACILITY

OWNER:

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS:

AS-SHOWN

NO. DESCRIPTION DATE

SHEET NO.

E-2
1 14

ELECTRICAL

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY:

BUILDING OFFICIAL DATE


SCHEDULE OF LOADS

PP1A									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP I _{KAIC}	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	REMARKS
1	28 x 10s + 6 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
2	24 x 10s + 4 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
3	23 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
4	21 x 10s + 2 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
5	23 x 10s	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
6	15 x 10s (perimeter lighting)	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
7	SPARE	2 15A 18	600					3.5mm ² THHN Cu 2.0mm ² TW Cu	SIGNAGE PROVN
8	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
9	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
10	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
11	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
12	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
13	REFRIGERATOR	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
14	7 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
15	7 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
16	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
17	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
18	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
19	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
20	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
CONNECTED LOAD PER PHASE			8,000	8,000	8,400				
TOTAL CONNECTED LOAD			23,600 VA						
DEMAND FACTOR			0.80						
DEMAND LOAD			18,880 VA						
DEMAND AMPERES			49.55 A						
CONDUCTOR SIZE			14.0mm ² THHN Cu						
OVERCURRENT PROTECTION			60 A						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

PP1B									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP I _{KAIC}	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	REMARKS
1	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
2	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
3	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
4	SPARE	3 70A 18	4000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
5	ACCU - 2 (3 TR COOLING)	2 70A 18	5000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
6	SPARE	2 70A 18	2500					5.5mm ² THHN Cu 3.5mm ² TW Cu	
7	ACCU - 2 (3 TR COOLING)	2 70A 18	5000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
8	SPARE	2 70A 18	2500					5.5mm ² THHN Cu 3.5mm ² TW Cu	
9	ACCU - 1 (2 HP COOLING)	2 30A 18	2000					3.5mm ² THHN Cu 2.0mm ² TW Cu	
10	SPARE	2 30A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
CONNECTED LOAD PER PHASE			7,500	7,500	28,000				
TOTAL CONNECTED LOAD			46,200 VA						
DEMAND FACTOR			0.80						
DEMAND LOAD			36,960 VA						
DEMAND AMPERES			96.99 A						
CONDUCTOR SIZE			38.0mm ² THHN Cu						
OVERCURRENT PROTECTION			175 A						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

PP2A									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP I _{KAIC}	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	REMARKS
1	16 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
2	28 x 10s + 5 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
3	18 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
4	18 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
5	35 x 10s + 5 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
6	13 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
7	20 x 10s + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
8	SPARE	2 15A 18	600					3.5mm ² THHN Cu 2.0mm ² TW Cu	
9	11 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
10	9 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
11	9 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
12	10 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
13	10 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
14	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
15	7 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
16	8 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
17	9 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
18	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
19	7 x COs	2 20A 18	1600					5.5mm ² THHN Cu 3.5mm ² TW Cu	
20	SPARE	2 20A 18	800					5.5mm ² THHN Cu 3.5mm ² TW Cu	
CONNECTED LOAD PER PHASE			8,800	8,800	9,800				
TOTAL CONNECTED LOAD			27,400 VA						
DEMAND FACTOR			0.80						
DEMAND LOAD			21,920 VA						
DEMAND AMPERES			57.53 A						
CONDUCTOR SIZE			22.0mm ² THHN Cu						
OVERCURRENT PROTECTION			80 A						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

PP2B									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP I _{KAIC}	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	REMARKS
1	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
2	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
3	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
4	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
5	ACCU - 3 (5 TR COOLING)	3 70A 18	8000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
6	SPARE	3 70A 18	4000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
7	ACCU - 2 (3 HP COOLING)	2 70A 18	5000					5.5mm ² THHN Cu 3.5mm ² TW Cu	
8	SPARE	2 70A 18	2500					5.5mm ² THHN Cu 3.5mm ² TW Cu	
9	SPARE	2 30A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
10	SPARE	2 30A 18	5000					3.5mm ² THHN Cu 2.0mm ² TW Cu	
11	ACCU - 2 (3 TR COOLING)	2 70A 18	2500					3.5mm ² THHN Cu 2.0mm ² TW Cu	
12	SPARE	2 70A 18	1200					3.5mm ² THHN Cu 2.0mm ² TW Cu	
CONNECTED LOAD PER PHASE			7,500	7,500	2,400				
TOTAL CONNECTED LOAD			61,400 VA						
DEMAND FACTOR			0.80						
DEMAND LOAD			49,120 VA						
DEMAND AMPERES			128.91 A						
CONDUCTOR SIZE			60.0mm ² THHN Cu						
OVERCURRENT PROTECTION			200 A						
ENCLOSURE			NEMA 1						
MOUNTING			SURFACE						

FROM THE OFFICE OF:	SEAL	PROJECT TITLE:	OWNER:	SHEET CONTENTS	NO.	REVISIONS	DATE	SHEET NO.
 CONTRACTORS - ENGINEERS - ARCHITECTS		ANGEL S. COLLERA PROFESSIONAL ELECTRICAL ENGINEER	PHILIPPINE SCIENCE HIGH SCHOOL- CENTRAL MINDANAO CAMPUS	AS-SHOWN				E-3 1 14
PRC: 1895 PTR: 0175662 TIN: 191723068		VALIDITY: 09-04-2020 DATE: 1-04-2019 PLACE ISSUE: CEBU CITY	ADDRESS: NANGKA, BALOI, LANAO DEL NORTE					ELECTRICAL

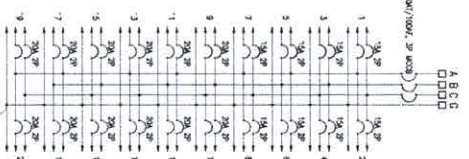
RECOMMENDING ISSUANCE

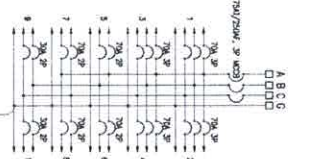
ELECTRICAL HEAD SECTION DATE

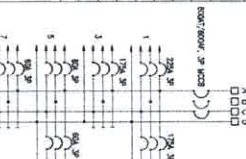
ISSUED BY:

BUILDING OFFICIAL DATE

SCHEDULE OF LOADS

PP3A									
MAINS: 3P, 60A/1, 100AF, 230V, 60Hz, 25KVA/C WIRES: 3x14.0mm ² THHN Cu, 8.0mm ² TW Cu ON 50mmØ PVC									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP KAC	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	GROUND CONDUCTOR
1	35 x LOB + 5 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
2	33 x LOB + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
3	13 x LOB + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
4	13 x LOB + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
5	18 x LOB + 1 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
6	27 x LOB + 4 x EL	2 15A 18	1200					3.5mm ² THHN Cu	2.0mm ² TW Cu
7	SPARE	2 15A 18							
8	SPARE	2 15A 18							
9	8 x COs	2 20A 18	1600					5.5mm ² THHN Cu	3.5mm ² TW Cu
10	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu	3.5mm ² TW Cu
11	8 x COs	2 20A 18	1600					5.5mm ² THHN Cu	3.5mm ² TW Cu
12	6 x COs	2 20A 18	1600					5.5mm ² THHN Cu	3.5mm ² TW Cu
13	SPARE	2 20A 18							
14	SPARE	2 20A 18							
15	SPARE	2 20A 18							
16	SPARE	2 20A 18							
17	SPARE	2 20A 18							
18	SPARE	2 20A 18							
19	SPARE	2 20A 18							
20	SPARE	2 20A 18							
CONNECTED LOAD PER PHASE			5,200		7,200		8,200		
TOTAL CONNECTED LOAD					20,600 VA				
DEMAND FACTOR					0.80				
DEMAND LOAD					16,480 VA				
DEMAND AMPERES					43.25 A				
CONDUCTOR SIZE					14.0mm ² THHN Cu				
OVERCURRENT PROTECTION					60 A				
ENCLOSURE					NEMA 1				
MOUNTING					SURFACE				
									
I = 20,600 x 0.80 I = 1,732 x 220 I = 43.25 A Ampacity (Min) = 43.25 x 1.25 Ampacity = 54.06 A									

PP3B									
MAINS: 3P, 175A/1, 250AF, 230V, 60Hz, 25KVA/C WIRES: 3x38.0mm ² THHN Cu, 14.0mm ² TW Cu ON 50mmØ PVC									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP KAC	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	GROUND CONDUCTOR
1	ACCU - 315 TR COOLING	3 70A 18						5.5mm ² THHN Cu	3.5mm ² TW Cu
2	ACCU - 315 TR COOLING	3 70A 18						5.5mm ² THHN Cu	3.5mm ² TW Cu
3	ACCU - 315 TR COOLING	3 70A 18						5.5mm ² THHN Cu	3.5mm ² TW Cu
4	SPARE	3 70A 18							
5	ACCU - 213 TR COOLING	2 70A 18	5000					5.5mm ² THHN Cu	3.5mm ² TW Cu
6	SPARE	2 70A 18							
7	ACCU - 213 TR COOLING	2 70A 18	2500					5.5mm ² THHN Cu	3.5mm ² TW Cu
8	SPARE	2 70A 18							
9	SPARE	2 30A 18	1200						
10	SPARE	2 30A 18	1200						
CONNECTED LOAD PER PHASE			7,500		7,500		28,000		
TOTAL CONNECTED LOAD					40,500 VA				
DEMAND FACTOR					0.80				
DEMAND LOAD					32,400 VA				
DEMAND AMPERES					85.03 A				
CONDUCTOR SIZE					38.0mm ² THHN Cu				
OVERCURRENT PROTECTION					175 A				
ENCLOSURE					NEMA 1				
MOUNTING					SURFACE				
									
I = 40,500 x 0.80 I = 1,732 x 220 I = 85.03 A Ampacity (Min) = 85.03 x 1.25 Ampacity = 106.24 A									

MAIN DISTRIBUTION PANEL (MDP/ATS)									
MAINS: 3P, 500A/1, 500AF, 230V, 60Hz, 25KVA/C WIRES: 3 sets - 3x80.0mm ² THHN Cu, 38.0mm ² TW Cu ON 100mmØ PVC									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP KAC	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	GROUND CONDUCTOR
1	PP2B	3 225A 25	7,500	7,500	2,400		44,000	60.0mm ² THHN Cu	14.0mm ² TW Cu
2	PP1B	3 175A 25	7,500	3,200	7,500		28,000	38.0mm ² THHN Cu	14.0mm ² TW Cu
3	PP3B	3 175A 25	7,500	2,400	7,500		28,000	38.0mm ² THHN Cu	14.0mm ² TW Cu
4	SPACE								
5	PP2A	3 80A 25	8,800	8,800	9,800			22.0mm ² THHN Cu	8.0mm ² TW Cu
6	PP1A	3 60A 25	7,200	8,000	8,400			14.0mm ² THHN Cu	8.0mm ² TW Cu
7	PP3A	3 60A 25	5,200	7,200	8,200			14.0mm ² THHN Cu	8.0mm ² TW Cu
8	SPACE								
CONNECTED LOAD PER PHASE			43,700	37,100	43,800		100,000		
TOTAL CONNECTED LOAD					224,600 VA				
DEMAND FACTOR					0.80				
DEMAND LOAD					179,680 VA				
DEMAND AMPERES					471.55 A				
CONDUCTOR SIZE (230V)					3 sets - 3 x 80.0mm ² THHN Cu				
OVERCURRENT PROTECTION					600 A				
ENCLOSURE					NEMA 1				
MOUNTING					SURFACE				
									
I = 224,600 x 0.80 I = 1,732 x 220 I = 471.55 A Ampacity (Min) = 471.55 x 1.25 Ampacity = 587.86 A									

PPFP									
MAINS: 3P, 125A/1, 125AF, 230V, 60Hz, 25KVA/C WIRES: 3x14.0mm ² THHN Cu, 8.0mm ² TW Cu ON 50mmØ PVC									
CKT NO.	DESCRIPTION	CIRCUIT BREAKER POLE TRIP KAC	LOAD DISTRIBUTION (VA)	AB	BC	CA	ABCN	CIRCUIT CONDUCTOR	GROUND CONDUCTOR
1	FIRE PUMP - 15.0 HP	3 110A 25					18,650	8.0mm ² THHN Cu	5.5mm ² TW Cu
2	JOCKEY PUMP - 3.0 HP	3 20A 25					3,730	3.5mm ² THHN Cu	3.5mm ² TW Cu
CONNECTED LOAD PER PHASE							22,380		
TOTAL CONNECTED LOAD							22,380 VA		
DEMAND FACTOR							0.95		
DEMAND LOAD							21,261 VA		
DEMAND AMPERES							53.37 A		
CONDUCTOR SIZE							14.0mm ² THHN Cu		
OVERCURRENT PROTECTION							125 A		
ENCLOSURE							NEMA 1		
MOUNTING							SURFACE		
									
I = 22,380 x 0.95 I = 1,732 x 230 I = 53.37 A Ampacity (Min) = 53.37 x 1.25 Ampacity = 66.71 A									

FROM THE OFFICE OF:

ELJ BUILDERS, Incorporated

CONTRACTORS - ENGINEERS - ARCHITECTS

ANGEL S. COLLERA

PROFESSIONAL ELECTRICAL ENGINEER

PRG : 1895

PTIR : 0175662

DATE : 1-04-2019

PLACE ISSUE: CEBU CITY

SEAL

PROJECT TITLE :

A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY

OWNER :

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS :

AS-SHOWN

NO.

