GENERAL NOTES

1. GENERAL

1.1 THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND THE SPECIFICATIONS. THE CONTRACTOR SHALL VERIFY THE REQUIREMENTS OF EITHER TRADES AS TO SLEEVES, DRIPS, HANGERS, INSERTS, ANCHORS, OPENINGS AND OTHER ITEMS TO BE PLACED OR SET IN THE STRUCTURAL WORKS.

1.2 THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL SAFETY PRECAUTIONS AND REGULATIONS DURING THE WORK.

1.3 THE STRUCTURAL DRAWINGS HEREIN REPRESENT THE FINISHED STRUCTURE. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY GUYING AND BRACING REQUIRED NO DIRECT AND HOLD THE STRUCTURE IN PROPER ALIGNMENT UNTIL ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC. IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.4 THE DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY SHOWN, SIMILAR DETAILS ON CONSTRUCTION SHALL BE USED, SUBJECT TO THE APPROVAL BY THE ROYAL CORPORATION.

1.5 LOADINGS APPLIED TO THE STRUCTURE DURING THE PROCESS OF CONSTRUCTION SHALL NOT EXCEED THE SAFE LOAD-CARRYING CAPACITY OF THE STRUCTURAL MEMBERS. THE LIVE LOADING USED IN THE DESIGN OF THIS STRUCTURE ARE INDICATED IN THE "DESIGN CRITERIA NOTES". DO NOT APPLY ANY CONSTRUCTION LOADS UNTIL STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND UNTIL ALL TEMPORARY BRACING IS IN PLACE.

1.6 ALL ASTM AND OTHER REFERENCES ARE PER THE LATEST EDITIONS OF THESE STANDARDS, UNLESS OTHERWISE NOTED.

2. DESIGN CRITERIA

2.1 STANDARDS

2.1.1 THE STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE FOLLOWING CODE OF STANDARD PRACTICE:

A. NATIONAL STRUCTURAL CODE OF THE PHILIPPINES
B. NSR BNBC CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI-318RM)
C. INTERNATIONAL BUILDING CODE (IBC)
D. STRUCTURAL ENGINEERING INSTITUTE/AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE 7)

2.2 MATERIALS

2.2.1 THE FOLLOWING STRUCTURAL MATERIALS AND THEIR CORRESPONDING STRENGTH ARE ADOPTED IN THE DESIGN:

A. CONCRETE CYLINDER STRENGTH AT 28 DAYS. $f'c = 25$ MPa
B. CONCRETE BLOCKING $f'c = 21$ MPa
C. REINFORCING BARS $fy = 414$ MPa
D. CONCRETE MASONRY UNITS $f'm = 14$ MPa
E. STRUCTURAL STEEL PLATES AND SHAPES - ASTM A36 $fy = 248$ MPa
F. ANCHOR BOLTS - ASTM A307 $fy = 228$ MPa

2.3 DESIGN LOADS

2.3.1 DEAD LOADS: DESIGN GRAVITY DEAD LOADS USED IN THE DESIGN ARE AS FOLLOWS:

A. CONCRETE 24 KN/M³
B. 50 MM FLOOR TOPPING + FINISH 1.1 KN/M²
C. 100 MM CONCRETE MASONRY UNITS 2.20 KN/M²
D. 150 MM CONCRETE MASONRY UNITS 3.20 KN/M²
E. ROOF TOPPING + WATERPROOFING + INSULATION 2.50 KN/M²

2.3.2 LIVE LOADS: DESIGN GRAVITY LIVE LOADS USED IN THE DESIGN ARE AS FOLLOWS:

A. FLOOR LIVE LOAD 2.0 KN/M²
B. ROOF LIVE LOAD CONCRETE ROOF: 1.0 KN/M²; STEEL ROOF: 0.6 KN/M²
C. CORRIDORS, STAIRS & BALCONIES 4.0 KN/M²

2.3.3 WIND LOAD

2.3.3.1 WIND LOAD ON STRUCTURE SHALL BE COMPUTED AND APPLIED IN CONFORMANCE TO THE PROVISIONS OF THE INTERNATIONAL BUILDING CODE, LATEST EDITION.

2.3.3.2 DESIGN WIND PRESSURES

A. BASIC WIND VELOCITY FOR ZONE 4 AREAS ARE AS FOLLOWS: 150 KPH
B. SIMPLIFIED DESIGN WIND SHALL BE DESIGNED AS GIVEN IN FIGURE 6-2 OF SEI/ASCE 7.

2.3.3.3 ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE (λ)

A. ADJUSTMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE (λ) SHALL BE AS GIVEN IN FIGURE 6-2 OF SEI/ASCE 7.

2.3.3.4 IMPORTANCE FACTOR (I)

A. IMPORTANCE (I) SHALL BE AS DEFINED IN SECTION 6.5.6 OF SEI/ASCE 7.

2.3.3.5 EXPOSURE CATEGORY

A. AN EXPOSURE CATEGORY SHALL BE IN ACCORDANCE WITH SECTION 6.5.6 OF SEI/ASCE 7.

2.3.4 EARTHQUAKE LOADS

2.3.4.1 COMPUTATIONS AND APPLICATION OF SEISMIC LOADS ON THE STRUCTURE SHALL BE IN ACCORDANCE WITH THE EARTHQUAKE PROVISIONS OF THE INTERNATIONAL BUILDING CODE, LATEST EDITION.

3. CONCRETE

3.1 GENERAL

3.1.1 STRUCTURAL CONCRETE SHALL BE IN ACCORDANCE WITH ASTM.

3.1.2 FOR REINFORCED CONCRETE, TYPE I WITH PUZZOLAN SHALL BE USED FOR CONCRETE IN CONTACT WITH THE GROUND, AND TYPE I CEMENT WITHOUT PUZZOLAN SHALL BE USED FOR CONCRETE NOT IN CONTACT WITH THE GROUND. FOR PLAIN CONCRETE TYPE V CEMENT SHALL BE USED.

3.1.3 CONCRETE SHALL BE READY-MIXED UNLESS OTHERWISE APPROVED BY THE ROYAL CORPORATION.

3.1.4 CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF NSCP.

3.1.5.1 REINFORCEMENT FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF NSCP

3.2 FOUNDATION

3.2.1 FOUNDATION SHALL BE DESIGNED BASED ON THE GEO-TECHNICAL INVESTIGATION REPORT. THE GENERAL CONTRACTOR SHALL CONDUCT HIS OWN GEO-TECHNICAL TEST TO VERIFY THE DESIGN IS SAFE AND IS ACCORDANCE TO THE GEO-TECHNICAL SOIL TEST RESULT REPORT.

3.2.2 SITE PREPARATION

3.2.2.1 ALL VEGETATION, DEBRIS AND SURFACE SOILS CONTAINING ORGANIC MATERIALS SHALL BE REMOVE FROM THE SITE.

3.2.2.2 THE EXPOSED SUB-GRADE SHALL BE COMPACTED PRIOR TO PLACING ANY FILL. THE DENSIFICATION SHALL BE ACHIEVED BY COMPACTING. SUB-GRADE SHALL CONTINUE UNTIL THE SOIL DENSITY, 300 MM BELOW THE EXISTING SUB-GRADE, IS AT LEAST 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY.

3.2.2.3 IF THE COMPACTED SOILS ARE DUE TO CONSTRUCTION ACTIVITIES, THESE SOILS SHALL BE RE-COMPACTED AND RE-TESTED.

3.2.3 GROUND WATER TABLE

3.2.3.1 THE CONTRACTOR'S ATTENTION IS DRAWN TO GROUNDWATER ELEVATIONS INDICATED OR DISCLOSED IN THE GEO-TECHNICAL REPORT. WELL-POINTS MAYBE NEEDED SO THAT THE GROUND WATER LEVEL IS MAINTAINED AT LEAST 500 MM BELOW THE BOTTOM OF FOOTINGS DURING COMPACTION AND CONSTRUCTION.

3.2.4 THE SIDES OF FOOTINGS SHALL BE FORMED. EXCAVATED SOILS TO FORM THE SIDES OF FOOTINGS ARE NOT ACCEPTABLE.

3.2.5 TOP OF FOOTING ELEVATION SHALL BE AS SHOWN ON THE FOUNDATION PLAN OR DETAILS. THESE ELEVATIONS ARE A MAXIMUM AND SHALL BE LOWERED AS REQUIRED TO OBTAIN THE REQUIRED DESIGN BEARING PRESSURE.

3.2.6 NO UNBALANCED BACKFILLING SHALL BE DONE AGAINST FOUNDATION WALLS UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING, EITHER BY TEMPORARY BRACING PERMANENT CONSTRUCTION.

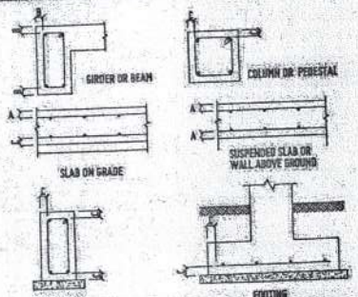
4. CONCRETE CONSTRUCTION

4.1 NO SPLICES SHALL BE PERMITTED IN FLEXURAL MEMBER REINFORCEMENT AT POINTS WHERE CRITICAL BENDING STRESSES OCCURS.

4.2 WHEN A BEAM CROSSES A GIRDER, REST BEAM BARS ON TOP OF GIRDER BARS.

4.3 IF SLABS ARE REINFORCED BOTH WAYS (TWO-WAY SPANNING SLABS), THE BARS ALONG THE SHORT SPAN SHALL BE AT THE LOWER LAYER FOR BOTTOM BARS, AND UPPER LAYER FOR TOP BARS.

