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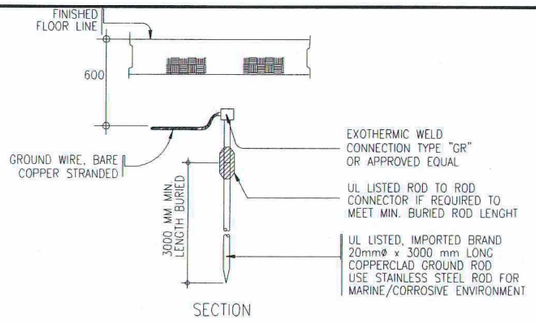
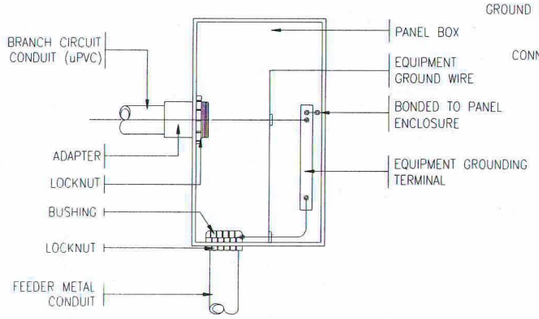


E 8 1 TYPICAL GROUND ROD DETAIL

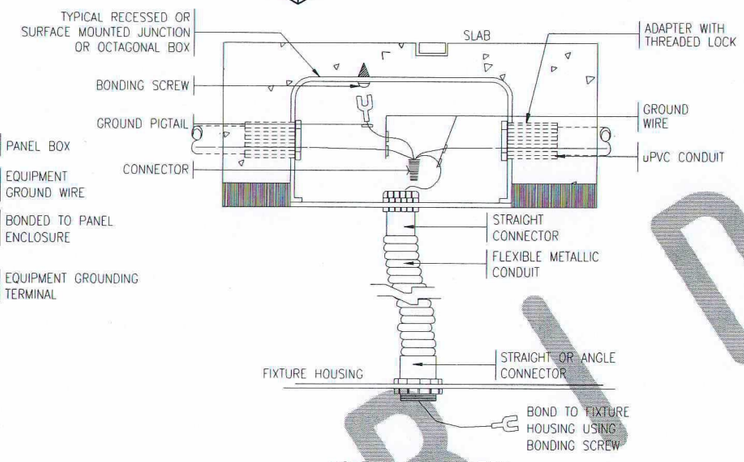
SCALE: NTS



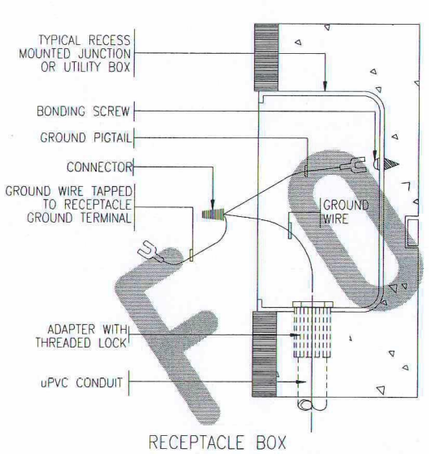
PANELBOARD

E 8 2 TYPICAL C.O. AND TELEPHONE, DATA OUTLETS MOUNTING DETAILS

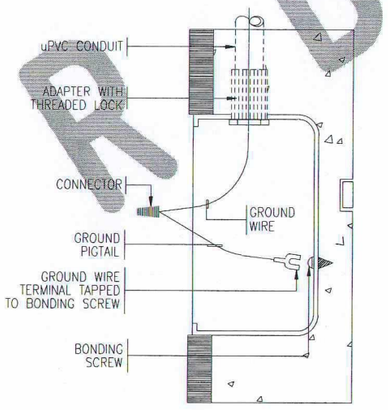
SCALE: NTS



LIGHTING FIXTURE BOX



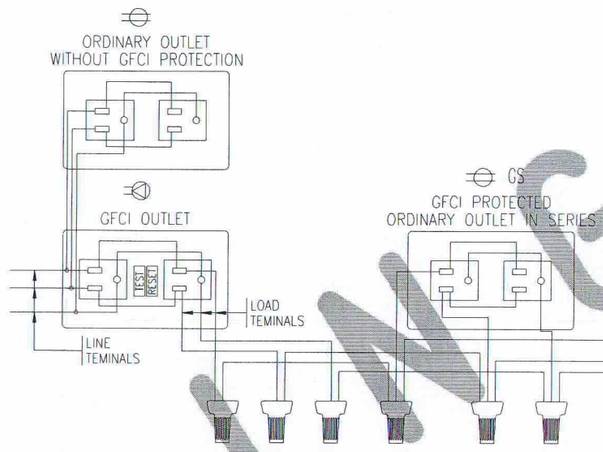
RECEPTACLE BOX



SWITCH BOX

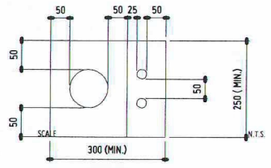
E 8 4 TYPICAL GROUNDING CONNECTION DETAILS

SCALE: NTS

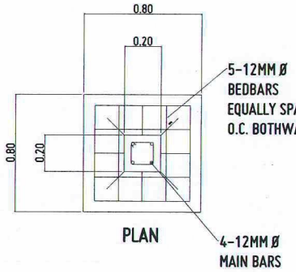


E 8 3 CONV. OUTLET IN SERIES WITH GCFI OUTLET WIRING CONNECTION DETAIL

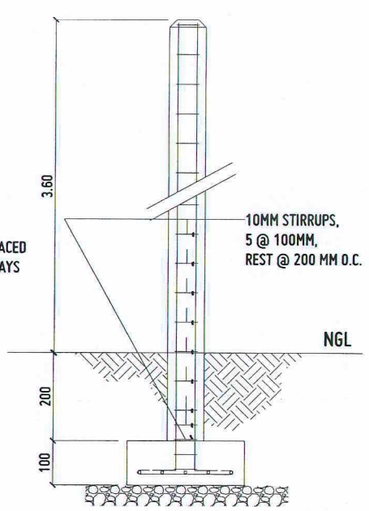
SCALE: NTS



PLAN



PLAN



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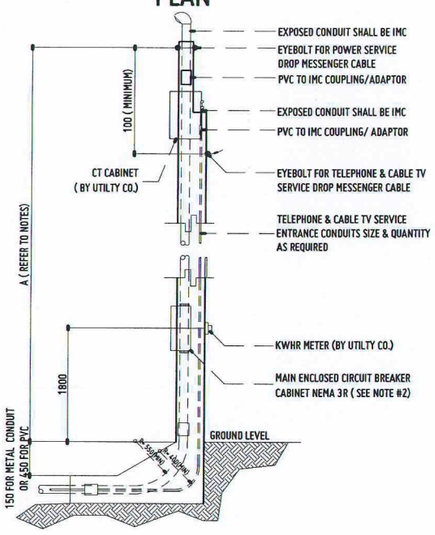

