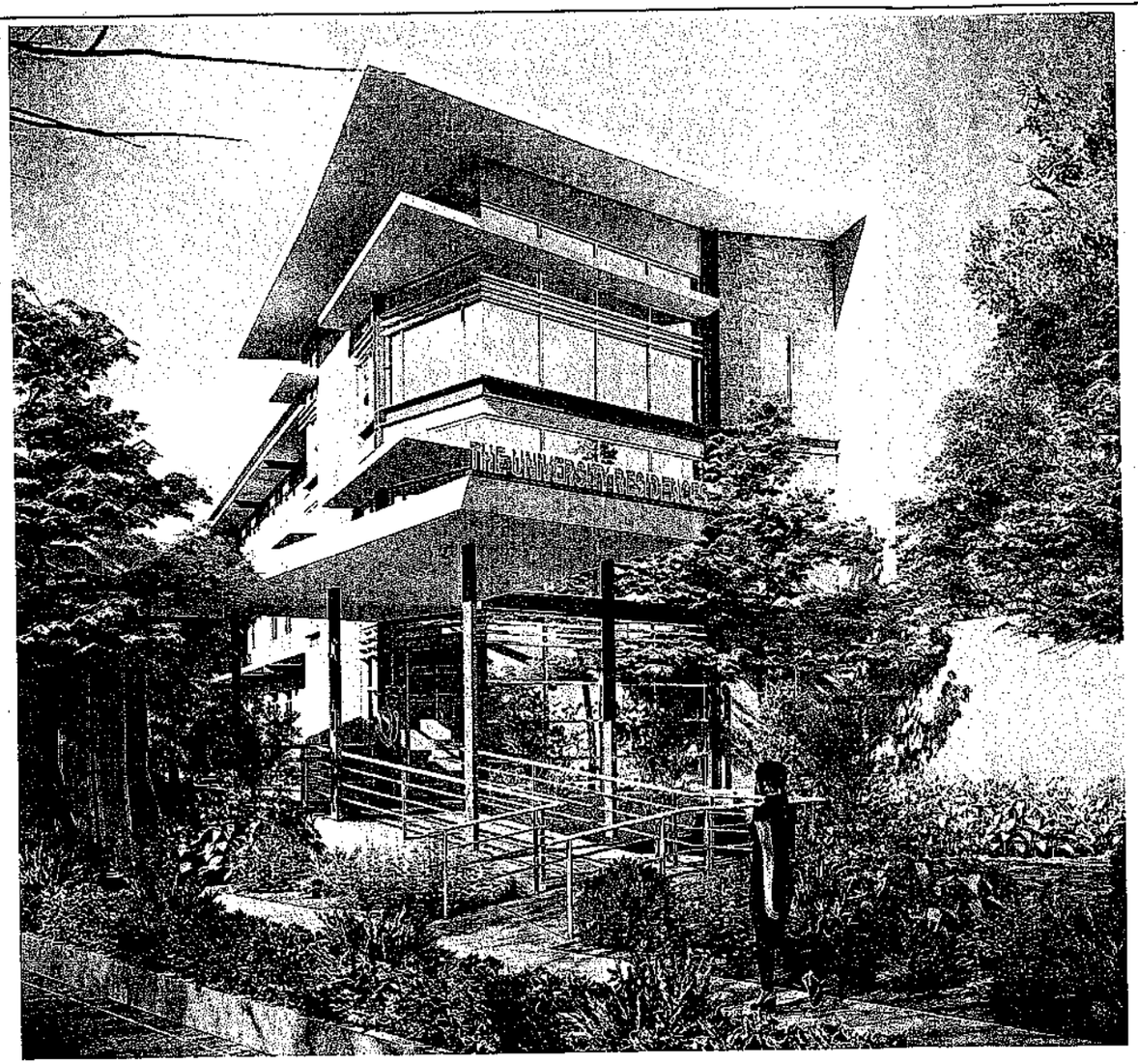

A1 PERSPECTIVE

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OFFICE OF THE BUILDING OFFICIAL