4.4 UNLESS OTHERWISE NOTED, THE FOLLOWING CLEAR CONCRETE COVER OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI 318-05 AND USED AS FOLLOWS:



CAST-IN-PLACE CONCRETE		
CLEAR COVER	EXPOSED TO WEATHER OR EARTH	NOT EXPOSED TO WEATHER OR EARTH
A	50	25
B	50	40
B	75	50
C	75	

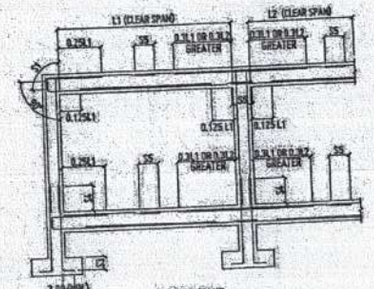
PRECAST CONCRETE			
CLEAR COVER	EXPOSED TO EARTH	EXPOSED TO WEATHER	NOT EXPOSED TO WEATHER OR EARTH
WALL PANELS	75	30	20
OTHERS	75	50	30

4.5 HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE FOLLOWING MINIMUM REQUIREMENT:

MAIN REINFORCEMENT			
BARS (MM)	MINIMUM BEND DIAMETER	EXTENSION	
	D1 (MM)	L1 (MM)	L2 (MM)
#8	50	60	95
#10	60	60	125
#12	70	60	145
#14	85	60	170
#16	95	65	190
#18	110	70	215
#20	120	80	240
#22	130	90	265
#25	150	100	300
#28	225	110	335

STIRRUPS AND TIES		
BARS (MM)	MINIMUM BEND DIAMETER	EXTENSION
	D2 (MM)	L3 (MM)
#8	33	50
#10	40	60
#12	50	70
#14	55	85
#16	65	95

4.6 UNLESS OTHERWISE INDICATED, THE FOLLOWING MINIMUM DEVELOPMENT AND LAP LENGTH SHALL BE USED:



	MIN. DEVELOPMENT LENGTH		MIN. LAP LENGTH	
BARS (MM)	IN TENSION	IN COMPRESSION	IN TENSION	IN COMPRESSION
	S1 (MM)	S2 (MM)	S3 (MM)	S4 (MM)	S5 (MM)
#8	420	325	200	420	300
#10	525	405	210	525	300
#12	630	485	250	630	355
#14	735	565	295	735	410
#16	840	645	335	840	470
#18	945	725	380	945	530
#20	1050	805	420	1050	590
#22	1160	1110	460	1160	650
#25	1640	1260	525	1640	735
#28	1835	1410	590	1835	825
#30	1985	1510	630	1985	880
#32	2095	1615	670	2095	940

NOTES:

A. THE INDICATED MINIMUM DEVELOPMENT AND LAP LENGTH IS FOR CLASS B CONCRETE. FOR F'C OTHER THAN 25 MPa, THE VALUES OF S1, S2, S3, AND S4 SHALL BE MULTIPLIED BY 0.8.

B. WHEN LIGHTWEIGHT AGGREGATE CONCRETE IS USED, INDICATED VALUE OF S1 AND S2 SHALL BE MULTIPLIED BY 1.3. HOWEVER WHEN THE AVERAGE SPLITTING TENSILE STRENGTH OF LIGHTWEIGHT AGGREGATE CONCRETE IS 0.6 SQRT(F'C), S1 AND S2 SHALL BE PERMITTED TO BE MULTIPLIED BY 0.75 BUT NOT LESS THAN 1.0.

C. FOR EPOXY COATED BARS, S1 AND S2 SHALL BE MULTIPLIED BY 1.5.

D. LAP AND DEVELOPMENT LENGTH OF INDIVIDUAL BARS WITHIN A BUNDLE, SHALL BE THAT FOR INDIVIDUAL BAR INCREASED BY 20% FOR THREE BAR BUNDLE, 33% FOR FOUR BAR BUNDLE.

5. MASONRY

5.1 MASONRY UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM, AND UNIT MASONRY ASSEMBLIES SHALL BE IN ACCORDANCE WITH ASTM.

5.2 MASONRY MORTAR AND MASONRY GROUT SHALL CONFORM TO THE REQUIREMENTS OF ASTM RESPECTIVELY.

5.3 ANCHORAGE AND REINFORCEMENT FOR MASONRY SHALL BE IN ACCORDANCE WITH ASTM.

5.4 MASONRY EXPANSION AND CONTROL JOINT REQUIREMENTS SHALL BE AS INDICATED IN ASTM.

5.5 UNLESS OTHERWISE INDICATED, ALL WALLS SHALL BE LAID IN RUNNING BOND.

5.6 REINFORCING BARS SHALL BE PROVIDED OF THE GIVEN SIZE AND SPACING AS INDICATED. PROVIDE BARS AT ALL WALL CORNERS, INTERSECTIONS AND OPENING EDGES.

5.7 DOWEL BARS SHALL BE PROVIDED FROM FOUNDATIONS TO MATCH VERTICAL BARS.

5.8 LINTEL BEAM SHALL BE PROVIDED ABOVE ALL WALL OPENINGS.

6. STEEL

6.1 ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AISC.

6.2 STEEL JOIST REQUIREMENTS SHALL BE IN ACCORDANCE WITH AISC.

6.3 STEEL DECK SHALL COMPLY WITH THE REQUIREMENTS OF AISC.

7. NOTES FOR DRAWING NOMENCLATURES

7.1 ALL DIMENSIONS ARE IN MILLIMETERS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE NOTED.

7.2 INDICATED DIMENSION SHALL PREVAIL. SCALED DIMENSION.

7.3 THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND SITE CONDITIONS. SHALL NOTIFY THE ROYAL CORPORATION OF ANY DISCREPANCY.

7.4 ALL REINFORCING BARS SHALL BE READ AS FOLLOWS:

#6 - 8250 - H28 - 200 - TOP

8. ABBREVIATIONS

ACI	=	AMERICAN CONCRETE INSTITUTE
ADDL	=	ADDITIONAL
ALT.	=	ALTERNATE/ PLACES
AR	=	ALTERNATELY REVERSED
AS	=	ALTERNATELY STRAIGHT
ASTM	=	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	=	AMERICAN WELDING SOCIETY
B	=	BOTTOM
BF	=	BACK FACE
BP	=	BULKHEADS
BWL	=	CENTER LINE
CL	=	CLEAR
CLR	=	CONCRETE MASONRY UNIT
CMU	=	CONCRETE
CONC	=	CONTINUOUS
CONT	=	DIAMETER
DIA	=	DISCONTINUOUS
DISCONT	=	DETAIL
DTL	=	DRAWING
DWG	=	EACH FACE
EF	=	EXISTING LEVEL
EL	=	ELEVATION
ELEV	=	EQUAL
EQ	=	EACH WAY
EW	=	EXTERIOR
EXT	=	FACING FACE
FF	=	FINISH
FIN	=	FURNISH AND SPECIFICATION
FS	=	HORIZONTAL
HORZ	=	INTERIOR
INT	=	LENGTH
LENG	=	MAXIMUM
MAX	=	MINIMUM
MIN	=	NOT TO SCALE
NTS	=	ON CENTER
OC	=	REINFORCING BAR
REBAR	=	HORIZONTAL REINFORCEMENT IN CONCRETE
REINF	=	SILTON
SIM.	=	SPACING
SP	=	STIRRUP
STIRR	=	SYMMETRICAL
SYMM	=	TOP
T	=	THICK
THK	=	TYPICAL
TYP	=	UNLESS OTHERWISE NOTED
UON	=	VERTICAL
VERT	=	WELDED WIRE FABRIC
WWF	=	

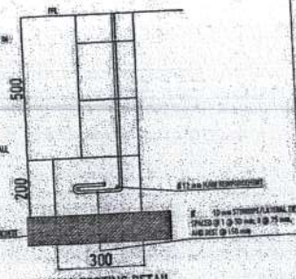
9. WATER PROOFING

9.1 ALL STRUCTURAL CONCRETE IN CONTACT WITH THE GROUND SHALL BE PROTECTED BOTH BY TWO COATS OF BITUMINOUS DAMPPROOFING OR BY USE OF WATER PROOF MEMBRANE AS SHOWN ON THE DETAILED DRAWING.

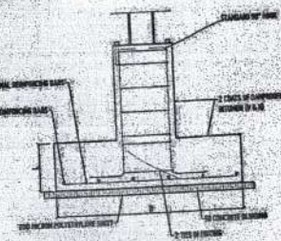
POLYETHYLENE SHEET OF 200 MICRON TO BE USED AS VAPOR BARRIER UNDER SOG SLAB

WATER PROOFING TO BE APPLIED ON TOP OF FOO CONCRETE AND BASE.

WHEN USING WATER PROOF MEMBRANE, IT SHALL BE AS PER PD 1096 SPEC. 07110 (CANADIAN SYSTEM) ROYAL CORPORATION GUIDELINE SPECIFICATION 07 13 01.

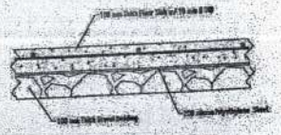


WALL FOOTING DETAIL



PEDESTAL FOOTING DETAIL (TYPICAL)

ANCHOR BOLT DETAIL



SLAB ON GRADE DETAIL

NOTE: CHECK SCHEDULE FOR SLAB DIMENSIONS AND REINFORCING BAR SPACING.

SUSPENDED SLAB DETAIL

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIRO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)22 72-08-65 / (088) 856-1728 / 856-1729 | TELEFAX (088) 858-1409
WEBSITE: www.ustp.edu.ph

ERNESTO C. QUIJOTE
CIVIL/STRUCTURAL ENGINEER
PRC NO. 0044945 | PTR NO. 0070044 A
BAGO | 01-12-2021
TIN 152-328-712 | PLACE D. CARMEN

PROJECT: PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION: USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. SUMPA, DIRECTOR, INFRASTRUCTURE PLANNING & FACILITY DEVELOPMENT OFFICE

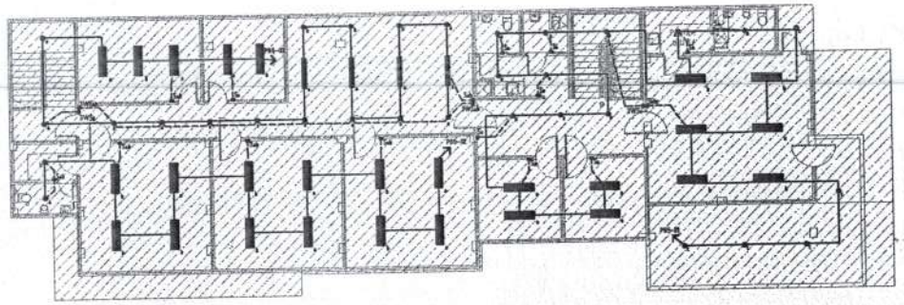
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCID, VP FOR ADMINISTRATION & LOGISTICS