E 8 5 SERVICE PEDESTAL DETAILS

SCALE: NTS

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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT	PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION	USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
ENGR. GRACE C. BABA
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
DR. GLORINER L. CLARIN
CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS

ATTY. JONATHAN S. OCHE
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
TYPICAL GROUND ROD DETAIL
TYPICAL C.O. AND TELEPHONE, DATA OUTLETS MOUNTING DETAILS
CONV. OUTLET IN SERIES WITH GCFI OUTLET WIRING CONNECTION DETAIL
TYPICAL GROUNDING CONNECTION DETAILS
SERVICE PEDESTAL DETAILS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

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DESIGN ANALYSIS						
LOAD TYPE	VA PER LOAD	VOLTAGE	PHASE CURRENT (w/ DF)			
			AB	BC	CA	3Ø
LIGHTING OUTLET	36640.00	230	85.57	24.00	49.74	0.00
CONVENIENCE OUTLET	193780.00	230	278.85	246.42	317.25	0.00
AIRCON	204981.68	230	280.50	210.00	227.00	100.30
MOTOR (NON-CONTINUOUS)	15417.85	230	0.00	0.00	0.00	38.70
MOTOR (CONTINUOUS)	0.00	230	0.00	0.00	0.00	0.00
LARGEST MOTOR	16731.61	230	0.00	0.00	0.00	42.00
SPARE	52800.00	230	26.09	140.87	52.17	6.02
TOTAL DEMAND LOAD	520351.15	230	671.00	621.29	646.17	187.03

DEMAND FACTOR CALCULATION	
DEMAND FACTOR = TOTAL DEMAND LOAD/TOTAL CONNECTED LOAD	
TOTAL CONNECTED (VOLT-AMPERE)	579111.15
OVERALL DEMAND FACTOR	89.85%

LINE CURRENT CALCULATION
IL= TOTAL DEMAND LOAD/(VOLTAGE x √3)
IL = 579111.145806997 / (230 x √3)
1306.1951048034 8 A

TRANSFORMER SIZING		GENERATOR SIZING	
TOTAL LINE CURRENT	CALCULATION	CALCULATION	
1306.195105	TRANSFORMER SIZE	kW LOAD	P = (1.732 x V x I x PF)/1000
	S= (1.732 x V x I) x 125%		P = (1.732 x 240 x 1306.2 x 0.80)/1000
	S = (1.732 x 240 x 1306.2) x 125%		P = 434.367344931768kW
	S = 678.698976455888 kVA	RESERVE CAPACITY	P = 434.37 x 0.25
THEREFORE USE 3 x 250 KVA THREE PHASE DISTRIBUTION TRANSFORMER BANK WITH 13.2kV/7.62kV PRIMARY AND 240V SECONDARY			P =108.59kW
		GENERATOR SIZE	P = 434.37 + 100.59
			P = 542.[illegible]
		THEREFORE USE 2 x 300kVA 3 PHASE 240V 60HZ 0.8PF SILENT-TYPE DIESEL GENERATOR SET	

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DESIGN ANALYSIS, TRANSFORMER AND GENERATOR SIZING

SCALE: NTS

SERVICE BUS - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
SB	C1	MAIN CB					230	559671	559671	0.90	500911	671	621	646	138	60	3	1600	1600	4 x 3 - 325 mm² THWN-2 Copper Wire	1 - 100 mm² THWN-2 Copper Wire	Cable Ladder
	C2	FPP MAIN CB					230	19441	19441	1.00	19441	-	-	-	48.80	60	3	125	250	3 - 50 mm² THWN-2 Copper Wire	1 - 50 mm² THWN-2 Copper Wire	50 mm ø Conduit - RSC
TOTAL			0	0	0		230		579111	0.90	520351	671.00	621.29	646.17	187.03							

SERVICE BUS					
LOAD TYPE	DEMAND VA	DEMAND CURRENT			
		AB	BC	CA	3Ø
LIGHTING OUTLET	36640.00	85.57	24.00	49.74	0.00
CONVENIENCE OUTLET	193780.00	278.85	246.42	317.25	0.00
AIR CONDITIONING UNIT	204981.68	280.50	210.00	227.00	100.30
MOTOR	15417.85	0.00	0.00	0.00	38.70
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	16731.61	0.00	0.00	0.00	42.00
SPARE	52800.00	26.09	140.87	52.17	6.02
TOTAL	520351.15	671.00	621.29	646.17	187.03

Calculation:	For Service Conductor	SERVICE CONDUCTOR
	Ic = [(36640 + 193780 + 16731.61) x 125% + 204981.68 + 15417.85 + 52800]/(230 x √3)	USE: 4 sets of 3 - 325 mm² THWN-2 CU (L) + 1 - 100 mm² THWN-2 CU (EGC) @ 80 mm Ø RSC
	Ic = 1461.3 A	SERVICE PROTECTION
		[illegible]0kA, 3P, Type 1, Surge Protective Device (SPD)

FIRE PROTECTION PANEL - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
FPP	C1	Fire Pump				15	230	16731.61	16732	1.00	16732	-	-	-	42.00	60	3	[illegible]00	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - RSC
	C2	Jockey Pump				2	230	2708.927	2708.9	1.00	2709	-	-	-	6.80	60	3	[illegible]	50	3 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - RSC
	C3	SPACE				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C4	SPACE				-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			0	0	0		230		19441	1.00	19441	0.00	[illegible]0		48.80							

FIRE PROTECTION PANEL					
LOAD TYPE	DEMAND VA	DEMAND CURRENT			
		AB	BC	CA	3Ø
LIGHTING OUTLET	0.00	0.00	0.00	0.00	0.00
CONVENIENCE OUTLET	0.00	0.00	0.00	0.00	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	2708.93	0.00	0.00	0.00	6.80
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	16731.61	0.00	0.00	0.00	42.00
SPARE	0.00	0.00	0.00	0.00	0.00
TOTAL	19440.54	0.00	0.00	0.00	48.80

Calculation:	For Feeder Conductor	For Feeder Protection	FEEDER CONDUCTOR
	Ic = [(16731.61 x 125%) + 2708.93]/(23[illegible]	Icb = [(16731.61 x [illegible] 2708.93]/(230 x √3)	USE: 3 - 50 mm² THWN-2 CU (L) + 1 - 14 mm² THWN-2 CU (G) @ 50 mm Ø RSC
	Ic = 59.3 A	Icb = 111.8 A	FEEDER PROTECTION
			USE: 125AT/250AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)
			USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

AUTOMATIC TRANSFER SWITCH - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
ATS	C1	MDP					[illegible]	553962	553962	0.90	495802	671.00	621.29	646.17	125.40	60	3	1600	1600	4 x 3 - 325 mm² THWN-2 Copper Wire	1 - 100 mm² THWN-2 Copper Wire	Cable Ladder
	C2	PPB					2[illegible]	5709	5709	0.89	5109	-	-	-	12.82	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5mm² THHN Copper Wire	25 mm ø Conduit - RSC
TOTAL			0	0	0				559671	0.90	500911	671.00	621.29	646.17	138.23							