LINE AND GRADE

GEODETIC

ARCHITECTURAL

CIVIL

STRUCTURAL

ELECTRICAL

MECHANICAL

ELECTRONICS

PLUMBING/SANITARY

FIRE

N

A1

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

ARCHITECT OF RECORD
FERDINAND A. CAMPOS
PRC REG. NO. 0 3 7 0 9 | PTR NO. 8596259 A
TIN NO. 65-892-932 | DATE 03-26-2021 | PLACE EL SALVADOR

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: CM RECTO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. CAMPOS, PROPONENT

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

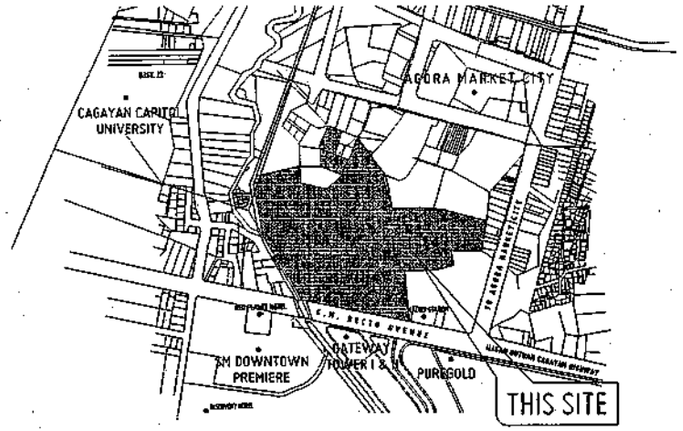
APPROVED BY: DR. AMBROSIO B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

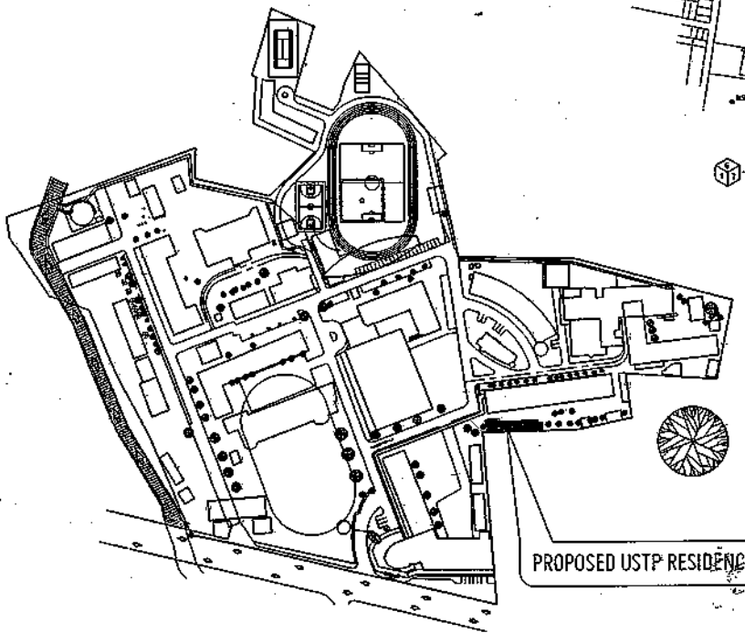
DRAWN BY: STA. ASSP
DATE DRAWN: 04.22.2020
FILE:

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:



VICINITY MAP
NOT DRAWN TO SCALE



LOCATION MAP
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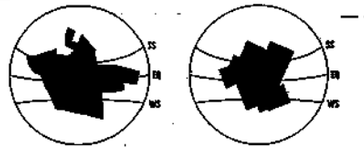
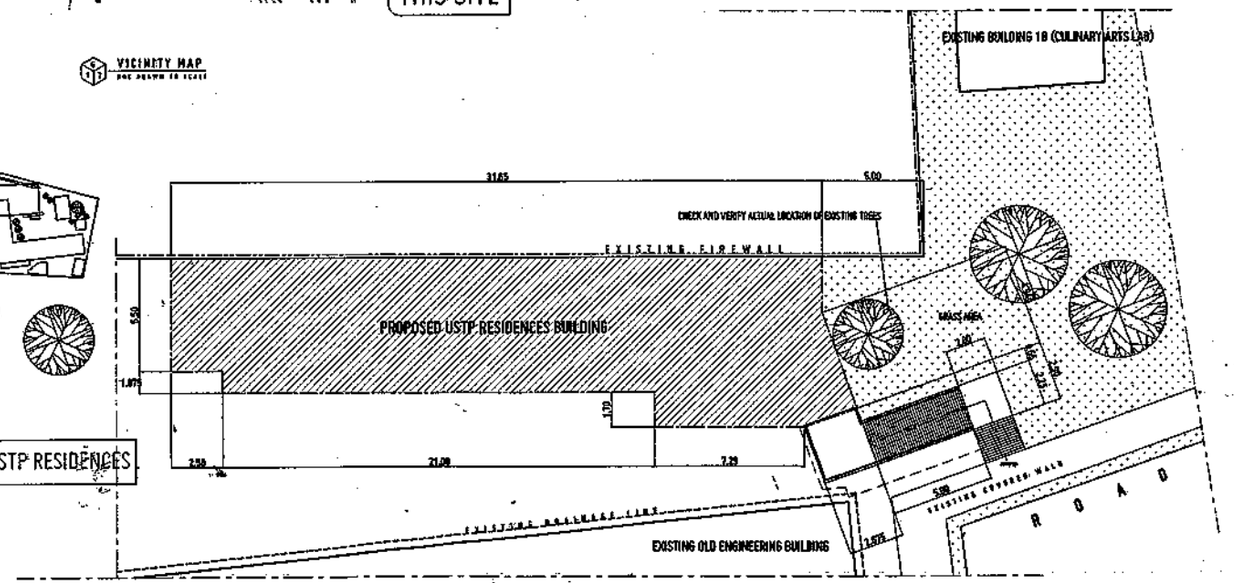


USTP CDO SUN PATH DIAGRAM

FSC SUN PATH DIAGRAM



6 1 3 SITE DEVELOPMENT PLAN
SCALE: 1:75 NTS

NORTH

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIM H. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088) 2 10-40-01 / (088) 858-1799 / 856-1706 | TELEFAX (088) 858-1696
WEBSITE: www.ustp.edu.ph

GEODETIC ENGINEER

PRC NO. -	PTR NO. -
-	DATE
TIN -	PLACE

PROJECT	PROPOSED FOOD INNOVATION CENTER
LOCATION	USTP--CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND C. TUMPA
DIRECTOR, IPFMD

RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCHO
OIC- VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:

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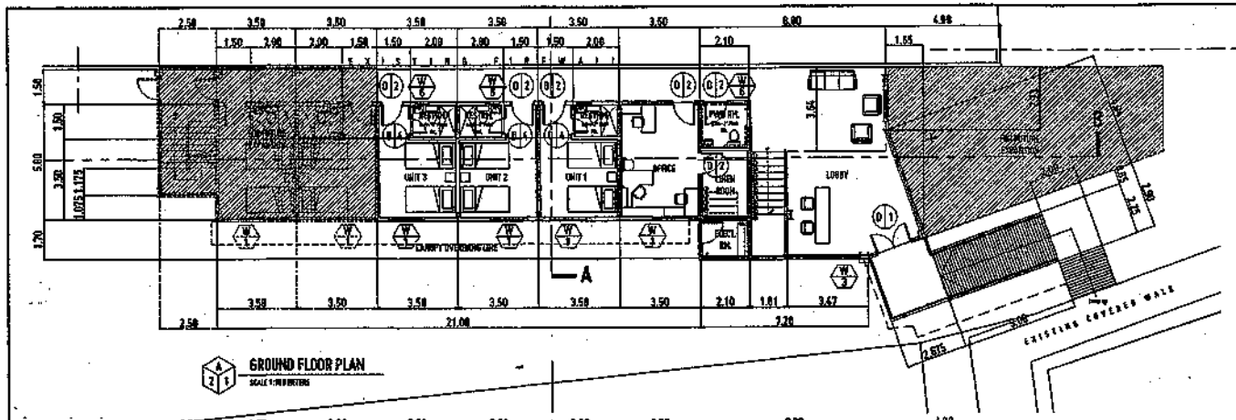
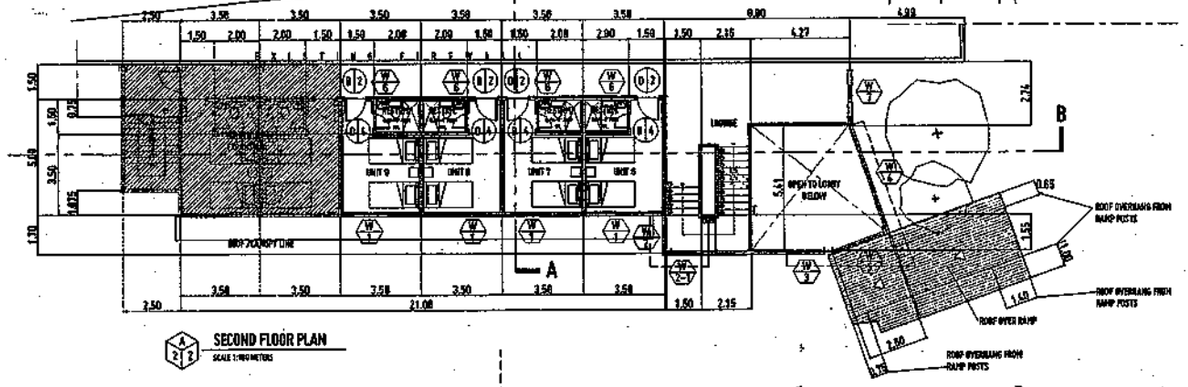
DATE DRAWN:	
CHK:	