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

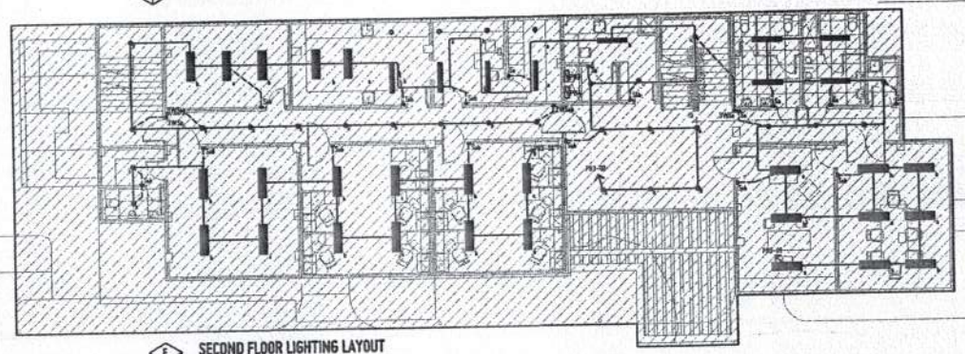
SHEET CONTENTS: GENERAL NOTES, FOOTPRINT FOOF PLAN, SLAB ON GRADE DETAIL, ANCHOR BOLT DETAIL, PEDESTAL FOOTING DETAIL, WALL FOOTING DETAIL

DRAWN BY: VFC
DATE DRAWING: 10.21.2021
REV.:

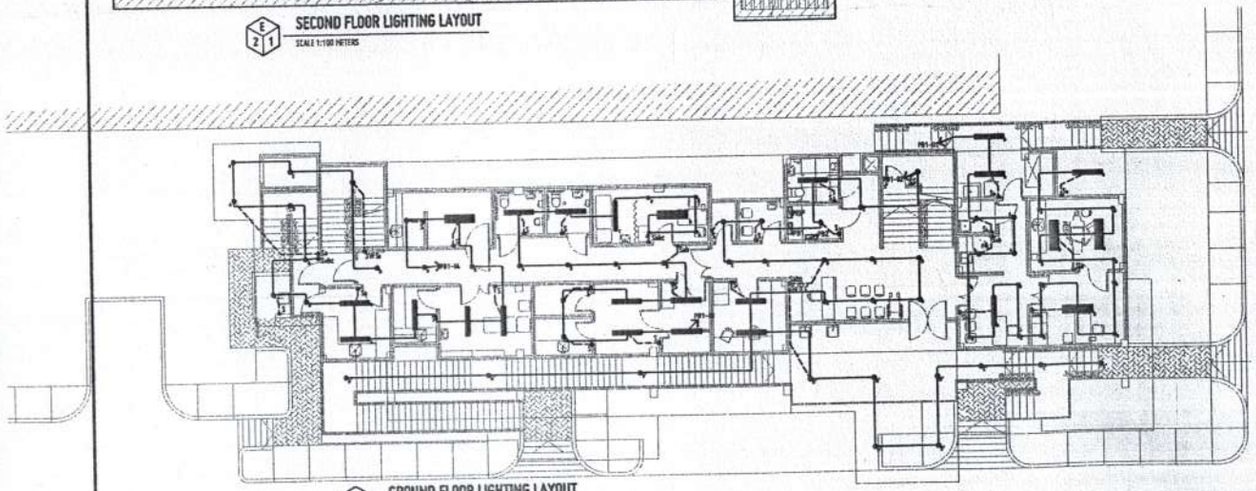
S2



THIRD FLOOR LIGHTING LAYOUT
SCALE 1:100 METERS



SECOND FLOOR LIGHTING LAYOUT
SCALE 1:100 METERS



GROUND FLOOR LIGHTING LAYOUT
SCALE 1:100 METERS

SYMBOL

- ENCLOSED CIRCUIT BREAKER, NEMA 3R
- DUPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE,VERIFY EXACT LOCATION
- WEATHERPROOF DUPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE.
- RECESSED DUPLEX FLOOR CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE.
- DUPLEX COUNTER TOP WALL CONVENIENCE OUTLET, 2P , 250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE.
- DUPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE, FOR CLOSED-CIRCUIT TELEVISION, VERIFY EXACT LOCATION
- DUPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE, FOR INTERMEDIATE DISTRIBUTION FRAME
- SIMPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE, FOR EMERGENCY LIGHT, INCLUDING RECHARGEABLE EMERGENCY LIGHT UNIT
- SIMPLEX WALL CONVENIENCE OUTLET, 2P ,250 V, 15A, UNIVERSAL SLOTS GROUNDING TYPE, FOR EXIT LIGHT, INCLUDING RECHARGEABLE EXIT LIGHT UNIT
- PANEL-BOARD, NEMA 3 FOR INDOOR AND NEMA 4X FOR OUTDOOR

IMPORTANT NOTES

1. STRUCTURAL DESIGN/DETAILS OF PEDESTAL, DUCTBANK AND GENERATOR PADS SHALL BE COORDINATED WITH STRUCTURAL ENGINEER PRIOR TO IMPLEMENTATION
2. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH POWER UTILITY COMPANY FOR TOTAL LOAD REQUIREMENTS OF THE PROJECT TO ASSURE AVAILABILITY OF 3-PHASE OR 1-PHASE TO BE SUPPLIED BY THE UTILITY COMPANY. THIS SHALL BE DONE PRIOR TO FABRICATION OR PURCHASE OF PANELBOARD & INSTALLATION OF SERVICE & FEEDERS.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF SERVICE PEDESTAL WITH EXISTING UTILITY POLE AT SITE & WITH ELECTRIC UTILITY COMPANY PRIOR TO IMPLEMENTATION. IN GENERAL, LOCATE PEDESTAL ON THE SIDE NEAR THE EXISTING POLE.
4. A=2.0M FOR PEDESTRIAN AREAS
   =3.7M FOR DRIVEWAYS SUBJECT TO CAR TRAFFIC
   =5.5M FOR DRIVEWAYS/STREET SUBJECT TO TRUCK TRAFFIC

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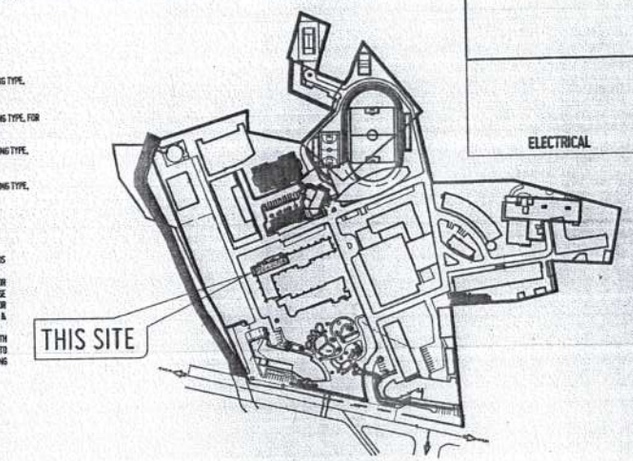
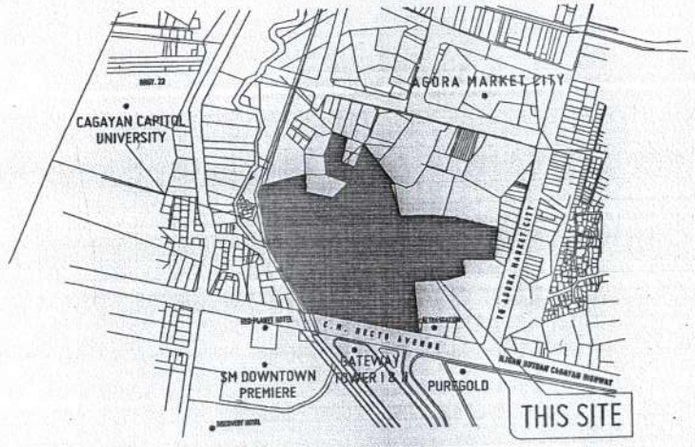


LOCATION PLAN
NOTS



VICINITY MAP
NOT TO SCALE

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIM M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088222) 72-40-05 / (088) 856-1720 / 858-1720 | TELE FAX (088) 856-4484
WEBSITE: www.ustp.edu.ph

ELECTRICAL ENGINEER	
PRC NO.	PTR NO.
	DATE
TIN	PLACE

PROJECT	PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
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VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
- GROUND FLOOR LIGHTING LAYOUT
- SECOND FLOOR LIGHTING LAYOUT
- THIRD FLOOR LIGHTING LAYOUT
- LEGEND
- VICINITY MAP
- LOCATION MAP

DRAWN BY:
DATE DRAWN:
DATE:

E1

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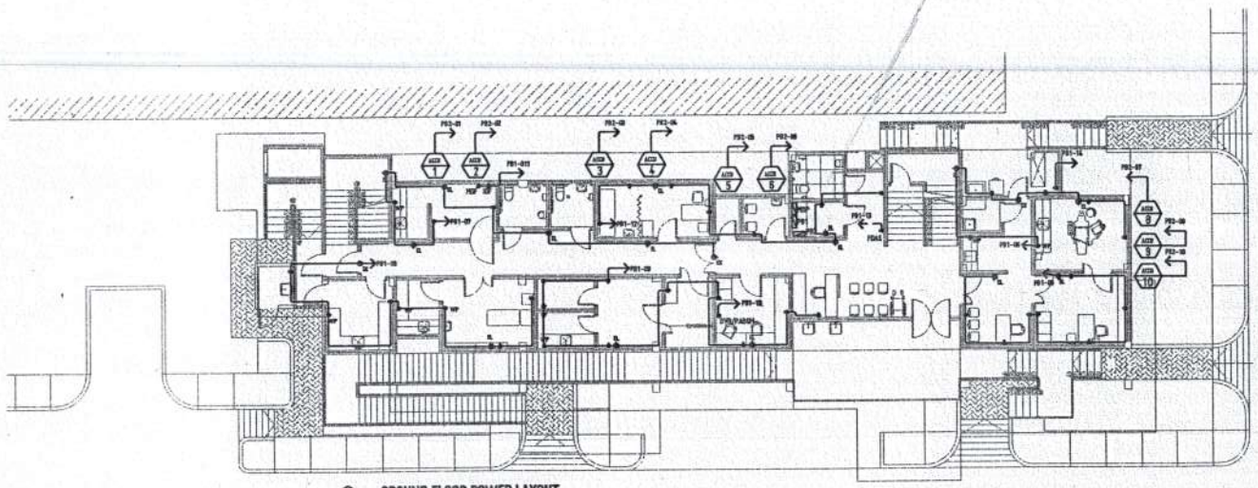
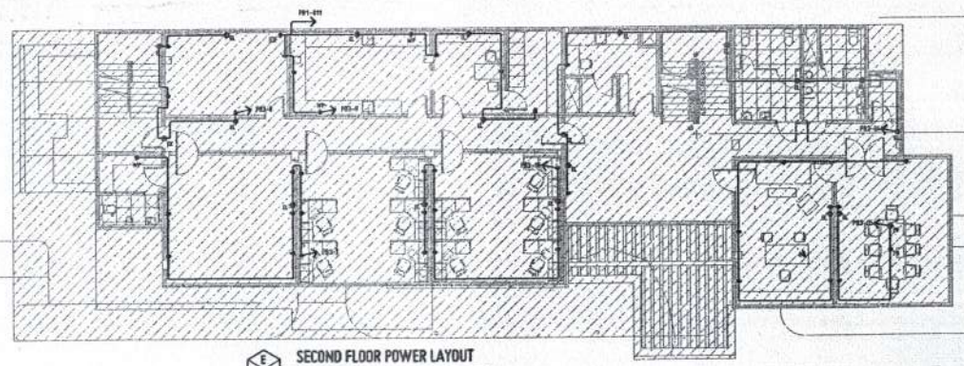
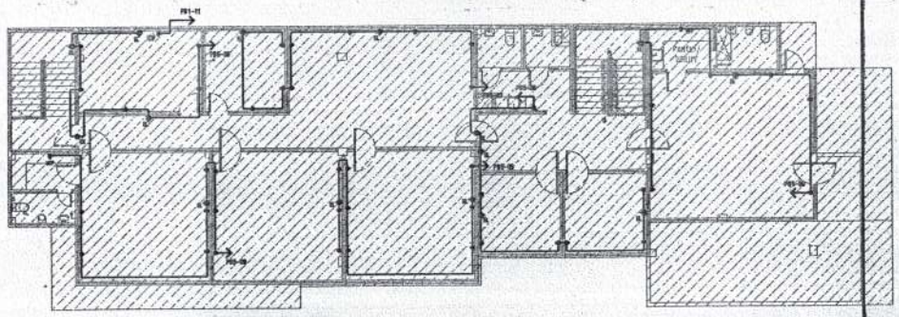
ELECTRICAL



E 1/2 GROUND FLOOR POWER LAYOUT
SCALE 1:100 METERS



E 2/2 SECOND FLOOR POWER LAYOUT
SCALE 1:100 METERS



E 3/2 THIRD FLOOR POWER LAYOUT
SCALE 1:100 METERS

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLARO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088222) 72-40-05 / (088) 856-1738 / 856-1739 | TELE FAX (088) 856-4096
WEBSITE: www.ustp.edu.ph

ELECTRICAL ENGINEER	
PRC NO.	PTR NO.
	DATE
TIN	PLACE

PROJECT	PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION	USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND A. DUMPA
DIRECTOR, OFFICE FOR INFRASTRUCTURE PLANNING & FACILITIES DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCIO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
GROUND FLOOR POWER LAYOUT
SECOND FLOOR POWER LAYOUT
THIRD FLOOR POWER LAYOUT

DRAWN BY:
DATE DRAWN:
PAID:

E2

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

ELECTRICAL

PROJECT: CDO UNIVERSITY HEALTH CENTER
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines
DATE: 24-Aug-21
FEEDER:

NO OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1		30		8	50	PVC

PANEL: PB1
LOCATION: GROUND FLOOR
BRANCH KWH: 10
VOLT: 220
PHASE: 3
MAINS: 3P | 100 | AT | AF 150 | KAIC 18

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕ AB AMPS	ϕBC AMPS	ϕCA AMPS	3ϕ AMPS	NO.OF SETS	FEEDER/CIRCUIT WIRES (50MM) THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1	2	30	60	PB1-1 LIGHTING OUTLET GF	2.6	11.82							3.5	3.5	20	PVC
				1x36 Watts LED Fluorescent Light -4	0.4											
				9 Watts LED Pin Light - 12	1.2											
				18 Watts LED Pin Light - 4	0.4											
				2x36 Watts LED Fluorescent Light - 3	0.6											
2	2	30	60	PB1-2 LIGHTING OUTLET GF	2.7	12.27							3.5	3.5	20	PVC
				18 Watts LED Pin Light - 24	2.4											
				1x36 Watts LED Fluorescent Light - 3	0.3											
3	2	30	60	PB1-3 LIGHTING OUTLET GF	1.9		8.64						3.5	3.5	20	PVC
				9 Watts LED Pin Light - 4	0.4											
				18 Watts LED Pin Light - 6	0.6											
				1x36 Watts LED Fluorescent Light - 7	0.7											
				2x36 Watts LED Fluorescent Light - 1	0.2											
4	2	30	60	PB1-4 LIGHTING OUTLET GF	1.9		8.64						3.5	3.5	20	PVC
				18 Watts LED Pin Light - 12	1.2											
				1x36 Watts LED Fluorescent Light - 5	0.5											
				2x36 Watts LED Fluorescent Light - 1	0.2											
5	2	30	60	PB1-5 CONVENIENCE OUTLET GF	2.88			13.09					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 7	2.52											
				Simplex Universal Convenience Outlet - 2	0.36											
6	2	30	60	PB1-6 CONVENIENCE OUTLET GF	2.7			12.27					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 6	2.16											
				Simplex Universal Convenience Outlet - 3	0.54											
7	2	30	60	PB1-7 CONVENIENCE OUTLET GF	2.15	9.82							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 3	1.08											
				Simplex Universal Convenience Outlet - 6	1.08											
8	2	30	60	PB1-8 CONVENIENCE OUTLET GF	2.88	13.09							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 7	2.52											
				Simplex Universal Convenience Outlet - 2	0.36											
9	2	30	60	PB1-9 CONVENIENCE OUTLET GF	4.32		19.64						3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 11	3.96											
				Simplex Universal Convenience Outlet - 2	0.36											
10	2	30	60	PB1-10 DVR/PABGM GF	0.36		1.64						3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 1	0.36											
11	2	30	60	PB1-11 MDF/IDF SF-3RD F	1.44			6.55					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
12	2	30	60	PB1-12 CONVENIENCE OUTLET GF	3.06			13.91					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 7	2.52											
				Simplex Universal Convenience Outlet - 3	0.54											
13	2	30	60	PB1-13 FBAS	0.36	1.64							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 1	0.36											
14	2	30	60	PB1-14 COMPRESSOR FOR DENTIST	0.36	1.64							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 1	0.36											
15	2	30	60	PB1-15	0		0.00						3.5	3.5	20	PVC
				SPARE	0											
16	2	30	60	PB1-16	0		0.00						3.5	3.5	20	PVC
				SPARE	0											
				TOTAL	29.62	50.27	38.55	45.82	0.00							

DESIGN ANALYSIS

AVE P.F. 0.80	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	0	0	0	0	0	0	0
LIGHTS	9.1	0.8	7.28	1	19.13	25.00	23.91
C.O.	20.52	0.8	16.42	0.8	53.91	25.00	67.39
WATER HEATER	0	0	0	0	0	0	0
RANGE	0	0	0	0	0	0	0
CLOTHES DRYER	0	0	0	0	0	0	0
WASH MACHINE	0	0	0	0	0	0	0
AIRCON	0	0	0	0	0	0	0
MOTOR(CONT)	0	0	0	0	0	0	0
MOTOR(NON-CONT)	0	0	0	0	0	0	0
OTHERS 1	0	0	0	0	0	0	0
OTHERS 2	0	0	0	0	0	0	0
OTHERS 3	0	0	0	0	0	0	0
TOTAL	29.62	0.80	23.70		73.04		91.30

PROJECT: CDO UNIVERSITY HEALTH CENTER
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines
DATE: 24-Aug-21
FEEDER:

NO OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1		80		14	63	PVC

PANEL: PB2
LOCATION: GROUND FLOOR
BRANCH KWH: 10/10
VOLT: 220
PHASE: 3
MAINS: 3P | 200 | AT | AF 250 | KAIC 18

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕ AB AMPS	ϕBC AMPS	ϕCA AMPS	3ϕ AMPS	NO.OF SETS	FEEDER/CIRCUIT WIRES (50MM) THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1	2	30	60	PB2-1	1	4.55							3.5	3.5	20	PVC
				ACCU 6 - NURSES STATION	1											
2	2	30	60	PB2-2	1	4.55							3.5	3.5	20	PVC
				ACCU 4 - PHYSICIAN'S OFFICE	1											
3	2	30	60	PB2-3	2		9.09									
				ACCU 8 - CLERICAL/RECEIVING	2											
4	2	30	60	PB2-4	1		4.55						3.5	3.5	20	PVC
				ACCU 5 - RECEPTION/WAITING	1											
5	2	30	60	PB2-5	1			4.55					3.5	3.5	20	PVC
				ACCU 7 - BREASTFEEDING	1											
6	2	30	60	PB2-6	1.5			6.82					3.5	3.5	20	PVC
				ACCU 1 -BREAKOUT ROOM GF	1.5											
7	2	30	60	PB2-7	1	4.55							3.5	3.5	20	PVC
				ACCU 9 - DENTISTS OFFICE	1											
8	2	30	60	PB2-8	1	4.55										
				ACCU 10 - DENTAL OPERATION	1											
9	2	30	60	PB1-9	0		0.00						3.5	3.5	20	PVC
				SPARE	0											
10	2	30	60	PB1-10	0		0.00									
				SPARE	0											
11	2	30	60	PB1-11	0			0.00					3.5	3.5	20	PVC
				SPARE	0											
12	2	30	60	PB1-12	0			0.00								
				SPARE	0											
13	3	30	60	PB2-13	10				27.44	1		5.5		5.5	20	PVC
				ACCU 2 - HALLWAY GF	10											
14	3	30	60	PB2-14	10				27.44	1		5.5		5.5	20	PVC
				ACCU 3 - HALLWAY GF	10											
15	3	30	100	PB2-15	7				19.39	1		5.5		5.5	20	PVC
				Plumbing Transfer Pump - Main	7											
16	3	30	100	PB2-16	7				19.39	1		5.5		5.5	20	PVC
				Plumbing Transfer Pump - Backup	7											
17	3	30	150	PB2-17	3				7.98	1		5.5		5.5	20	PVC
				2HP Jockey Pump	3											
18	3	30	150	PB2-18	0				0.00							
				SPACE	0											
				TOTAL	47.39	18.18	13.64	11.39	99.55							