REVISIONS

DATE

SHEET NO.

E-4

1

14

ELECTRICAL

TRANSFORMER REQUIREMENT										
CKT NO.	DESCRIPTION	CIRCUIT BREAKER		LOAD DISTRIBUTION (VA)				CIRCUIT CONDUCTOR	GROUND CONDUCTOR	REMARKS
		POLE	TRIP	KAIC	AB	BC	CA			
1	MDP	3	600A	25	43,700	37,100	43,800	100,000	3sets - 3x80.0mm ² THHN Cu	5.5mm ² TW Cu
2	PPFP	3	125A	25	43,700	37,100	43,800	22,380	1 set - 3x3.5mm ² THHN Cu	3.5mm ² TW Cu
CONNECTED LOAD PER PHASE					43,700	37,100	43,800	122,380		
TOTAL CONNECTED LOAD					246,980 VA					
DEMAND FACTOR					0.75					
DEMAND LOAD					185,235 VA					
DEMAND AMPERES					486.13 A					
TRANSFORMER CAPACITY					3ph 250 kVA or 3 X 75 kVA (by utility)					
CONDUCTOR SIZE (230V)					3 sets - 3 x 80.0mm ² THHN Cu					
					Ampacity (Min) = 486.13 x 1.25 Ampacity = 607.662 A					

GENERATOR RATING

DEMAND LOAD = 185,235 VA
= 185,235 A

% STANDBY DEMAND LOAD = 100%

MINIMUM CAPACITY = 185.23 kVA

USE 200kVA (MINIMUM), 230V, 60Hz, 3-PHASE GEN-SET
DEISEL DRIVEN, 1800 rpm

RATED AMPERES = $\frac{185,235 \times 1000}{1,732 \times 220}$
= 486.13 A

USE 3P, 600A/1, 600A/1, 230V, 60Hz, 25kVAIC
USE 3 sets - 3x80.0mm² THHN Cu + 38.0mm² TW Cu 100mmØ PVC

CAPACITOR BANK

DEMAND LOAD = 185,520 VA
= 185.52 kVA

EXPECTED POWER FACTOR = 0.88 ($\theta_E = 28.36^\circ$)

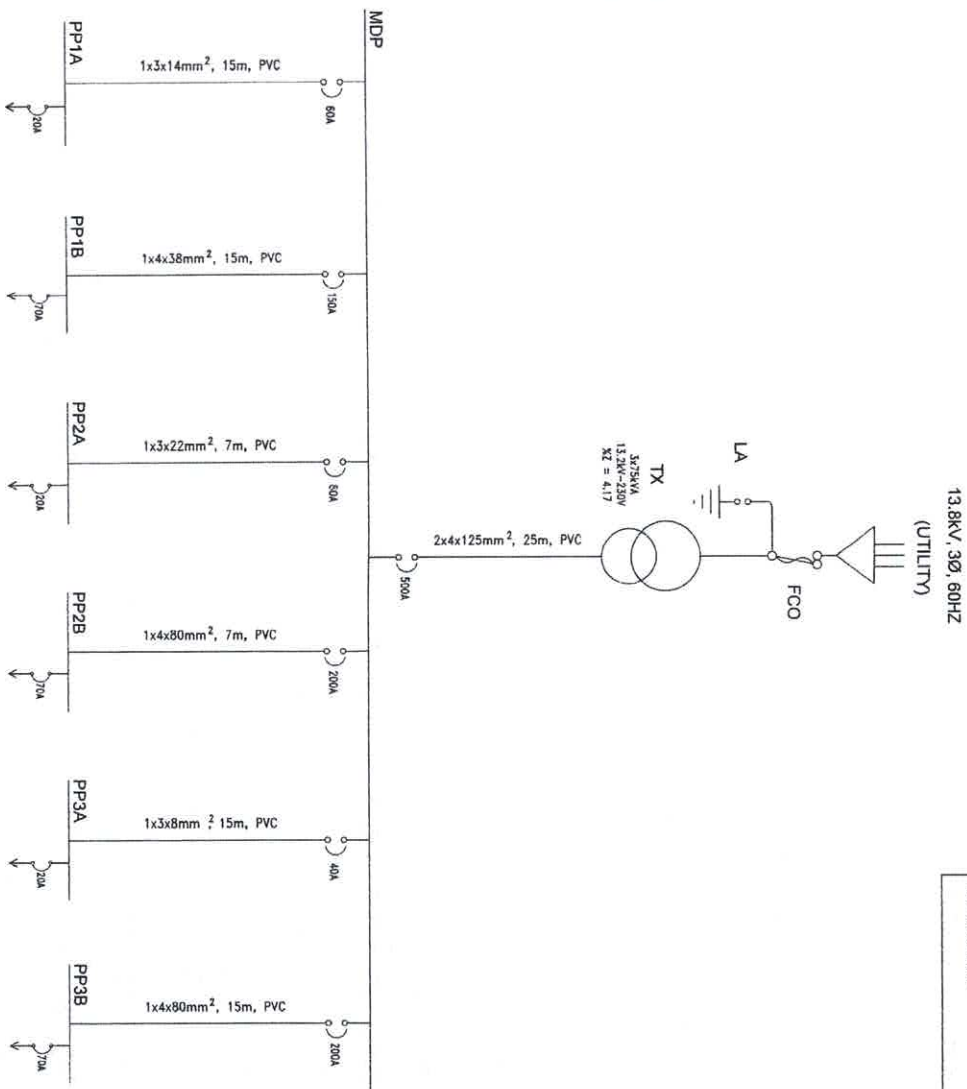
DESIRED POWER FACTOR = 0.98 ($\theta_D = 11.48^\circ$)

REQUIRED KVAR CAPACITY = $185.52 \times \cos \theta_E \times (\tan \theta_E - \tan \theta_D)$
KVAR RATING = 48.45 KVAR