G1



GROUND FLOOR PLAN
SCALE 1:100 METERS



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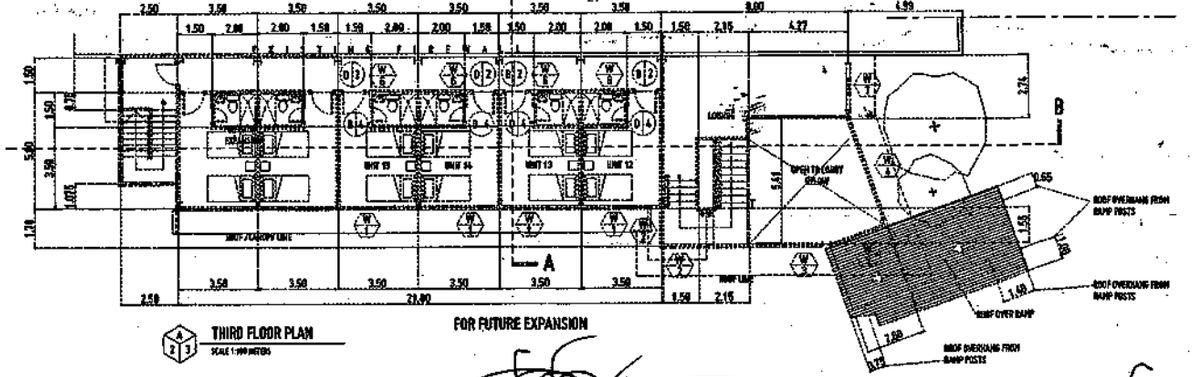
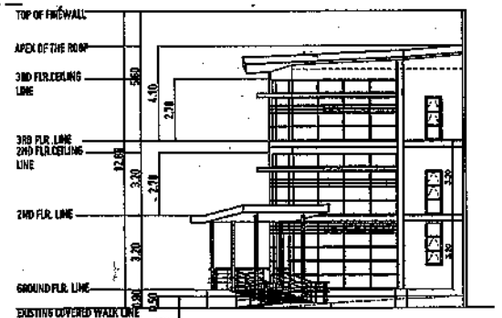


THIRD FLOOR PLAN
SCALE 1:100 METERS

FOR FUTURE EXPANSION



RIGHT SIDE ELEVATION
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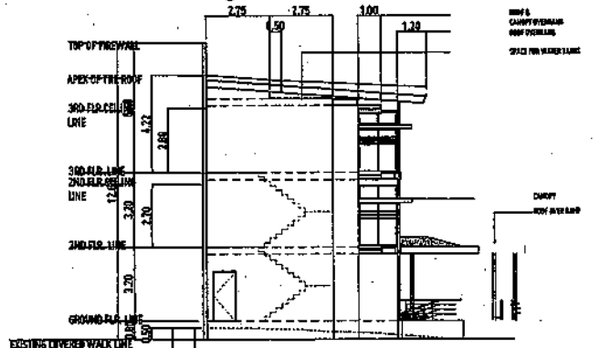