DESIGN ANALYSIS

AVE P.F. 0.83	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	0	0	0	0	0	0	0.00
LIGHTS	0	0	0	0	0	0	0.00
C.O.	0	0	0	0	0	0	0.00
HEATING MACHINE	0	0	0	0	0	0	0.00
RANGE	0	0	0	0	0	0	0.00
CLOTHES DRYER	0	0	0	0	0	0	0.00
WASH MACHINE	0	0	0	0	0	0	0.00
AIRCON	30.39	0.8	24.31	0.85	75.15	25	93.93
MOTOR(CONT)	7.00	1	7.00	0.85	21.64	25	27.05
MOTOR(NON-CONT)	10.00	0.8	8.00	0.85	24.73	25	30.91
OTHERS 1	0	0	0	0	0	0	0.00
OTHERS 2	0	0	0	0	0	0	0.00
OTHERS 3	0	0	0	0	0	0	0.00
TOTAL	47.39	0.83	39.3104		121.51		151.89

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CAGAYAN DE ORO CAMPUS
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CLARK M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088822) 72-60-65 / (088) 858-1730 / 858-1730 | TELE FAX (088) 858-4805
WEBSITE: www.ustp.edu.ph

ELECTRICAL ENGINEER
PRC NO. | PTR NO.
DATE
TIN | PLACE

PROJECT: PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION: USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: ARF FERDINAND A. JUMPER, DIRECTOR, INFRASTRUCTURE PLANNING & FACILITY DEVELOPMENT OFFICE
RECOMMENDING APPROVAL: ATTY. ERWIN A. BUCIO, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS: ELECTRICAL PLAN
DRAWN BY:
DATE DRAWN:
REV.

E3

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

ELECTRICAL

PROJECT: CDO UNIVERSITY HEALTH CENTER
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines

DATE: 24-Aug-21
FEEDER:

NO OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
2		125		22		Cable Ladder

PANEL: DPB
VOLT: 220
LOCATION: GROUND FLOOR
PHASE: 3
BRANCH KAIC: 10
MAINS: 3P 500 AT

	AF	KAIC
	600	22

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕAB AMPS	ϕBC AMPS	ϕCA AMPS	3ϕ AMPS	NO.OF SETS	FEEDER/CIRCUIT WIRES (50MM) THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1	3	100	150	PB1 (GF LIGHTING AND POWER)	29.62	50.27	38.55	45.92	0.00	1		38		8	50	PVC
2	3	200	250	PB2 (GF AIRCON AND MOTORS)	47.39	18.18	13.64	11.36	99.55	1		80		14	63	PVC
3	3	100	150	PB3 (2F LIGHTING AND POWER)	26.64	38.09	42.91	40.09	0.00		FOR FUTURE					
3	3	100	150	PB4 (2F LIGHTING AND POWER)	29.22	55.55	44.55	32.73	0.00		FOR FUTURE					
4	3	100	150	PB4 (2F-3F AIRCON)	30				92.73		FOR FUTURE					
5	3		225	SPACE							FOR FUTURE					
6	3		225	SPACE							FOR FUTURE					
				TOTAL	162.868	162.09	139.84	130.00	192.28							

DESIGN ANALYSIS

AVE P.F. 0.81	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	0	0	0	0	0	0	0
LIGHTS	26.80	0.80	21.44	1	56.33	25	70.42
C.O.	58.58	0.80	46.94	0.85	145.11	25	181.39
HEATING MACHINE	0	0	0	0	0	0	0
RANGE	0	0	0	0	0	0	0
CLOTHES DRYER	0	0	0	0	0	0	0
WASH MACHINE	0	0	0	0	0	0	0
AIRCON	60.39	0.80	48.31	0.85	149.33	25	186.67
MOTOR(CONTD)	7.00	1.00	7.00	0.85	21.64	25	27.05
MOTOR(NON-CONTD)	10.00	0.80	8.00	0.85	24.73	25	30.91
OTHERS 1	0	0	0	0	0	0	0
OTHERS 2	0	0	0	0	0	0	0
OTHERS 3	0	0	0	0	0	0	0
TOTAL	162.87	0.81	131.69		397.14		496.42

PROJECT: USTP FOOD INNOVATION CENTER
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines

DATE: 24-Aug-21
FEEDER:

NO OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
2		200		30	90	PVC

PANEL: MCB
VOLT: 220
LOCATION: GROUND FLOOR
PHASE: 3
BRANCH KAIC: 10
MAINS: 3P 600 AT

	AF	KAIC
	1500	22

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕAB AMPS	ϕBC AMPS	ϕCA AMPS	3ϕ AMPS	NO.OF SETS	FEEDER/CIRCUIT WIRES (50MM) THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1	3	500	600	DPB	162.868	162.09	139.84	130.00	192.28	2		600		22.0		Cable Ladder
2	3	100	225	20HP FIRE PUMP	15.00				39.41	For Future						
3	3		225	SPACE												
				TOTAL	177.868	162.09	139.84	130.00	231.69							

DESIGN ANALYSIS

AVE P.F. 0.81	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	0	0	0	0	0	0	0
LIGHTS	26.80	0.80	21.44	1	56.33	25	70.42
C.O.	58.58	0.80	46.944	0.85	145.11	25	181.39
HEATING MACHINE	0.00	0	0	0	0	0	0
RANGE	0.00	0	0	0	0	0	0
CLOTHES DRYER	0.00	0	0	0	0	0	0
WASH MACHINE	0.00	0	0	0	0	0	0
AIRCON	60.39	0.80	48.31	0.85	149.33	25	186.67
MOTOR(CONTD)	7.00	1.00	7.00	0.85	21.64	25	27.05
MOTOR(NON-CONTD)	25.00	0.80	20	0.85	61.82	25	77.28
OTHERS 1	0.00	0	0	0	0	0	0
OTHERS 2	0.00	0	0	0	0	0	0
OTHERS 3	0.00	0	0	0	0	0	0
TOTAL	177.87	0.81	143.69		434.73		542.79

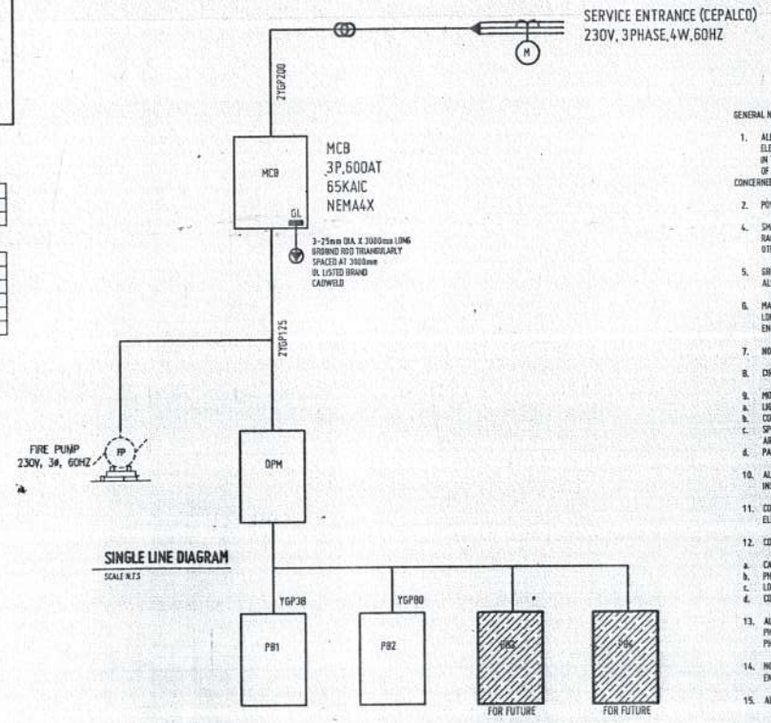
GENERATOR SIZING	
TOTAL AMPS	542.79
KVA	206.58

NOTE: GENSET AND TRANSFORMER REQUIREMENTS 250 KVA, 3 PHASE, 60 HZ.

THHN/TWHN CODE AND CONDUIT SIZE

PHASE WIRE 50MM (AWG)	AMPS	GROUND WIRE 50MM (AWG)	2-WIRE + GROUND uPVC CODE	SIZE mm ϕ	3-WIRE + GROUND uPVC CODE	SIZE mm ϕ	4-WIRE + GROUND uPVC CODE	SIZE mm ϕ	2-WIRE + GROUND METAL CODE	SIZE mm ϕ	3-WIRE + GROUND METAL CODE	SIZE mm ϕ	4-WIRE + GROUND METAL CODE	SIZE mm ϕ
3.5(14ϕ)	25	3.5(14ϕ)	UGP3.5	20	UGP3.5	20	UGP3.5	20	UGH3.5	15	UGH3.5	15	UGH3.5	15
5.5(10ϕ)	30	5.5(10ϕ)	UGP5.5	20	UGP5.5	32	UGP5.5	32	UGH5.5	19	UGH5.5	20	UGH5.5	20
8.0(8ϕ)	40	5.5(10ϕ)	UGP8.0	25	UGP8.0	32	UGP8.0	32	UGH8.0	20	UGH8.0	25	UGH8.0	25
14(6ϕ)	55	5.5(10ϕ)	UGP14	32	UGP14	32	UGP14	32	UGH14	25	UGH14	25	UGH14	32
22(4ϕ)	70	8.0(8ϕ)	UGP22	32	UGP22	32	UGP22	40	UGH22	25	UGH22	32	UGH22	40
30(2ϕ)	90	8.0(8ϕ)	UGP30	40	UGP30	50	UGP30	50	UGH30	32	UGH30	40	UGH30	40
38(1ϕ)	100/125	8.0(8ϕ)	UGP38	40	UGP38	50	UGP38	63	UGH38	32	UGH38	40	UGH38	50
50(1/0)	145	14(6ϕ)	UGP50	50	UGP50	63	UGP50	63	UGH50	40	UGH50	50	UGH50	50
60(2/0)	169	14(6ϕ)	UGP60	50	UGP60	63	UGP60	63	UGH60	40	UGH60	50	UGH60	50
80(3/0)	195	14(6ϕ)	UGP80	50	UGP80	63	UGP80	63	UGH80	40	UGH80	50	UGH80	50
100(4/0)	220	22(4ϕ)	UGP100	63	UGP100	63	UGP100	75	UGH100	50	UGH100	50	UGH100	65
125(250)	250	22(4ϕ)	UGP125	63	UGP125	75	UGP125	75	UGH125	50	UGH125	65	UGH125	65
150(300)	280	22(4ϕ)	UGP150	63	UGP150	75	UGP150	90	UGH150	50	UGH150	65	UGH150	80
200(400)	330	30(2ϕ)	UGP200	75	UGP200	90	UGP200	90	UGH200	65	UGH200	80	UGH200	80
250(500)	375	30(2ϕ)	UGP250	90	UGP250	90	UGP250	100	UGH250	80	UGH250	80	UGH250	90
400(800)	485	30(2ϕ)	UGP400	100	UGP400	110	UGP400	5"	UGH400	80	UGH400	90	UGH400	100
500(1000)	650	38(1ϕ)	UGP500	110	UGP500	5"	UGP500	5"	UGH500	90	UGH500	100	UGH500	-