USE 50KVAR THREE PHASE AUTOMATIC CAPACITOR BANK,
220V, 60Hz - STEP POWER FACTOR CONTROLLER

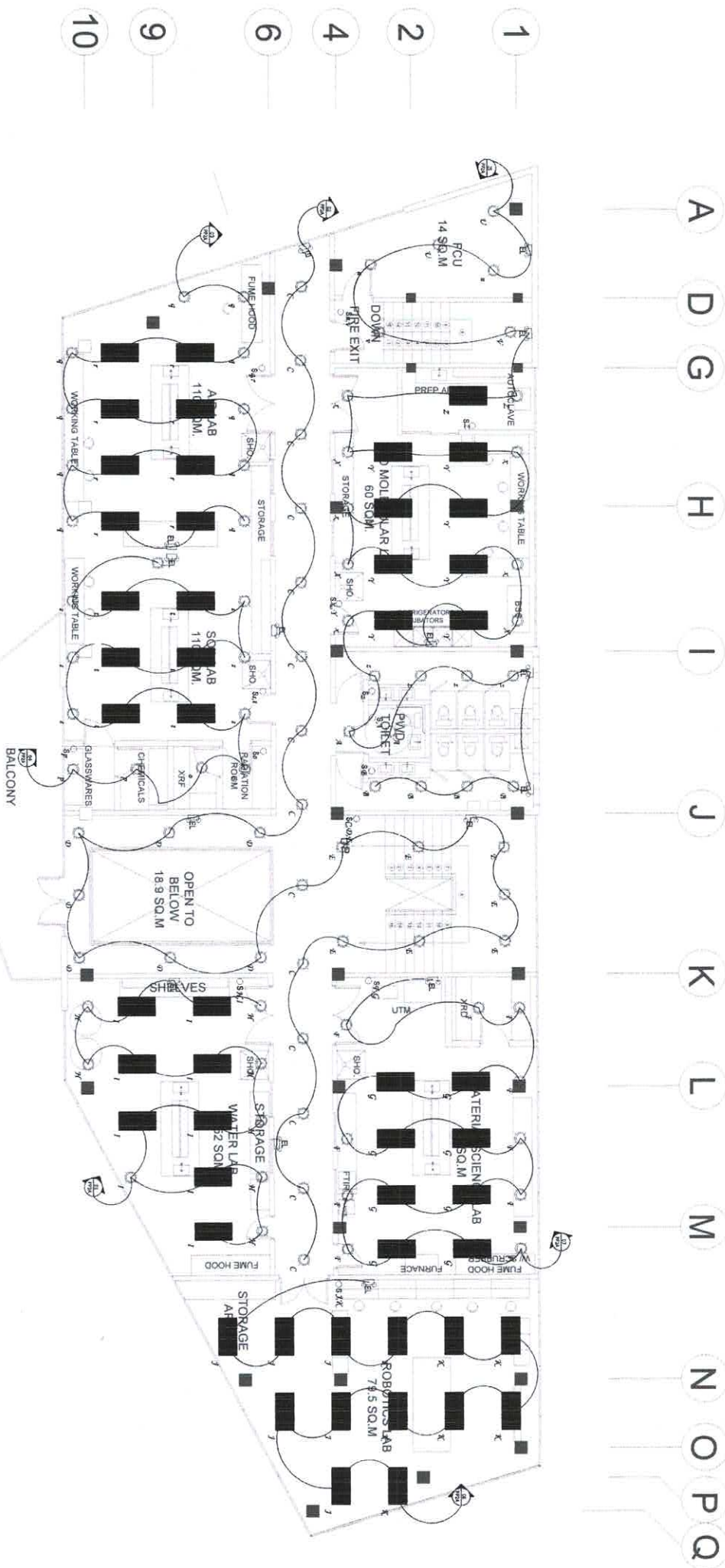
RATED AMPERES = $\frac{50 \times 1000}{1,732 \times 220}$
= 131.22 A

USE 3P, 80A/1, 100A/1, 230V, 60Hz, 25kVAIC
USE 14mm² THHN Cu + 8.0mm² TW Cu 100mmØ PVC



SINGLE-LINE DIAGRAM FOR SHORT-CIRCUIT CALCULATION
AND VOLTAGE DROP CALCULATION

FROM THE OFFICE OF:	ANGEL S. COLLERA PROFESSIONAL ELECTRICAL ENGINEER	SEAL	PROJECT TITLE:	A PROPOSED 3-STOREY SCIENCE RESEARCH FACILITY	OWNER:	PHILIPPINE SCIENCE HIGH SCHOOL- CENTRAL MINDANAO CAMPUS	SHEET CONTENTS:	NO.	DESCRIPTION	DATE	SHEET NO.
ELJ BUILDERS, Incorporated CONTRACTORS - ENGINEERS - ARCHITECTS	PRG : 1895 PTR : 0175662 TIN : 191723068		VALIDITY: 09-04-2020 DATE: 1-04-2019 PLACE ISSUE: CEBU CITY	LOCATION: NANGKA, BALOI, LANAO DEL NORTE	ADDRESS: NANGKA, BALOI, LANAO DEL NORTE	AS-SHOWN					E-5 1 14 ELECTRICAL



2 LIGHTING LAYOUT PLAN - SECOND FLOOR

E-08 SCALE:

1:100

MTS

FROM THE OFFICE OF:



E.J. BUILDERS, Incorporated
CONTRACTORS • ENGINEERS • ARCHITECTS

ANGEL S. COLLERA
PROFESSIONAL ELECTRICAL ENGINEER

PRC : 1895
PTR : 0175662
TIN : 191723068

VALIDITY: 09-04-2020
DATE: 1-04-2019
PLACE ISSUE: CEBU CITY

SEAL

PROJECT TITLE :

A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY

OWNER :

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS :

AS-SHOWN

REVISIONS
NO. DESCRIPTION DATE

SHEET NO.