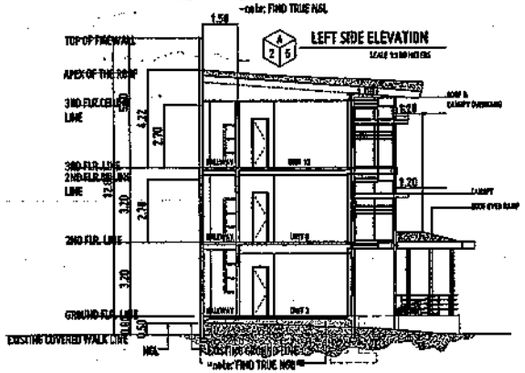

LEFT SIDE ELEVATION
SCALE 1:100 METERS

SECTION THRU A-A
SCALE 1:100 METERS

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REPUBLIC OF THE PHILIPPINES
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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

FERDINAND A. SUMIN
ARCHITECT OF RECORD
PRC NO. 1 2 7 7 8 | PTR NO. 3 0 0 0 5 A
DATE 02-16-2021
PLACE EL SALVADOR

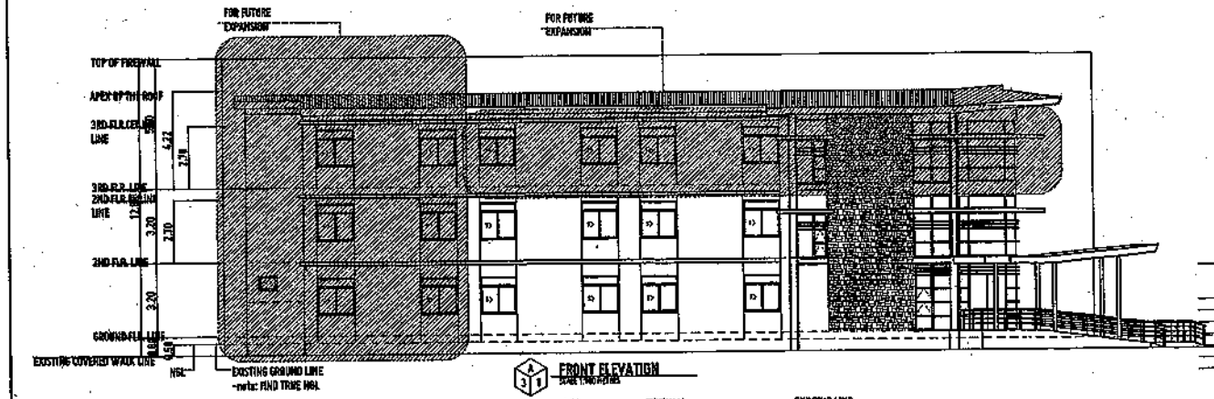
PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: CHIRETO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: DR. FERDINAND A. SUMIN, ARCHITECT
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCIO, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO V. CULTURA II, DIRECTOR, USTP SYSTEM

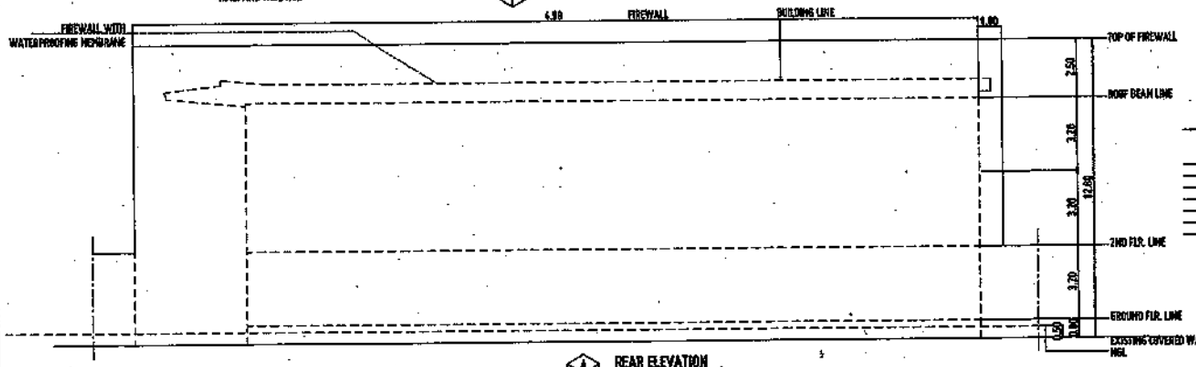
SHEET CONTENTS:

DRAWN BY: RE, JOSP
CHECKED BY:
DATE: 06.22.2020
SCALE:

A2



A 3 1 FRONT ELEVATION
SCALE 1:100 METERS



A 3 2 REAR ELEVATION
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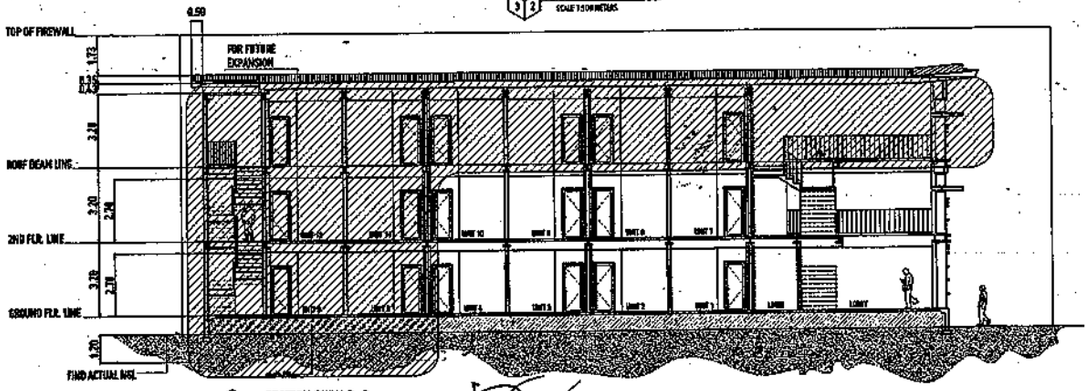
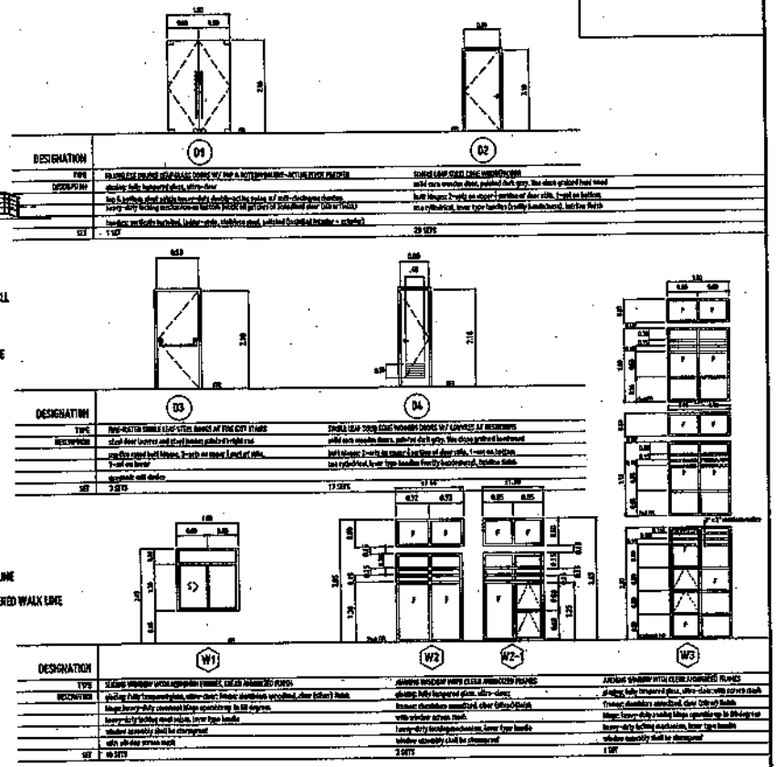


A 3 3 SECTION THRU B-B
SCALE 1:100 METERS



A 3 4 SCHEDULE OF DOORS AND WINDOWS
SCALE 1:100 METERS

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

FERDINAND A. CAMPA
ARCHITECT - REGISTERED

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: SM RESTO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