NOTES:
X - TWO WIRES (L-G OR L-N), THHN/TWHN
Y - THREE WIRES (THREE PHASE), THHN/TWHN
N - NEUTRAL WIRE, SAME SIZE AS PHASE WIRE OR AS NOTED IN THE PANEL SCHEDULE
G - GROUND WIRE, REFER SIZE TO PEC FOR PARALLEL RUNS
M - METAL CONDUIT, IMC, EMC OR EMT
P - uPVC CONDUIT



SINGLE LINE DIAGRAM
SCALE N.T.S

GENERAL NOTES:

1. ALL WORKS SHALL COMPLY WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, THE RULES & REGULATIONS OF THE NATIONAL AND LOCAL AUTHORITY CONCERNED IN THE ENFORCEMENT OF ELECTRICAL LAWS AND ORDINANCES AND THE REGULATIONS OF THE UTILITY COMPANY CONCERNED.
2. POWER SERVICE TO THE BUILDING SHALL BE 230 VOLTS 3 PHASE 3 WIRE & GROUND.
4. SMALLEST CONDUCTOR FOR POWER AND LIGHTING SHALL BE 3.5mm2 THHN AND SMALLEST RACEWAY SHALL BE 15mm DIA. TRADE SIZE. CONDUCTOR SHALL BE TYPE THHN EXCEPT AS OTHERWISE REQUIRED BY THE DRAWING AND INSULATED FOR 600 VOLTS.
5. GROUNDING WIRE SHALL BE PROVIDED TO ALL EQUIPMENTS, OUTLETS AND LIGHTING CIRCUITS AND ALL NON-CURRENT CARRYING METAL PARTS.
6. MATERIALS AND EQUIPMENT TO BE USED SHALL BE NEW AND OF APPROVED TYPE.FOR BOTH LOCATION AND PURPOSE INTENDED. SUBMIT SAMPLES OF MATERIALS TO THE ARCHITECT/ DESIGN ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
7. NO BRANCH CKT. SHALL HAVE A LOAD OF MORE THAN 80% OF ITS RATING
8. CIRCUIT BREAKERS SHALL BE BOLT ON TYPE, USE ONLY ONE BRAND ALL THROUGHOUT.
9. MOUNTING HEIGHT SHALL BE AS FOLLOWS:
   a. LIGHT CONTROL SWITCH - 1.52 ABOVE FINISHED FLOOR
   b. CONVENIENCE OUTLET - 0.30 ABOVE FINISHED FLOOR
   c. SPECIAL PURPOSE OUTLET - 0.30 ABOVE FINISHED FLOOR OR AS REQUIRED BY THE ARCHITECT
   d. PANEL BOARDS, FIRE ALARM-PANE 1.80 FROM TOP OF PANEL TO FINISHED FLOOR
10. ALL WORKS SHALL BE COORDINATED WITH THE ARCHITECT AND OTHER TRADE DISCIPLINE PRIOR TO INSTALLATION.
11. CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS SIGNED AND SEALED BY PROFESSIONAL ELECTRICAL ENGINEER.
12. CONTRACTOR TO PERFORM ALL TEST NECESSARY BUT NOT LIMITED TO THE FOLLOWING.
    a. CABLE INSULATION INTEGRITY TEST
    b. PHASE SEQUENCE TEST
    c. LOAD TEST
    d. COMPLETE TEST FOR TRANSFORMER
13. ALL WIRES SHALL BE COLOR CODED AS FOLLOWS:
    PHASE - A - BLACK GROUND - GREEN
    PHASE - B - RED PHASE - C - BLUE
14. NO CHANGE OR MODIFICATION SHALL BE MADE ON THESE PLANS WITHOUT THE ENGINEER'S/OWNER'S WRITTEN COMMENT.
15. ALL MOTORS AND AIR-CONDITIONING UNITS MUST HAVE INDIVIDUAL ENCLOSED CIRCUIT BREAKER

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLARO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)222 72-60-115 / (088) 858-1730 / 858-1733 | TOLL FAX (088) 858-4806
WEBSITE: www.ustp.edu.ph

ELECTRICAL ENGINEER
PRC NO. | PTR NO.
DATE
TIN | PLACE

PROJECT: PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION: USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DALUPAN — DIRECTOR, INFRASTRUCTURE PLANNING & FACILITY DEVELOPMENT OFFICE
RECOMMENDING APPROVAL: ATTY. ERWIN B. BULIO — VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA II — PRESIDENT, USTP SYSTEM

SHEET CONTENTS: SCHEDULE OF LOADS, SINGLE LINE DIAGRAM, GENERAL NOTE
DRAWN BY:
DATE DRAWN:
FILE:

E4

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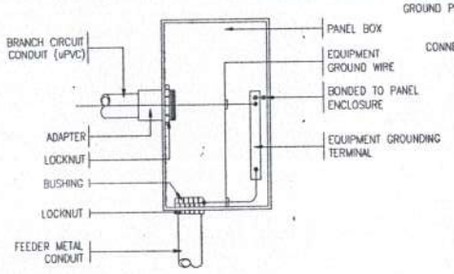
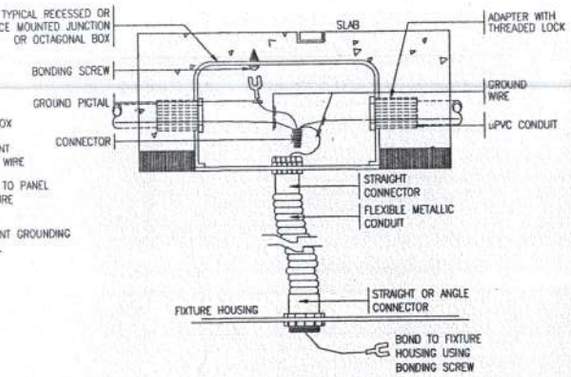
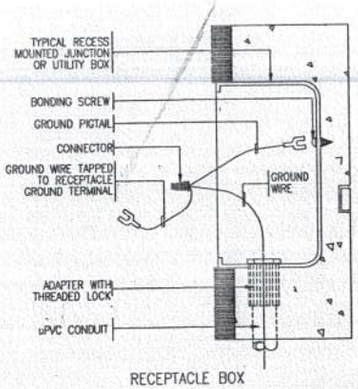
ELECTRICAL



PANELBOARD



LIGHTING FIXTURE BOX



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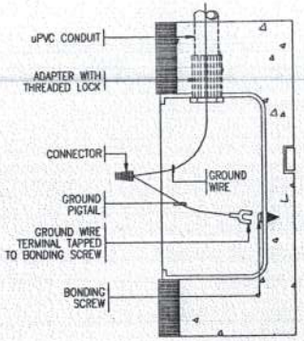
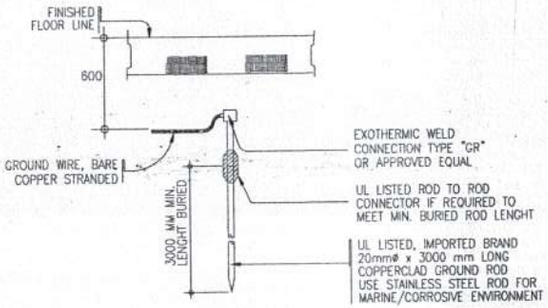


SWITCH BOX

TYPICAL GROUNDING CONNECTION DETAILS
EE 6/1 DRAWN NOT TO SCALE



SECTION

TYPICAL GROUND ROD DETAIL
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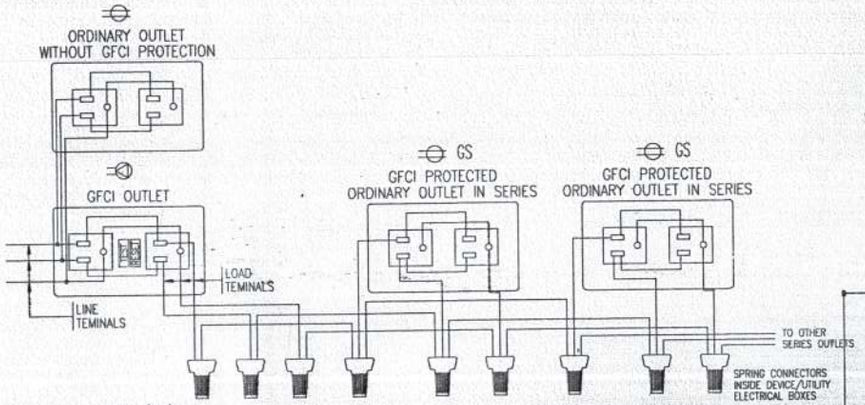