E-8
1 14

ELECTRICAL

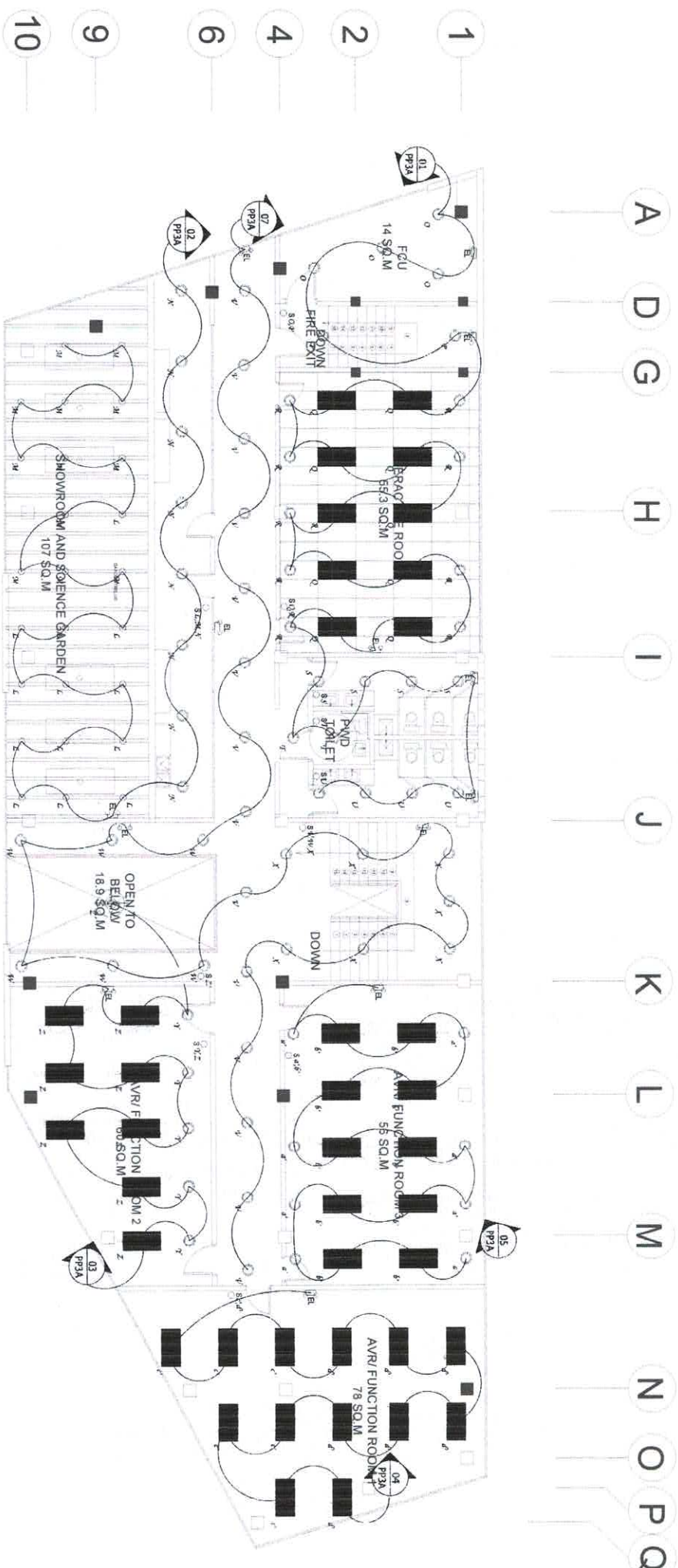
Handwritten signature and stamp:
E-08
14

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY:

BUILDING OFFICIAL DATE



3 LIGHTING LAYOUT PLAN - THIRD FLOOR

E-09 SCALE: 1:100 MTS

FROM THE OFFICE OF:



ANGEL S. COLLERA
PROFESSIONAL ELECTRICAL ENGINEER

PRC : 1895
PTR : 0175662

VALIDITY : 09-04-2020
DATE : 1-04-2019

TIN : 191723098

PLACE ISSUE: CEBU CITY

SEAL

PROJECT TITLE :

A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY

OWNER :

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS

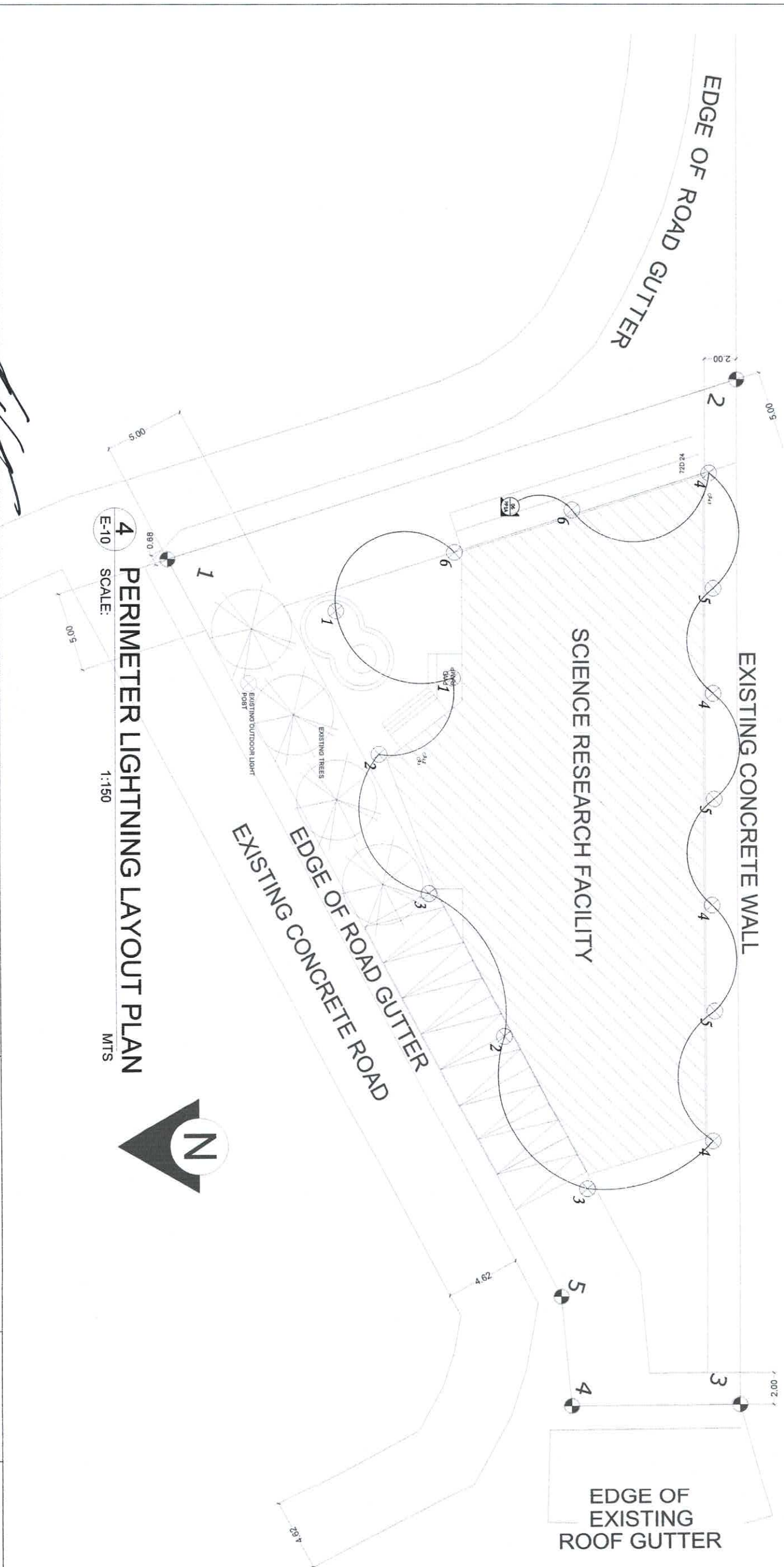
AS-SHOWN

NO. DESCRIPTION DATE

SHEET NO.