AUTOMATIC TRANSFER SWITCH					
LOAD TYPE	DEMAND VA	DEMAND CURRENT			
		AB	BC	CA	3Ø
LIGHTING OUTLET	36640.00	85.57	24.00	49.74	0.00
CONVENIENCE OUTLET	193780.00	278.85	246.42	317.25	0.00
AIR CONDITIONING UNIT	198541.68	252.50	210.00	227.00	100.30
MOTOR	12708.93	0.00	0.00	0.00	31.90
LARGEST AIR CONDITIONING UNIT	6440.00	28.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	52800.00	26.09	140.87	52.17	6.02
TOTAL	500910.61	671.00	621.29	646.17	138.23

Calculation:	For Feeder Conductor	For Feeder Protection	FEEDER CONDUCTOR
	Ic = [(36640 + 193780 + 6440) x 125% + 198541.68 + 12708.93 + 52800]/(230 x √3)	Icb = [(6440 x 225%) + (36640 + 193780) x 125% + 198541.68 + 12708.93 + 52800]/(230 x √3)	USE: 4 sets of 3 - 325 mm² THWN-2 CU (L) + 1 - 100 mm² THWN-2 CU (EGC) @ Cable Ladder
	Ic = 1406.04 A	Icb = 1422.2 A	AUTOMATIC TRANSFER SWITCH
			USE: 1600AT/1600AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

E 9 2

SCHEDULE OF LOADS

SCALE: NTS

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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT: PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION: USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:	RECOMMENDING APPROVAL:		APPROVED BY:
ENGR. GRACE C. BABA	DR. GLORIMER L. CLARIN	ATTY. JONATHAN S. OCHE	DR. AMBROSIO B. CULTURA II
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE	CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS	VP FOR ADMINISTRATION & LEGAL AFFAIRS	PRESIDENT, USTP SYSTEM

SHEET CONTENTS: DESIGN ANALYSIS, TRANSFORMER AND GENERATOR SIZING SCHEDULE OF LOADS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

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MAIN DISTRIBUTION PANEL – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
MDP	C1	PB1					230	45800	45800	0.84	38620	59.18	55.20	53.53	-	60	3	125	250	3 - 50 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	50 mm ø Conduit - EMT
	C2	PB2					230	24520	24520	0.86	21164	32.77	28.00	31.25	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C3	PB2A					230	30980	30980	0.81	25156	35.20	38.26	35.91	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C4	PB2B					230	30980	30980	0.81	25156	35.20	38.26	35.91	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C5	PB2C					230	30980	30980	0.81	25156	35.20	38.26	35.91	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C6	PB2D					230	30980	30980	0.81	25156	35.20	38.26	35.91	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C7	PB2E					230	31280	31280	0.83	25924	28.37	38.26	46.09	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C8	PB3					230	27500	27500	0.85	23500	32.82	37.58	31.77	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C9	PB3A					230	28160	28160	0.82	23104	35.43	29.63	35.39	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C10	PB3B					230	36800	36800	0.81	29884	45.50	43.48	40.96	-	60	3	100	100	3 - 38 mm² THHN Copper Wire	1 - 14 mm² THHN Copper Wire	40 mm ø Conduit - EMT
	C11	APB1					230	65100	65100	0.99	64500	100.43	101.00	79.00	-	60	3	200	250	3 - 100 mm² THHN Copper Wire	1 - 22 mm² THHN Copper Wire	50 mm ø Conduit - EMT
	C12	APB2					230	82925	82925	0.99	82325	154.50	81.00	122.43	-	60	3	250	250	3 - 150 mm² THHN Copper Wire	1 - 22 mm² THHN Copper Wire	65 mm ø Conduit - EMT
	C13	APB3					230	65957	65957	0.99	65357	41.22	33.22	36.00	100.30	60	3	200	250	3 - 100 mm² THHN Copper Wire	1 - 22 mm² THHN Copper Wire	50 mm ø Conduit - EMT
	C14	Elevator					230	10000	10000	1.00	10000	-	-	-	25.10	60	3	60	100	3 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C15	Fire Alarm Control Panel					230	3000	3000	1.00	3000	-	-	13.04	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C16	CCTV System					230	3000	3000	1.00	3000	-	-	13.04	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C17	SPARE					230	3000	3000	0.80	2400	-	10.43	-	-	60	2	20	50	-	-	-
	C18	SPARE					230	3000	3000	0.80	2400	-	10.43	-	-	60	2	20	50	-	-	-
	C19	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C20	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			0	0	0	0	230		553962	0.90	495802	671.00	621.29	646.17	125.4							

Calculation:	For Feeder Conductor	For Feeder Protection	FEEDER CONDUCTOR
	Ic = [(36640 + 193780 + 6440) x 125% + 198541.68 + 10000 + 50400]/(230 x √3)	Icb = [(6440 x 225%) + (36640 + 193780) x 125% + 198541.68 + 10000 + 50400]/(230 x √3)	USE: 4 sets of 5 - 2 THWN-2 CU (L) + 1 - 100 mm² THWN-2 CU (G) @ Cable Ladder
	Ic = 1393.21 A	Icb = 1409.38 A	FEEDER PROTECTION USE: 1600AT/1000AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB) USE: 100kA, 3P, Type 2, Surge Protective Device (SPD)

MAIN DISTRIBUTION PANEL					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	36640.00	85.57	24.00	49.74	0.00
CONVENIENCE OUTLET	193780.00	278.85	246.42	317.25	0.00
AIR CONDITIONING UNIT	198541.68	252.50	210.00	227.00	100.30
MOTOR	10000.00	0.00	0.00	0.00	25.10
LARGEST AIR CONDITIONING UNIT	6440.00	28.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	50400.00	26.09	140.87	52.17	0.00
TOTAL	495801.68	671.00	621.29	646.17	125.40

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PLUMBING PANEL BOARD – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PPB	C1	Plumbing Transfer Pump				2	230	2708.927	2708.9	1.00	2709	-	-	-	12.80	60	3	30	50	5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - RSC
	C2	SPARE					230	3000	3000	0.80	2400	-	-	-	-	60	3	30	50	-	-	-
	C3	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C4	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			0	0	0		230		5709	0.89	5109	0.00	0.00	0.00	12.82							

Calculation:	For Feeder Conductor	For Feeder Protection	FEEDER CONDUCTOR
	Ic = [(2708.93 x 125%) + 2400]/(230 x √3)	Icb = [(2708.93 x 250%) + 2400]/(230 x √3)	USE: 3 - 8.0 mm² THWN-2 CU (L) + 1 - 5.5 mm² THWN-2 CU (G) @ 25 mm ø RSC
	14.52 A	Icb = 23.02 A	FEEDER PROTECTION USE: 40AT/50AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB) USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