CONV. OUTLET IN SERIES WITH GCFI OUTLET WIRING CONNECTION DETAIL
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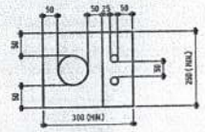
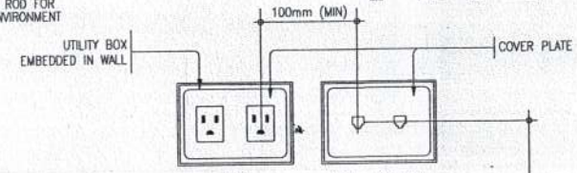
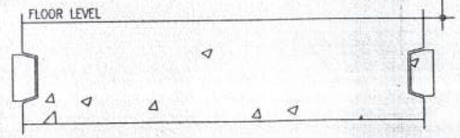


PLAN





TYPICAL C.O. AND TELEPHONE, DATA OUTLETS MOUNTING DETAILS
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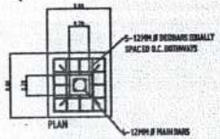

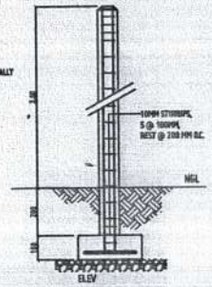

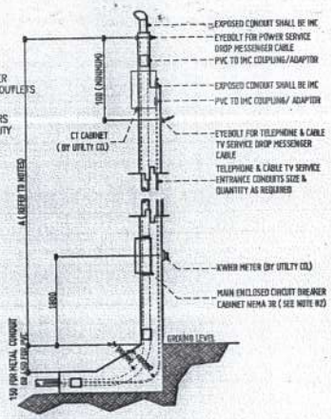

SERVICE PEDESTAL DETAIL
EE 6/5 DRAWN NOT TO SCALE

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CLARO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)22 72-00-65 / (088) 858-1738 / 858-1736 | TELE FAX (088) 858-4886
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ELECTRICAL ENGINEER	
PRC NO.	PTR NO.
	DATE
TIN	PLACE

PROJECT	PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION	USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
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RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCIO
VICE PRESIDENT FOR LEGAL AFFAIRS

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

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

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DATE DRAWN:
PAGE:

E5

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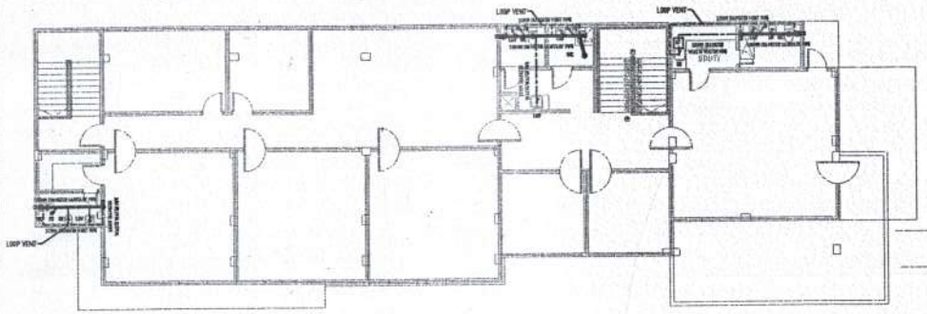
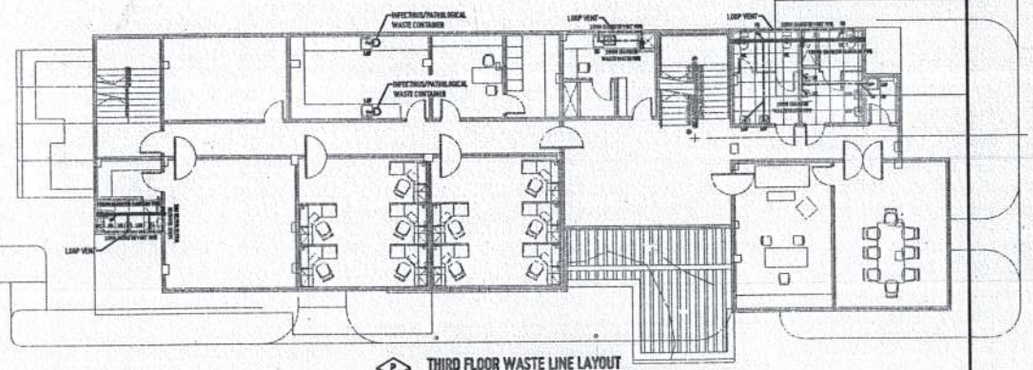


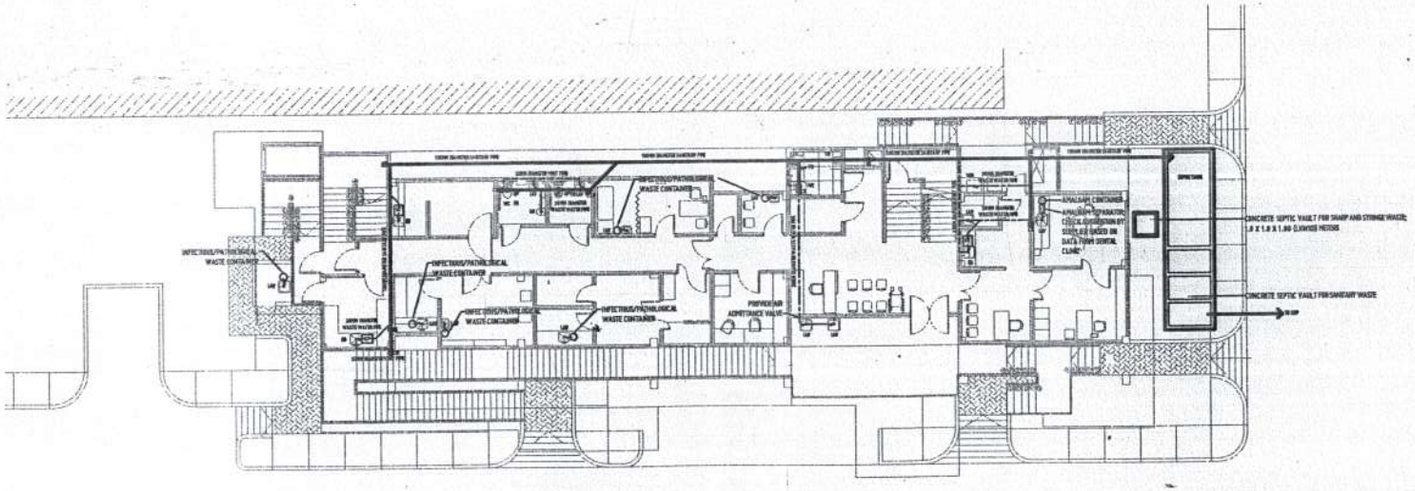
P 2 1 SECOND FLOOR WASTE LINE LAYOUT
SCALE 1:100 METERS



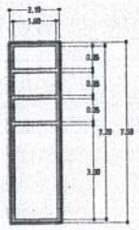
P 3 1 THIRD FLOOR WASTE LINE LAYOUT
SCALE 1:100 METERS

PLUMBING

LEGEND:	
LAV	LAVATORY
UR	URINAL
WC	WATER CLOSET
R	RISER
KT	KITCHEN SINK
SOV	SHUT-OFF VALVE
CV	CHECK VALVE
GV	GLOBE VALVE
CBV	CHECK BALL VALVE
HB	HOSE BIB
PWL	POTABLE WATER LINE



P 1 1 GROUND FLOOR WASTE LINE LAYOUT
SCALE 1:100 METERS



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CLARO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)22 72-60-65 / (088) 856-1738 / 856-1739 (TELEFAX (088) 856-1466
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MASTER PLUMBER	
PRC NO.	PTR NO.
	DATE
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LOCATION	USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
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ATTY. ERWIN B. BUCO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
GROUND FLOOR WASTE LINE LAYOUT
SECOND FLOOR WASTE LINE LAYOUT
THIRD FLOOR WASTE LINE LAYOUT

DRAWN BY:
DATE DRAWN:
PWD:

P1

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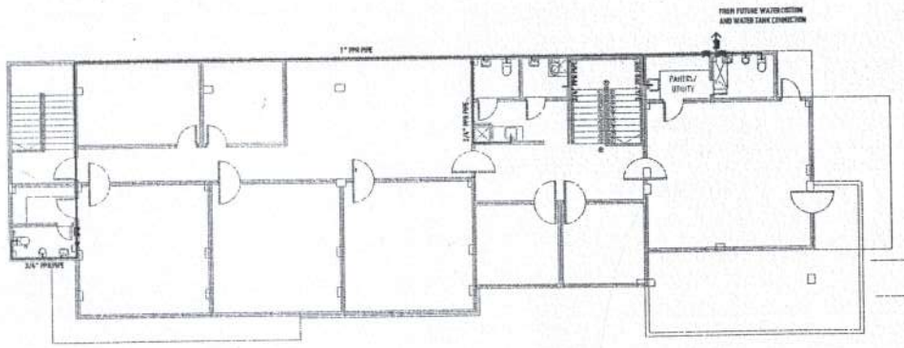
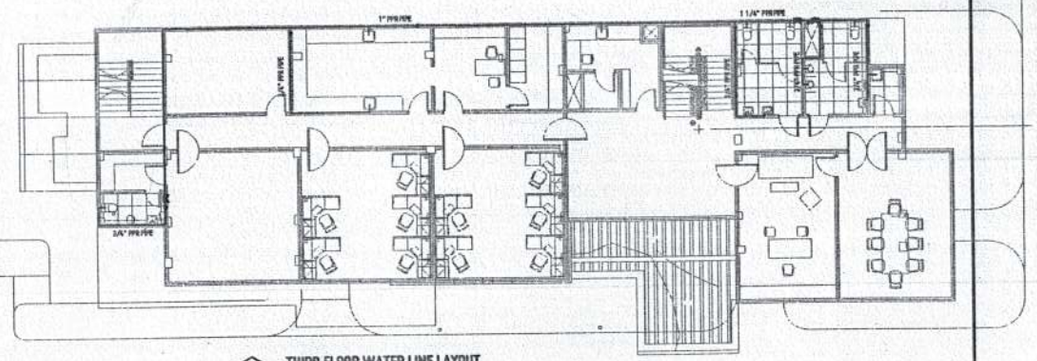