E-9
1 14
ELECTRICAL

FORBIDDING



4 PERIMETER LIGHTNING LAYOUT PLAN
E-10 SCALE: 1:150 MTS

FROM THE OFFICE OF:



ANGEL S. COLLERA

PROFESSIONAL ELECTRICAL ENGINEER

PRC : 1895

PTR : 0175662

TIN : 191723068

VALIDITY: 09-04-2020

DATE: 1-04-2019

PLACE ISSUE: CEBU CITY

SEAL

PROJECT TITLE :

**A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY**

OWNER :

**PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS**

SHEET CONTENTS :

AS-SHOWN

NO. DESCRIPTION DATE

SHEET NO.

E-10
1 14

ELECTRICAL

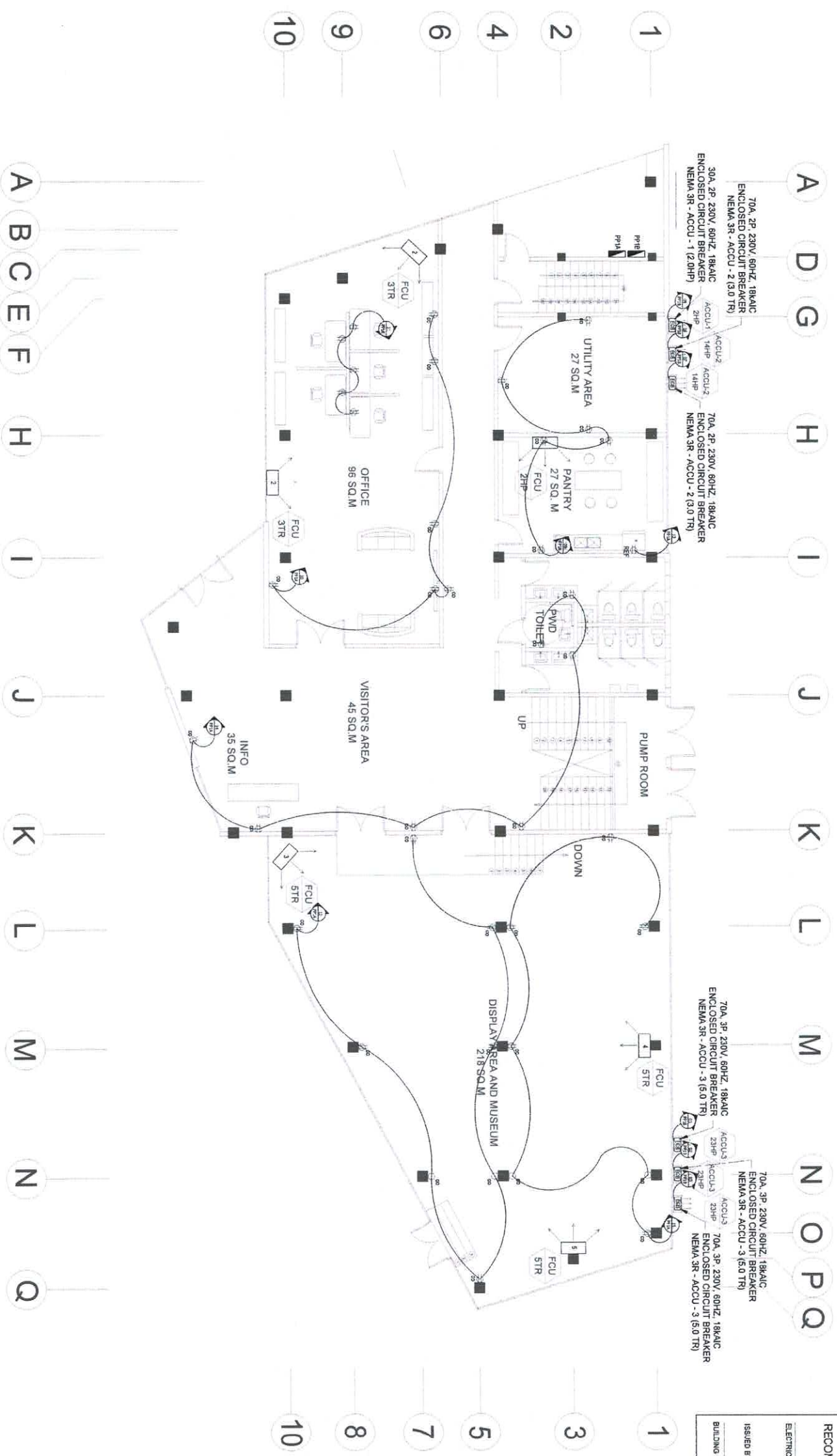
FOR BUILDING

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY:

BUILDING OFFICIAL DATE



5 POWER/RECEPTACLE LAYOUT PLAN - GROUND FLOOR

E-11 SCALE: 1:100 MTS

FROM THE OFFICE OF:



ANGEL S. COLLERA
PROFESSIONAL ELECTRICAL ENGINEER

PRC : 1895
PTR : 0175662

VALIDITY : 09-04-2020
DATE : 1-04-2019
PLACE ISSUE: CEBU CITY

SEAL

PROJECT TITLE :

A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY

OWNER :

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS :

AS-SHOWN

NO. DESCRIPTION DATE

SHEET NO.