PLUMBING PANEL BOARD					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	0.00	0.00	0.00	0.00	0.00
CONVENIENCE OUTLET	0.00	0.00	0.00	0.00	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	2708.93	0.00	0.00	0.00	6.80
SPARE	2400.00	0.00	0.00	0.00	6.02
TOTAL	5108.93	0.00	0.00	0.00	12.82

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT: PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION: USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
ENGR. GRACE C. BABA
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
DR. GLORINER L. CLARIN
CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS

ATTY. JONATHAN S. OCHE
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

E10

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PANEL BOARD 1 - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB1	C1	Lighting Outlet	14				230	100	1400	0.80	1120	4.87	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Lighting Outlet	14				230	100	1400	0.80	1120	4.87	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Lighting Outlet	14				230	100	1400	0.80	1120	-	-	4.87	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Lighting Outlet	14				230	100	1400	0.80	1120	-	-	4.87	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Lighting Outlet	12				230	100	1200	0.80	960	-	4.17	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Lighting Outlet	22				230	100	2200	0.80	1760	-	7.65	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Lighting Outlet	14				230	100	1400	0.80	1120	4.87	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Lighting Outlet	16	1			230	100	1700	0.80	1360	5.91	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Lighting Outlet	9				230	100	900	0.80	720	-	-	3.13	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	Lighting Outlet	8				230	100	800	0.80	640	-	-	2.78	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	Lighting Outlet	5				230	100	500	0.80	400	-	1.74	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C12	Convenience Outlet		12			230	180	2160	0.80	1728	-	7.51	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C13	Convenience Outlet		12			230	180	2160	0.80	1728	7.51	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C14	Convenience Outlet		12			230	180	2160	0.80	1728	7.51	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C15	Convenience Outlet		12			230	180	2160	0.80	1728	-	-	7.51	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C16	Convenience Outlet		9			230	180	1620	0.80	1296	-	-	5.63	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C17	Convenience Outlet		9			230	180	1620	0.80	1296	-	5.63	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C18	Convenience Outlet		8			230	180	1440	0.80	1152	-	5.01	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C19	Convenience Outlet		7			230	180	1260	0.80	1008	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C20	Convenience Outlet		7			230	180	1260	0.80	1008	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C21	Convenience Outlet		7			230	180	1260	0.80	1008	-	-	4.38	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C22	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	-	-	6.52	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C23	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	-	6.52	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C24	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	-	6.52	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C25	Convenience Outlet - Emergency Lighting		10			230	180	1800	1.00	1800	-	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C26	Convenience Outlet - Emergency Lighting		9			230	180	1620	1.00	1620	-	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C27	Convenience Outlet - Emergency Lighting		11			230	180	1980	1.00	1980	-	-	8.61	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C28	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C29	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C30	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
TOTAL			142	37	0		230		45800	0.84	38620	59.18	55.20	53.53	0							

PANEL BOARD 1					
DEMAND VA	VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	11440.00	20.52	13.57	15.65	0.00
CONVENIENCE OUTLET	23580.00	38.66	31.20	32.66	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3600.00	0.00	10.43	5.22	0.00
TOTAL	**38620.00**	**59.18**	**55.20**	**53.53**	**0.00**

Calculation:

For Feeder Conductor and Protection

Icb = [(11440 + 23580) x 125% + 3600]/(230 x √3)

Icb = 118.92 A

FEEDER CONDUCTOR

USE: 3 - 50 mm² THHN CU (L) + 1 - 14 mm² THHN CU (EGC) @ 50 mm Ø EMT

FEEDER PROTECTION

USE: 125AT/250AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

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PROFESSIONAL ELECTRICAL ENGINEER

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LOCATION: USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
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VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

E11

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PANEL BOARD 2 – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB2	C1	Lighting Outlet	17				230	100	1700	0.80	1360	5.91	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Lighting Outlet	13				230	100	1300	0.80	1040	4.52	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Lighting Outlet	12	1			230	100	1300	0.80	1040	-	-	4.52	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Lighting Outlet	14				230	100	1400	0.80	1120	-	-	4.87	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Lighting Outlet	8				230	100	800	0.80	640	-	2.78	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Lighting Outlet	5				230	100	500	0.80	400	-	1.74	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet		7			230	180	1260	0.80	1008	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet		7			230	180	1260	0.80	1008	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet		7			230	180	1260	0.80	1008	-	-	4.38	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	Convenience Outlet - Small Appliance		1			230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	Convenience Outlet - Refrigerator		1			230	1500	1500	1.00	1500	-	6.52	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C12	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	-	6.52	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C13	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	6.52	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C14	Convenience Outlet - Emergency Lighting		9			230	180	1620	1.00	1620	7.04	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C15	Convenience Outlet - Emergency Lighting		9			230	180	1620	1.00	1620	-	-	7.04	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C16	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C17	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C18	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C19	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C20	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			69	23	0		230		24520	0.86	21164	32.77	28.00	31.25	0							

PANEL BOARD 2					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	5600.00	10.43	4.52	9.39	0.00
CONVENIENCE OUTLET	11964.00	22.33	13.04	16.64	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3600.00	0.00	10.43	5.22	0.00
TOTAL	21164.00	32.77	28.00	31.25	0.00

Calculation:

For Feeder Conductor and Protection

Icb = [(5600 + 11964) x 125% + 4800]

Icb = 64.15 A

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (EGC) @ 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/100AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

PANEL BOARD 2A, 2B, 2C, 2D – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB2A, PB2B, PB2C, PB2D	C1	Lighting Outlet	14				230	100		0.80	1120	4.87	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Convenience Outlet - Computer		4	8		230	500			3200	13.91	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Convenience Outlet - Computer		4			230	500		0.80	3200	-	-	13.91	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Convenience Outlet - Computer			8		230	500	4000	0.80	3200	-	-	13.91	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Convenience Outlet - Computer			8		230	500	4000	0.80	3200	-	13.91	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	-	13.91	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet - Computer		4			230	500	4000	0.80	3200	13.91	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet		4			230	180	720	0.80	576	2.50	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	-	-	6.52	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	Convenience Outlet - Emergency Lighting		2			230	180	360	1.00	360	-	-	1.57	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C12	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
TOTAL			14	31	48		230		30980	0.81	25156	35.20	38.26	35.91	0							

PANEL BOARD 2A-2D					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	1120.00	4.87	0.00	0.00	0.00
CONVENIENCE OUTLET	21636.00	30.33	27.83	35.91	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	2400.00	0.00	10.43	0.00	0.00
TOTAL	25156.00	35.20	38.26	35.91	0.00

Calculation:

For Feeder Conductor and Protection

Icb = [(1120 + 21636) x 125% + 2400]/(230 x √3)

Icb = 77.43 A

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (EGC) @ 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/100AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT	PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION	USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:	RECOMMENDING APPROVAL:		APPROVED BY:	SHEET CONTENTS:	DRAWN BY:
ENGR. GRACE C. BABA	DR. GLORIMER L. CLARIN	ATTY. JONATHAN S. OCHE	DR. AMBROSIO B. CULTURA II	SCHEDULE OF LOADS	
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE	CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS	VP FOR ADMINISTRATION & LEGAL AFFAIRS	PRESIDENT, USTP SYSTEM		DATE DRAWN: 05.01.2026
					FNT:

E12

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

PANEL BOARD 2E - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB2E	C1	Lighting Outlet	12				230	100	1200	0.80	960	4.17	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	13.91	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	-	-	13.91	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	-	-	13.91	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	-	13.91	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Convenience Outlet - Computer		4	8		230	500	4000	0.80	3200	-	13.91	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet		6			230	180	1080	0.80	864	3.76	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet - Server		1			230	1500	1500	1.00	1500	6.52	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet - Emergency Lighting		2			230	1500	3000	1.00	3000	-	-	13.04	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C12	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
TOTAL			12	29	40		230		31280	0.83	25924	28.37	38.26	46.09	0							

PANEL BOARD 2E					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	960.00	4.17	0.00	0.00	0.00
CONVENIENCE OUTLET	21364.00	24.19	38.26	40.87	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	3600.00	0.00	10.43	5.22	0.00
TOTAL	25924.00	28.37	38.26	46.09	0.00

Calculation:

For Feeder Conductor and Protection

$I_{cb} = [(960 + 21364) \times 125\% + 3600]/(230 \times \sqrt{3})$

$I_{cb} = 79.08$ A

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (E [illegible] 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/[illegible], 230V, [illegible]2, 3P, Molded Case Circuit Brea[illegible]

USE: 40kA, 3P, [illegible]2, Surge P[illegible]tive Device (SPD)

PANEL BOARD 3 - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB3	C1	Lighting Outlet	15				230	100	1500	0.80	1200	5.22	-	-		60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Lighting Outlet	15				230	100	1500	0.80	1200	5.22	-	-		60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Lighting Outlet	18				230	100	1800	0.80	1440	-	-				2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Lighting Outlet	12				230	100	1200	0.80	960	-	-	4.	-		2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Lighting Outlet	16	1			230	100	1700	0.80	1360	-	5.91	-	-		2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Convenience Outlet		11			230	180	1980	-	1584	-	6.89	-			2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet		10			230	180	18	0.80	440	6.26	-	-		60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet		7			230	180	126	0.80	8	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet		7			230	180	1260	80	8	-	-	4.38	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	Convenience Outlet - Server		1			230	1500	1500			-	-	6.52	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	Convenience Outlet - Server		1			230	1500	1500	1.0	1500	6.52	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C12	Convenience Outlet - Emergency Lighting		10			230	180	1800	1.00	1800		7.83	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C13	Convenience Outlet - Emergency Lighting		9			230	180	1620	1.00	20	7.04	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C14	Convenience Outlet - Emergency Lighting		6			230	80	1080	1.00	1080	4.70	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C15	SPARE					230		1500	0.80	1200	-	-	5.22	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C16	SPARE					0		1500	0.80	1200	-	-	5.22	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C17	SPARE						15	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C18	SPARE					2		1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C19	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C20	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			63	0			230		27500	0.85	23500	32.82	37.58	31.77	0							

PANEL BOARD 3					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	6160.00	10.43	5.91	10.43	0.00
CONVENIENCE OUTLET	12540.00	22.38	21.23	10.90	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	4800.00	0.00	10.43	10.43	0.00
TOTAL	23500.00	32.82	37.58	31.77	0.00

Calculation:

For Feeder Conductor and Protection

$I_{cb} = [(6160 + 12540) \times 125\% + 4800]/(230 \times \sqrt{3})$

$I_{cb} = 70.73$ A

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (G) @ 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/100AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

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OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
ENGR. GRACE C. BABA
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
DR. GLORIMER L. CLARIN
CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS

ATTY. JONATHAN S. OCHE
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

E13

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PANEL BOARD 3A – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB3A	C1	Lighting Outlet	16				230	100	1600	0.80	1280	5.57	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Lighting Outlet	23				230	100	2300	0.80	1840	8.00	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Lighting Outlet	21				230	100	2100	0.80	1680	-	-	7.30	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Lighting Outlet	20				230	100	2000	0.80	1600	-	-	6.96	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Convenience Outlet		7			230	180	1260	0.80	1008	-	4.38	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Convenience Outlet		7			230	180	1260	0.80	1008	-	4.38	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet		7			230	180	1260	0.80	1008	4.38	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet - Emergency Lighting		9			230	180	1620	1.00	1620	7.04	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet - Emergency Lighting		7			230	180	1260	1.00	1260	-	-	5.48	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C12	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C13	SPARE					230	1500	1500	0.80	1200	5.22	-	-	-	60	2	20	50	-	-	-
	C14	SPARE					230	1500	1500	0.80	1200	5.22	-	-	-	60	2	20	50	-	-	-
	C15	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C16	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C17	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C18	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
TOTAL			80	37	0		230		28160	0.82	23104	35.43	29.63	35.39	0.00							

PANEL BOARD 3A					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	6400.00	13.57	0.00	14.26	0.00
CONVENIENCE OUTLET	5904.00	11.43	8.77	5.48	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	10800.00	10.43	20.87	15.65	0.00
TOTAL	23104.00	35.43	29.63	35.39	0.00

Calculation:

For Feeder Conductor and Protection

$I_{cb} = [(6400 + 5904) \times 125\% + 10800]/(230 \times \sqrt{3})$

$I_{cb} = 65.72$

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (G) @ 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/100AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

PANEL BOARD 3B – SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
PB3B	C1	Lighting Outlet	20				230	100	2000	0.80	1600	6.96	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C2	Convenience Outlet - Computer		5	10		230	180	5000	0.80	4000	17.39	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C3	Convenience Outlet - Computer		5	10		230	180	5000	0.80	4000	-	-	17.39	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C4	Convenience Outlet - Computer			8		230	500	4000	0.80	3200	-	-	13.91	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C5	Convenience Outlet - Computer		4			230	500	4500	0.80	3600	-	15.65	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C6	Convenience Outlet - Computer		4			230	500	5000	0.80	4000	-	17.39	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	Convenience Outlet - Computer		5			230	500	5000	0.80	4000	17.39	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C8	Convenience Outlet					230	180	1080	0.80	864	3.76	-	-	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C9	Convenience Outlet - Server					230	1500	1500	1.00	1500	-	-	6.52	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	Convenience Outlet - Emergency Lighting		4			230	180	720	1.00	720	-	-	3.13	-	60	2	20	50	2 - 3.5 mm² THHN Copper Wire	1 - 3.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C11	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C12	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
TOTAL			20	38	57		230		36800	0.81	29884	45.50	43.48	40.96	0							

PANEL BOARD 3B					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	1600.00	6.96	0.00	0.00	0.00
CONVENIENCE OUTLET	25884.00	38.54	33.04	40.96	0.00
AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	0.00	0.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	2400.00	0.00	10.43	0.00	0.00
TOTAL	29884.00	45.50	43.48	40.96	0.00

Calculation:

For Feeder Conductor and Protection

$I_{cb} = [(1600 + 25884) \times 125\% + 2400]/(230 \times \sqrt{3})$

$I_{cb} = 92.26$ A

FEEDER CONDUCTOR

USE: 3 - 38 mm² THHN CU (L) + 1 - 14 mm² THHN CU (G) @ 40 mm Ø EMT

FEEDER PROTECTION

USE: 100AT/100AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)

USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

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APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

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ACU PANEL BOARD 1 - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
APB1	C1	ACCU 1-01			1	3TR	230	5175	5175	1.00	5175	22.50	-	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C2	ACCU 1-01			1	3TR	230	5175	5175	1.00	5175	22.50	-	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C3	ACCU 1-02			1	3TR	230	5175	5175	1.00	5175	-	-	22.50	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C4	ACCU 1-02			1	3TR	230	5175	5175	1.00	5175	-	-	22.50	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C5	ACCU 1-03			1	3TR	230	5175	5175	1.00	5175	-	22.50	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C6	ACCU 1-03			1	3TR	230	5175	5175	1.00	5175	-	22.50	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C7	ACCU 1-04			1	3TR	230	5175	5175	1.00	5175	22.50	-	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C8	ACCU 1-04			1	3TR	230	5175	5175	1.00	5175	22.50	-	-	-	60	2	40	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C9	ACCU 1-05			1	3	230	3910	3910	1.00	3910	-	-	17.00	-	60	2	30	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C10	ACCU 1-05			1	3	230	3910	3910	1.00	3910	-	-	17.00	-	60	2	30	50	2 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	20 mm ø Conduit - EMT
	C11	ACCU 1-06			1	4TR	230	6440	6440	1.00	6440	-	28.00	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C12	ACCU 1-07			1	4TR	230	6440	6440	1.00	6440	-	28.00	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C13	SPARE					230	1500	1500	0.80	1200	5.22	-	-	-	60	2	20	50	-	-	-
	C14	SPARE					230	1500	1500	0.80	1200	5.22	-	-	-	60	2	20	50	-	-	-
	C15	SPACE			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16	SPACE			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			0	0	12		230		65100	0.99	64500	100.43	101.00	79.00	0.00							

ACU PANEL BOARD 1					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	0.00	0.00	0.00	0.00	0.00
CONVENIENCE OUTLET	0.00	0.00	0.00	0.00	0.00
AIR CONDITIONING UNIT	55660.00	90.00	73.00	79.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	6440.00	0.00	28.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	2400.00	10.43	0.00	0.00	0.00
TOTAL	64500.00	100.43	101.00	79.00	0.00

Calculation:	For Feeder Conductor	For Feeder Protection	
	Ic = [(6440 x 125%) + 55660 + 2400]/(230 x √3)	Icb = [(6440 x 225%) + 5566[illegible]400]/(230 x √3)	FEEDER CONDUCTOR
	Ic = 165.95 A	Icb = 182.12 A	USE: 3 - 10[illegible] mm² THHN CU (L) + 1 - 22 mm² THHN CU (G) @ 50 mm Ø EMT
			FEEDER PROTECTION
			USE: 200AT/250AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)
			USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

ACU PANEL BOARD 2 - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
APB2	C1	ACCU 2-01			1	4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C2	ACCU 2-01			1	4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C3	ACCU 2-02			1	4TR	230	6440	6440	1.00	6440	-	-	28.00	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C4	ACCU 2-02			1	4TR	230	6440	6440	1.00	6440	-	-	28.00	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C5	ACCU 2-03			1	4TR	230	6440	6440	1.00	6440	-	28.00	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C6	ACCU 2-03			1	4TR	230	6440	6440	1.00	6440	-	28.00	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C7	ACCU 2-04			1	4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C8	ACCU 2-04			1	4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C9	ACCU 2-05			1	4TR	230	6440	6440	1.00	6440	-	-	28.00	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C10	ACCU 2-05			1	4TR	230	6440	6440	1.00	6440	-	-	28.00	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C11	ACCU 2-06			1	1	230	1840	1840	1.00	1840		8.00	-	-	60	2	30	50	2 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C12	ACCU 2-07			1	3	230	3910	3910	1.00	3910	-	17.00	-	-	60	2	30	50	2 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C13	ACCU 2-08			1	2.5	230	3335	3335	1.00	3335	14.50	-	-	-	60	2	30	50	2 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C14	ACCU 2-09				4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C15	SPARE					230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
	C16						230	1500	1500	0.80	1200	-	-	5.22	-	60	2	20	50	-	-	-
TOTAL			0	0	14		230		82925	0.99	82325	154.50	81.00	122.43	0.00							

ACU PANEL BOARD 2					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	0.00	0.00	0.00	0.00	0.00
CONVENIENCE OUTLET	0.00	0.00	0.00	0.00	0.00
AIR CONDITIONING UNIT	73485.00	126.50	81.00	112.00	0.00
MOTOR	0.00	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	6440.00	28.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	2400.00	0.00	0.00	10.43	0.00
TOTAL	82325.00	154.50	81.00	122.43	0.00

Calculation:	For Feeder Conductor	For Feeder Protection	
	Ic = [(6440 x 125%) + 73485 + 2400]/(230 x √3)	Icb = [(6440 x 225%) + 73485 + 2400]/(230 x √3)	FEEDER CONDUCTOR
	Ic = 210.7 A	Icb = 226.86 A	USE: 3 - 150 mm² THHN CU (L) + 1 - 22 mm² THHN CU (G) @ 65 mm Ø EMT
			FEEDER PROTECTION
			USE: 250AT/250AF, 230V, 60HZ, 3P, Molded Case Circuit Breaker (MCCB)
			USE: 40kA, 3P, Type 2, Surge Protective Device (SPD)

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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT	PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION	USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:	RECOMMENDING APPROVAL:		APPROVED BY:	SHEET CONTENTS:	DRAWN BY:
ENGR. GRACE C. BABA	DR. GLORIMER L. CLARIN	ATTY. JONATHAN S. OCHE	DR. AMBROSIO B. CULTURA II	SCHEDULE OF LOADS	
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE	CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS	VP FOR ADMINISTRATION & LEGAL AFFAIRS	PRESIDENT, USTP SYSTEM		DATE DRAWN: 05.01.2026
					FNT:

E15

ACU PANEL BOARD 3 - SCHEDULE OF LOADS

PANEL NO.	CKT NO.	LOAD DESCRIPTION	L.O.	C.O.	OTHER LOADS	HP RATING	VOLTAGE RATING	OUTLET (VA) RATING	VA PER CIRCUIT	DEMAND FACTOR	DEMAND VA	CIRCUIT LOAD CURRENT AB	BC	CA	3Ø	CIRCUIT BREAKER F	P	AT	AF	CIRCUIT CONDUCTOR, GROUNDING, AND CONDUIT CONDUCTOR	GROUNDING	CONDUIT
APB3	C1	ACCU 3-01			1	6TR	230	8206	8206	1.00	8206	-	-	-	20.60	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C2	ACCU 3-01			1	6TR	230	8206	8206	1.00	8206	-	-	-	20.60	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C3	ACCU 3-01			1	6TR	230	8206	8206	1.00	8206	-	-	-	20.60	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C4	ACCU 3-06			1	6TR	230	8206	8206	1.00	8206	-	-	-	20.60	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C5	ACCU 3-07			1	5TR	230	7131	7131	1.00	7131	-	-	-	17.90	60	3	40	50	3 - 8.0 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C6	ACCU 3-02			1	1	230	1840	1840	1.00	1840	8.00	-	-	-	60	2	30	50	2 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C7	ACCU 3-03			1	4TR	230	6440	6440	1.00	6440	28.00	-	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C8	ACCU 3-03			1	4TR	230	6440	6440	1.00	6440	-	-	28.00	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C9	ACCU 3-04			1	1	230	1840	1840	1.00	1840	-	-	8.00	-	60	2	30	50	2 - 5.5 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	15 mm ø Conduit - EMT
	C10	ACCU 3-05			1	4TR	230	6440	6440	1.00	6440	-	28.00	-	-	60	2	50	50	2 - 14 mm² THHN Copper Wire	1 - 5.5 mm² THHN Copper Wire	25 mm ø Conduit - EMT
	C11	SPARE					230	1500	1500	0.80	1200	-	5.22	-	-	60	2	20	50	-	-	-
	C12	SPARE					230	1500	1500	0.80	1200	5.22	-	-	-	60	2	20	50	-	-	-
TOTAL	C13	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C14	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C15	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	C16	SPACE					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL			0	0	10		230		65957	0.99	65357	41.22	33.22	36.00	100.30							

ACU PANEL BOARD 3					
LOAD TYPE	DEMAND VA	DEMAND CURRENT AB	BC	CA	3Ø
LIGHTING OUTLET	0.00	0.00	0.00	0.00	0.00
CONVENIENCE OUTLET	0.00	0.00	0.00	0.00	0.00
AIR CONDITIONING UNIT	56516	.00	28.00	36.00	100.30
MOTOR	0.	0.00	0.00	0.00	0.00
LARGEST AIR CONDITIONING UNIT	6440	28.00	0.00	0.00	0.00
LARGEST MOTOR	0.00	0.00	0.00	0.00	0.00
SPARE	2400.00	5.22	5.22	0.00	0.00
	65356.68	22	33.22	36.00	100.30

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Calculation:	For Feeder Conductor	For Feeder Protection
	Ic = [(6440 x 125%) + 56516.68 + 2400]/(230 x √3)	Icb = [(6440 x 225%) + 56516.68 + 2400]/(230 x √3)
	Ic = 168.1 A	Icb = 184.27 A

FEEDER CONDUCTOR
USE: 3 - 100 mm² THHN CU (L) + 1 - 22 mm² THH[illegible]G) @ 50 [illegible] EMT

FEEDER PROTECTION
USE: 200AT/25[illegible] 60HZ, 3P, Molded Case Circuit [illegible]er (MCC
USE: 40kA [illegible]ype 2, [illegible] Protective Device (SPD)

TRANSFORMER TO SERVICE BUS		
LENGTH	15	m
FLC	1306.20	A
SETS	4	
PHASE	3	
FACTOR	1.732	
CONDUCTOR	325mm2	
RESISTANCE	0.025	Ω
REACTANCE	0.048	Ω
COMPUTATION	VD = [1.732 x (1306.2/4) x √(0.025^2 + 0.048^2)]/305m x 15m	
VOLTAGE DROP	1.505383161	V

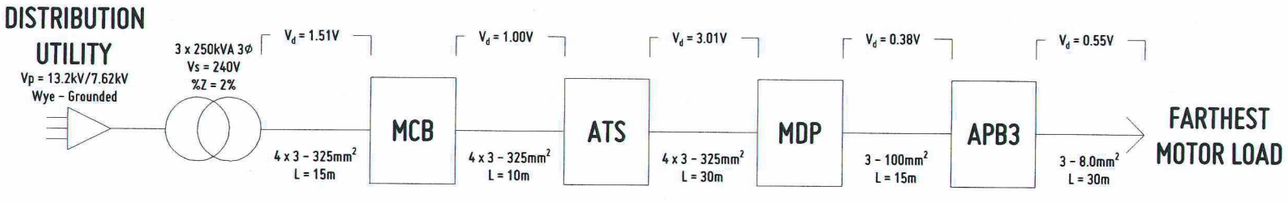
SERVICE BUS TO ATS		
LENGTH	10	m
FLC	1306.20	A
SETS	4	
PHASE	3	
FACTOR	1.732	
CONDUCTOR	325mm2	
RESISTANCE	0.025	Ω
REACTANCE	0.048	Ω
COMPUTATION	VD = [1.732 x (1306.2/4) x √(0.025^2 + [illegible]/305m	
VOLTAGE DROP	1.003588774	V

[illegible] MDP		
LENGTH	30	m
FLC	1306.20	A
SETS	4	
PHASE	3	
[illegible]CTOR	1.732	
CONDUCTOR	325mm2	
RESIST[illegible]	0.025	Ω
REACTANCE	0.048	Ω
COMPUTATION	VD = [1.732 x (1306.2/4) x √(0.025^2 + 0.048^2)]/305m x 30m	
VOLTAGE DROP	3.010766322	V

MDP TO APB3		
LENGTH	15	m
FLC	164.06	A
SETS	3	
PHASE	3	
FACTOR	1.732	
CABLE	100mm2	
RESISTANCE	[illegible]3	Ω
REACTANCE	[illegible]	Ω
COMPUTATION	VD = [1.732 x (164.0[illegible] [illegible](0.063^2 + 0.051^2)]/305m x 15	
VOLTAGE DROP	[illegible]77575186	V

[illegible]83 TO FARTHEST MOTOR LOAD (CKT1)		
LE[illegible]	30	m
FL[illegible]	20.60	A
SETS	1	
PHASE	3	
FACTOR	1.732	
CABLE	8mm2	
RESISTANCE	0.15	Ω
REACTANCE	0.046	Ω
COMPUTATION	VD = [1.732 x (20.6/1) x √(0.15^2 + 0.046^2)]/305m x 30m	
VOLTAGE DROP	0.550611484	V

VOLTAGE DROP ANALYSIS			
TOTAL VOLTAGE DROP FROM SERVICE TO FARTHEST LOAD	1.51 + 1 + 3.01 + 0.38 + 0.55	6.45 V	PERCENT VOLTAGE DROP
VOLTAGE DROP COMPUTATION USING NOMINAL VOLTAGE (240V)	240 - 6.45 V	233.55	2.69%



E 16 1 **VOLTAGE DROP ANALYSIS**
SCALE: NTS

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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT: PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION: USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:	RECOMMENDING APPROVAL:		APPROVED BY:
ENGR. GRACE C. BABA	DR. GLORMER L. CLARIN	ATTY. JONATHAN S. OCHE	DR. AMBROSIO B. CULTURA II
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE	CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS	VP FOR ADMINISTRATION & LEGAL AFFAIRS	PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS; VOLTAGE DROP ANALYSIS
DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