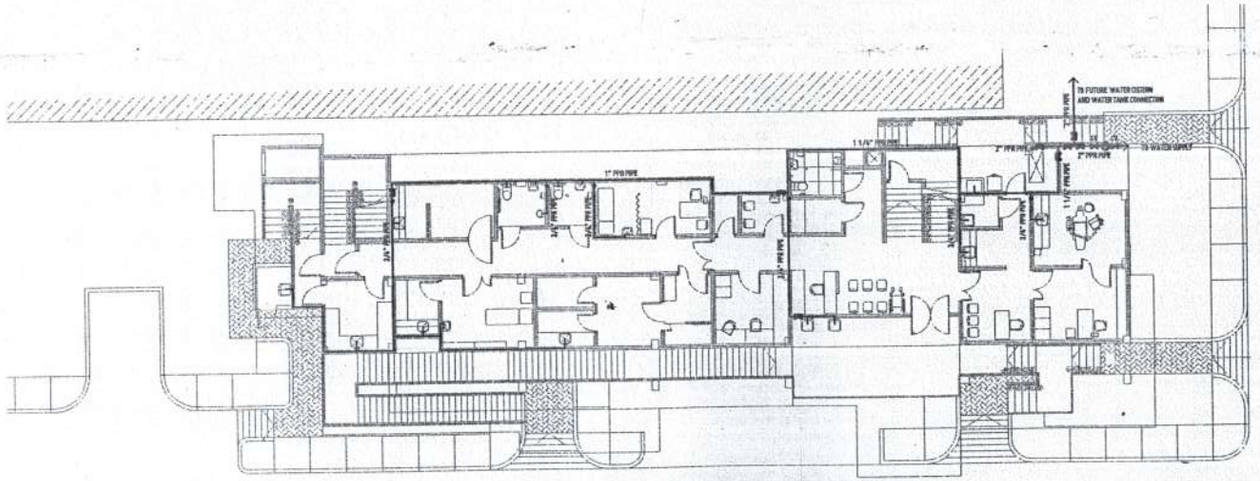
P 2/2 SECOND FLOOR WATER LINE LAYOUT
SCALE 1:100 METERS



P 3/2 THIRD FLOOR WATER LINE LAYOUT
SCALE 1:100 METERS

PLUMBING

LEGEND:	
LAV	LAVATORY
UR	URINAL
WC	WATER CLOSET
R	ROOM
KS	KITCHEN SINK
S/V	SHUT-OFF VALVE
CV	CHECK VALVE
GV	GLOBE VALVE
CBV	CHECK BALL VALVE
HB	HOSE BIB
PWL	POTABLE WATER LINE



P 1/2 GROUND FLOOR WATER LINE LAYOUT
SCALE 1:100 METERS

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CLARO M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY9000
TELEPHONE # (088822) 72-68-05 / (088) 858-1739 / 858-1736 | TELE FAX (088) 858-4000
WEBSITE: www.ustp.edu.ph

MASTER PLUMBER	
PRC NO.	PTR NO.
	DATE
TIN	PLACE

PROJECT	PROPOSED 3-STOREY UNIVERSITY HEALTH CENTER
LOCATION	USTP CDO CAMPUS, C.M. RECTO AVE., LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND A. DUMPA
DIRECTOR, INFRASTRUCTURE PLANNING & FACILITY DEVELOPMENT OFFICE

RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCIO
VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
SECOND FLOOR WATER LINE LAYOUT
THIRD FLOOR WATER LINE LAYOUT
GROUND FLOOR WATER LINE LAYOUT

DRAWN BY:
DATE DRAWN:
PN2:

P2

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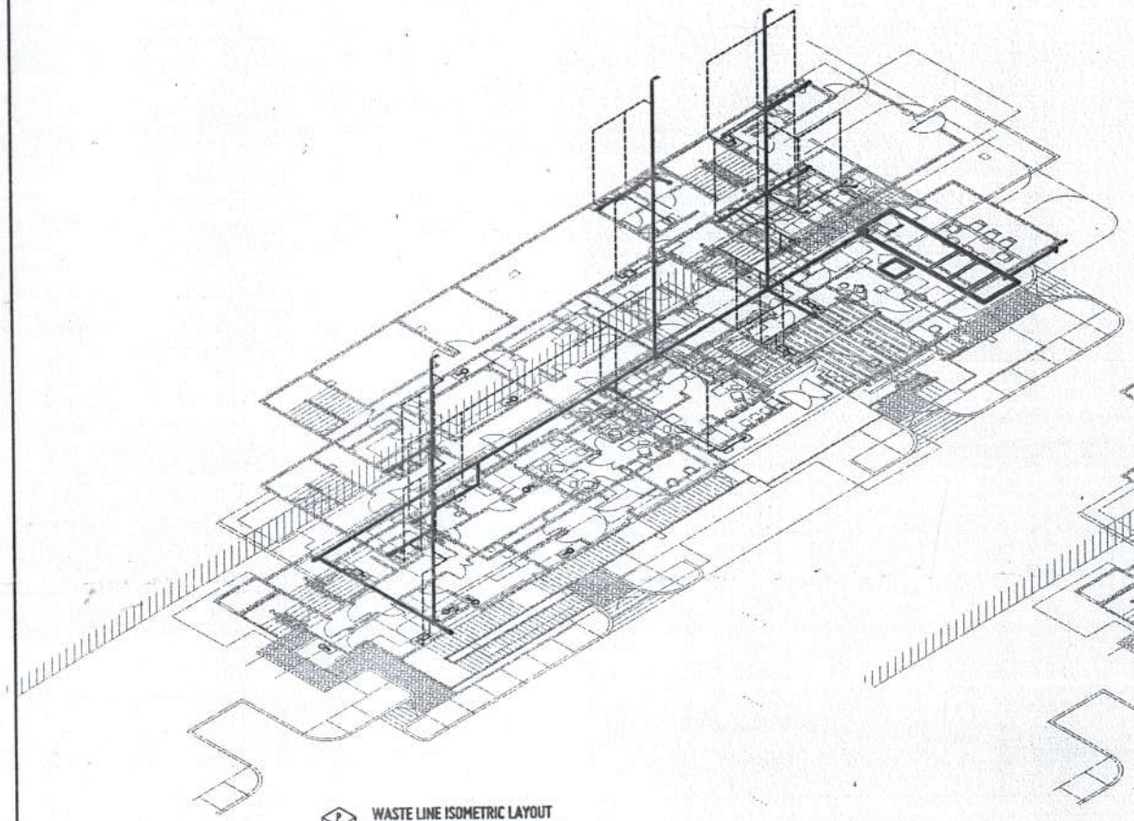

P 1 3 WASTE LINE ISOMETRIC LAYOUT
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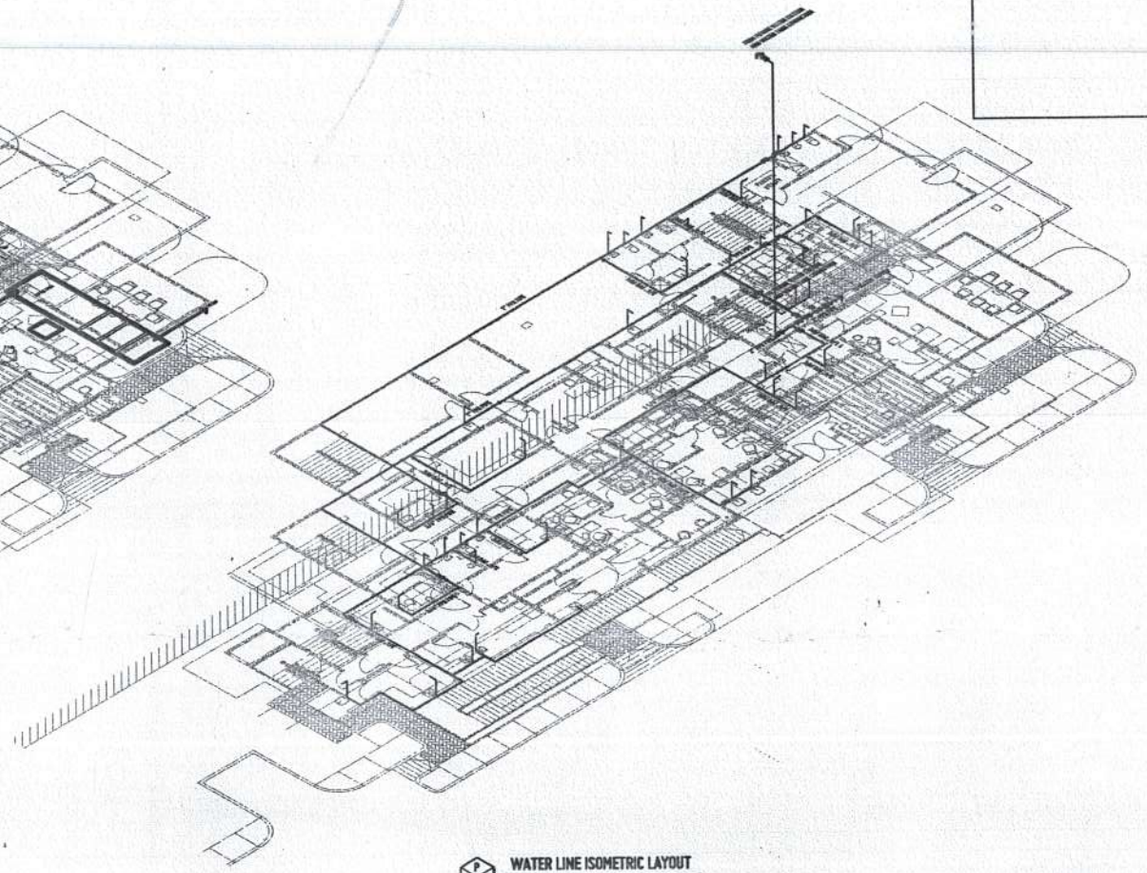

P 2 3 WATER LINE ISOMETRIC LAYOUT
SCALE 1:100 METERS

PLUMBING

LEGEND:	
LAV	LAVATORY
UR	URINAL
WC	WATER CLOSET
R	RISER
KS	KITCHEN SINK
SOV	SHUT-OFF VALVE
CV	CHECK VALVE
GV	GLOBE VALVE
CBV	CHECK BALL VALVE
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VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
WATER LINE ISOMETRIC LAYOUT
WASTE LINE ISOMETRIC LAYOUT

DRAWN BY:
DATE DRAWN:
PWD:

P3