E-11
1 14
ELECTRICAL

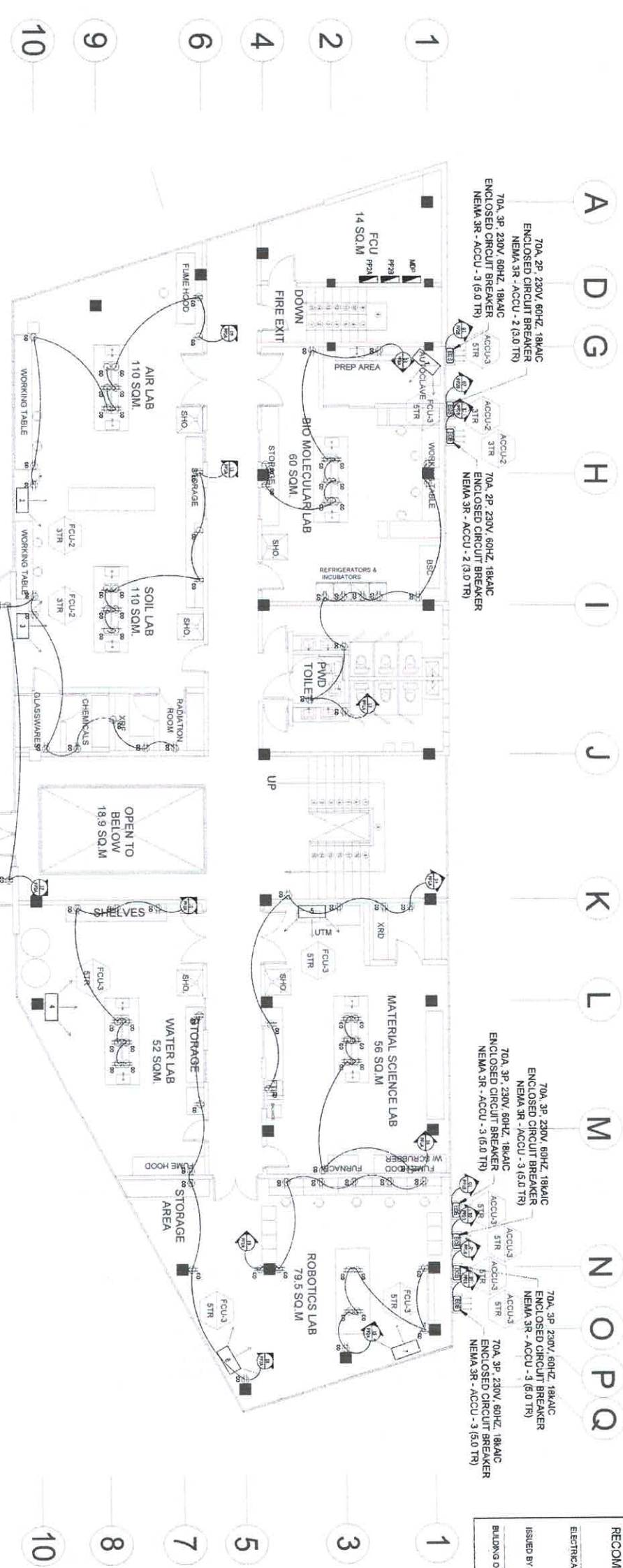
FOR APPROVAL

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY: DATE

BUILDING OFFICIAL DATE



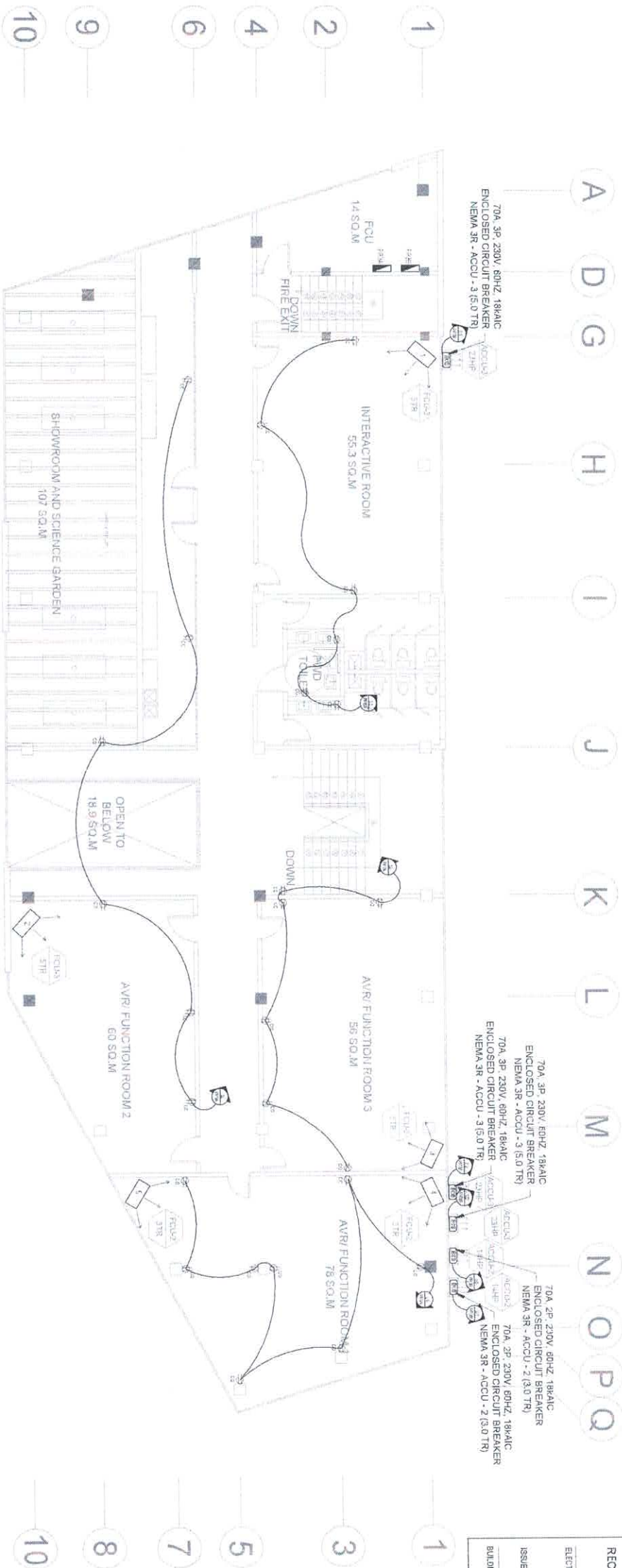
6 POWER/RECEPTACLE LAYOUT PLAN - SECOND FLOOR

E-12 SCALE: 1:100 MTS

FROM THE OFFICE OF:	SEAL	PROJECT TITLE:	OWNER:	SHEET CONTENTS:	NO.	REVISIONS	DATE	SHEET NO.
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ELJ BUILDERS, Incorporated CONTRACTORS - ENGINEERS - ARCHITECTS	ANGEL S. COLLERA PROFESSIONAL ELECTRICAL ENGINEER	A PROPOSED 3-STOREY SCIENCE RESEARCH FACILITY	PHILIPPINE SCIENCE HIGH SCHOOL- CENTRAL MINDANAO CAMPUS	AS-SHOWN	1			E-12 114
PRC: 1895 PTR: 0175662 TIN: 191723068	VALIDITY: 09-04-2020 DATE: 1-04-2019	LOCATION: NANGKA, BALOI, LANAO DEL NORTE	ADDRESS: NANGKA, BALOI, LANAO DEL NORTE					ELECTRICAL