E16

USING POINT TO POINT METHOD

Transformer Full Load Current ($I_{F.L.A.}$)

For 3Ø Transformer:
$I_{F.L.A.} = (kVA \times 1000) / (E_{L-L} \times \sqrt{3})$

For 1Ø Transformer:
$I_{F.L.A.} = (kVA \times 1000) / E_{L-L}$

1. For 3Ø System:
$f = (1.732 \times L \times I_{3\phi}) / (C \times n \times E_{L-L})$

2. For Line-to-Line:
$f = (2 \times L \times I_{L-L}) / (C \times n \times E_{L-L})$

3. For Line-to-Neutral: $f = (2 \times L \times I_{L-N}) / (C \times n \times E_{L-N})$

Multiplier = $100 / (\%Z_{transformer})$
$M = 1 / (1 + f)$
$I_{S.C.sym.RMS} = I_{S.C.} \times M$
$I_{S.C\ Motor\ Contribution} = I_{S.C.} \times 4$

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TRANSFORMER RATING	750	kVA
%Z	2	(Typical Value)
PRIMARY LINE VOLTAGE	13.2	kV
SECONDARY LINE VOLTAGE	240	V

SHORT CIRCUIT ANALYSIS			
FAULT NO.	FAULT LOCATION	TOTAL 3P FAULT CURRENT (kA)	MINIMUM CB kAIC RATING
1	XMER SECONDARY SIDE	104.36	
2	SERVICE BUS	76.37	85
3	ATS	61.53	85
4	ATS-FPP	23.87	30
5	FPP	6.71	18
5	MDP	36.47	50

MOTOR LOADS		
TYPE	FLC	SHORT CIRCUIT CURRENT CONTRIBUTION (kA)
AIRCON	891.22	3.56
MOTOR (NON CONTINUOUS)	67.03	0.27
MOTOR (CONTINUOUS)	0.00	0.00
LARGEST MOTOR	72.75	0.29
TOTAL MOTOR CONTRIBUTION		4.12

GENERATOR						
RATING		PF	VOLTAGE	FLC	SUBTRANSIENT REACTANCE (X")	SHORT CIRCUIT CURRENT CONTRIBUTION (kA)
kVA	kW					
300	240	0.8	240	721.709007	25%	2.89

FAULT LOCATION 1		
XMER SECONDARY SIDE		
TRANSFORMER FLC	1804.272517	A
MULTIPLIER	55.55555556	
3P FAULT CURRENT	100237.3621	A
	100.2373621	kA
TOTAL 3P FAULT CURRENT	104361.382	A
	104.361382	kA

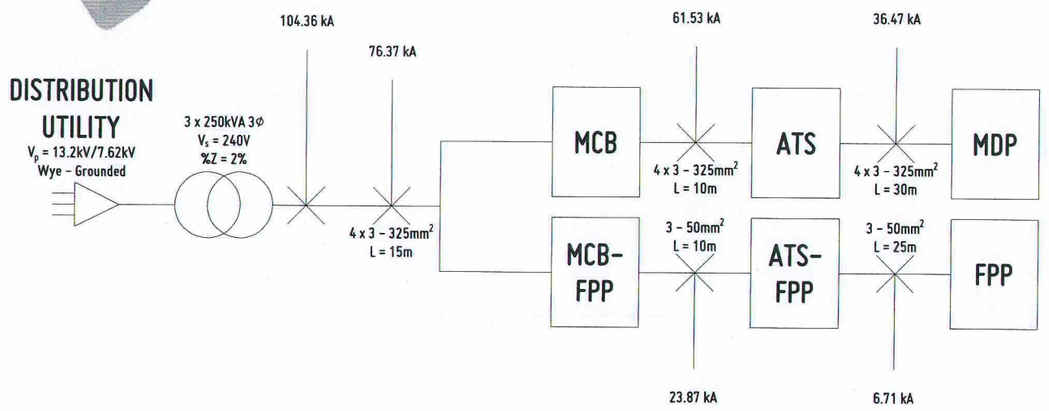
FAULT LOCATION 2		
SERVICE BUS		
CONDUCTOR	325	mm2
NO. OF SETS	4	
LENGTH	15	m
C VALUE	22965	
"f" FACTOR	0.387539639	
MULTIPLIER	0.720700131	
3P FAULT CURRENT	72241.07999	A
	72.24107999	kA
TOTAL 3P FAULT CURRENT	76365.09991	A
	76.36509991	kA

FAULT LOCATION 3		
ATS		
CONDUCTOR	325	mm2
NO. OF SETS	4	
LENGTH	10	m
C VALUE	22965	
"f" FACTOR	0.25835976	
MULTIPLIER	0.794685298	
3P FAULT CURRENT	57408.92414	A
	57.40892414	kA
TOTAL 3P FAULT CURRENT	61532.94407	A
	61.53294407	kA

FAULT LOCATION 4		
ATS-FPP		
CONDUCTOR	50	mm2
NO. OF SETS	1	
LENGTH	10	m
C VALUE	8925	
"f" FACTOR	2.659151543	
MULTIPLIER	0.273287397	
3P FAULT CURRENT	19742.5767	A
	19.7425767	kA
TOTAL 3P FAULT CURRENT	23866.59663	A
	23.86659663	kA

FAULT LOCATION 5		
FPP		
CONDUCTOR	50	mm2
NO. OF SETS	1	
LENGTH	25	m
C VALUE	8925	
"f" FACTOR	6.647878856	
MULTIPLIER	0.130755209	
3P FAULT CURRENT	2581.444747	A
	2.581444747	kA
TOTAL 3P FAULT CURRENT	6705.464674	A
	6.705464674	kA

FAULT LOCATION 6		
MDP		
CONDUCTOR	325	mm2
NO. OF SETS	4	
LENGTH	30	m
C VALUE	22965	
"f" FACTOR	0.775079279	
MULTIPLIER	0.56335512	
3P FAULT CURRENT	32341.61135	A
	32.34161135	kA
TOTAL 3P FAULT CURRENT	36465.63127	A
	36.46563127	kA



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SHORT CIRCUIT ANALYSIS

SCALE: NTS

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
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PROFESSIONAL ELECTRICAL ENGINEER

PROJECT: PROPOSED ESTABLISHMENT OF 3-STOREY SMART COMPUTING ACADEMIC BUILDING PHASE 1, OROQUIETA CAMPUS
LOCATION: USTP OROQUIETA CAMPUS, MOBOD, MISAMIS OCCIDENTAL
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
ENGR. GRACE C. BABA
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
DR. GLORIMER L. CLARIN
CAMPUS DIRECTOR, USTP OROQUIETA CAMPUS

ATTY. JONATHAN S. OCHE
VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROSIO B. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SHORT CIRCUIT ANALYSIS

DRAWN BY:
DATE DRAWN: 05.01.2026
FNT:

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