FOR BUILDING



7
POWER/RECEPTACLE LAYOUT PLAN - THIRD FLOOR
E-13 SCALE: 1:100 MTS

FROM THE OFFICE OF:		SEAL		PROJECT TITLE:		OWNER:		SHEET CONTENTS:		REVISIONS		SHEET NO.	
ELJ BUILDERS, Incorporated CONTRACTORS - ENGINEERS - ARCHITECTS		ANGEL S. COLLERA PROFESSIONAL ELECTRICAL ENGINEER		A PROPOSED 3-STOREY SCIENCE RESEARCH FACILITY		PHILIPPINE SCIENCE HIGH SCHOOL- CENTRAL MINDANAO CAMPUS		AS-SHOWN		NO. DESCRIPTION DATE		E-13 1 14 ELECTRICAL	
PRC : 1895 PTR : 0175662 TTN : 191723068		VALIDITY : 09-04-2020 DATE: 1-04-2019 PLACE ISSUE: CEBU CITY		LOCATION: NANGKA BALOI LANAO DEL NORTE		ADDRESS: NANGKA BALOI LANAO DEL NORTE							

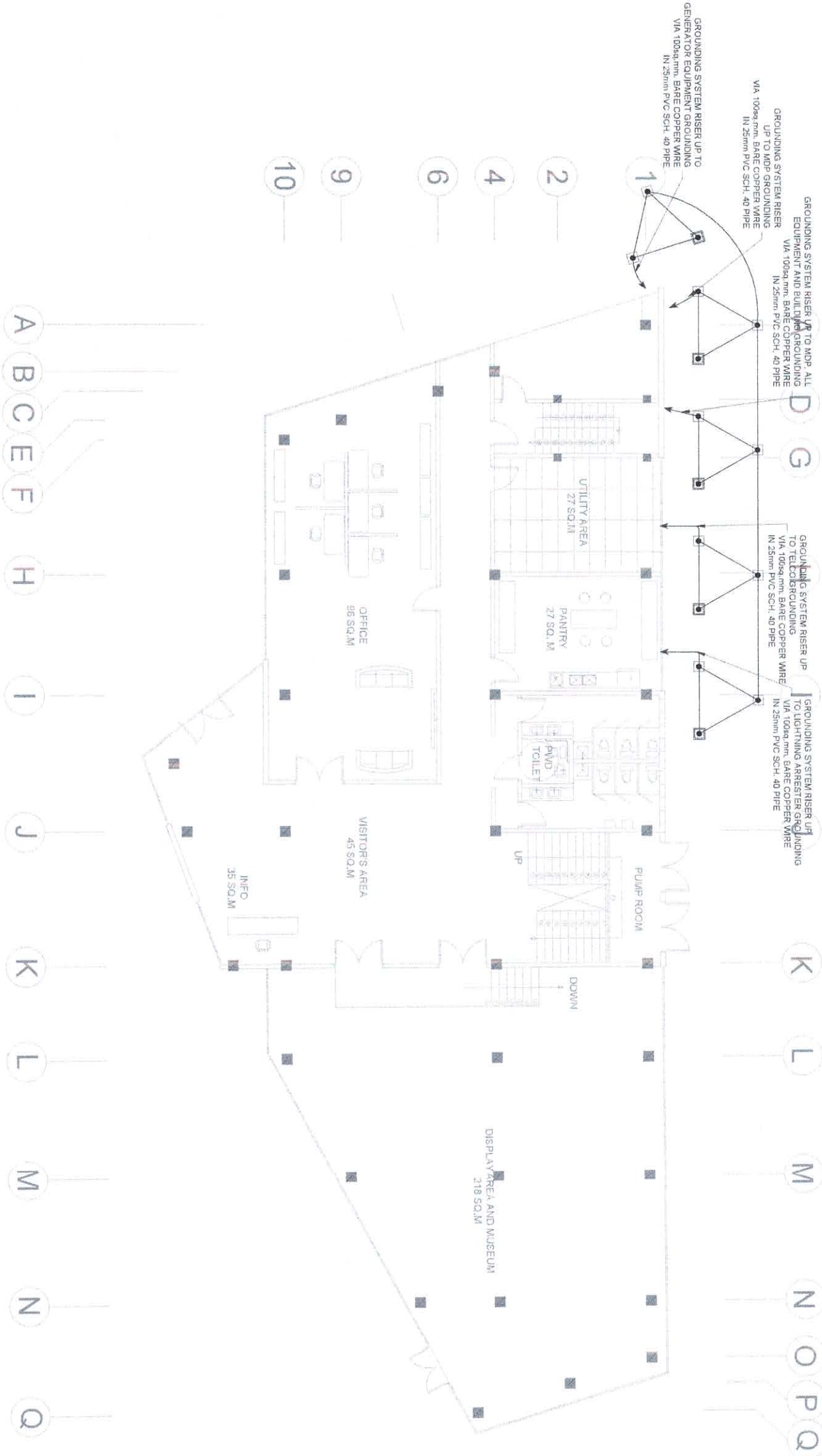
FOR APPROVAL

RECOMMENDING ISSUANCE

ELECTRICAL HEAD SECTION DATE

ISSUED BY :

BUILDING OFFICIAL DATE



8 GROUNDING SYSTEM LAYOUT PLAN

E-14 SCALE:

1:100

MTS

FROM THE OFFICE OF:



ELJ BUILDERS, Incorporated
CONTRACTORS - ENGINEERS - ARCHITECTS

ANGEL S. COLLERA

PROFESSIONAL ELECTRICAL ENGINEER

PRC : 1895

PTR : 0175662

TIN : 191723068

THE PROFESSIONAL ENGINEER'S SEAL
AND STAMP SHALL BE PLACED HEREIN
AND SHALL BE VALID FOR THE ENTIRE
TERM OF THE CONTRACT AND SHALL
BE SUBJECT TO THE DISCRETION OF
THE ENGINEERING BOARD AND THE
RELEVANT REGULATORY AGENCIES
AND TO THE RELEVANT REGULATORY
AGENCIES.

SEAL

PROJECT TITLE:

A PROPOSED 3-STOREY SCIENCE
RESEARCH FACILITY

OWNER:

PHILIPPINE SCIENCE HIGH SCHOOL-
CENTRAL MINDANAO CAMPUS

SHEET CONTENTS:

AS-SHOWN

REVISIONS		SHEET NO.
NO.	DESCRIPTION	
1		E-14

1 14
ELECTRICAL

FOR BUILDING