ARCHITECTURAL & ENGINEERING AUTHORIZATION: AR. FERDINAND A. CAMPA, IPRO 0048

RECOMMENDING APPROVAL: ATTY. BRYAN B. BINCOY, VP FOR ADMINISTRATION & FINANCE

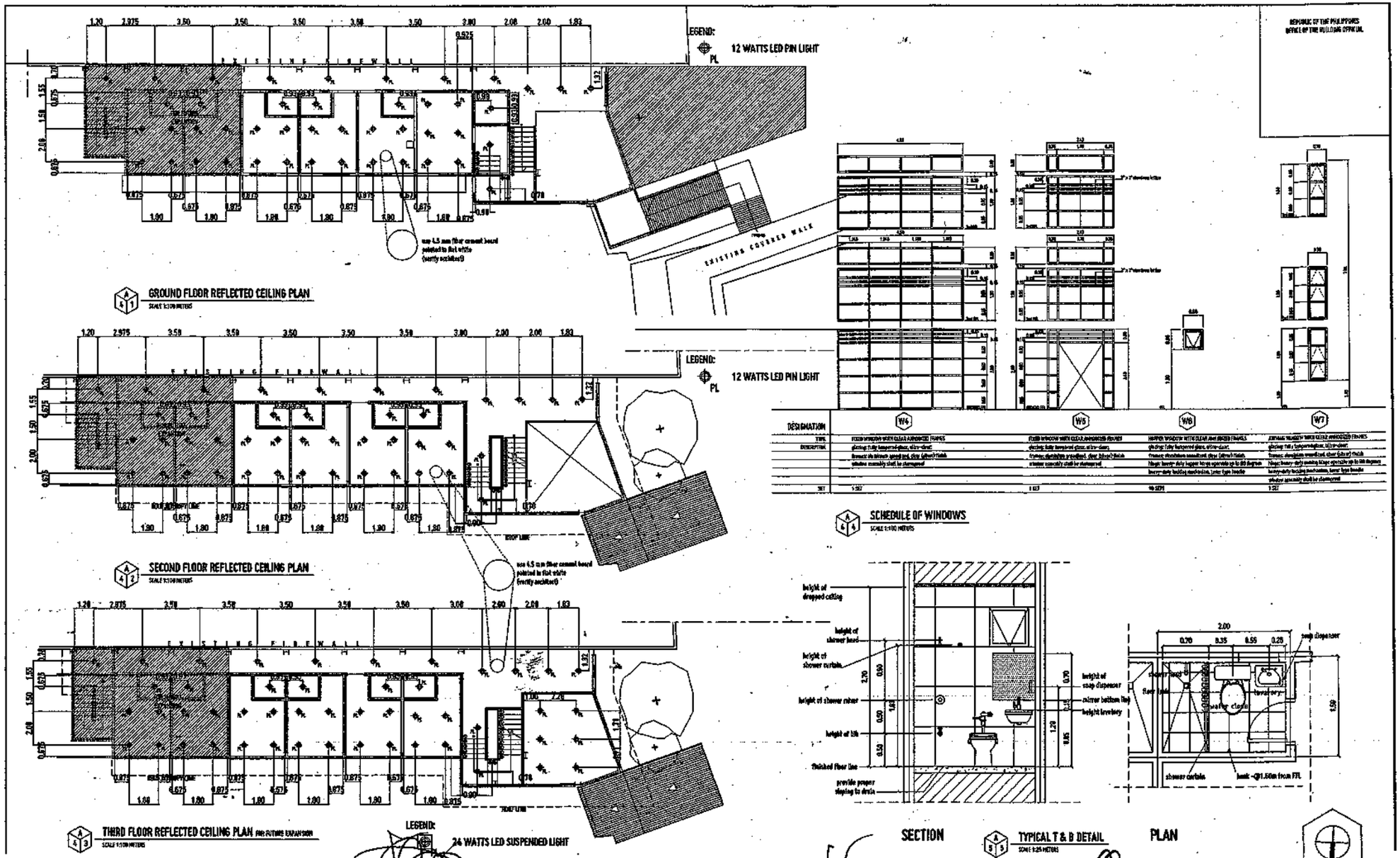
APPROVED BY: DR. AMELITA B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

DRAWN BY: STA. ROSE
DATE DRAWN: 08.22.2020
REV:

NORTH

A3



GROUND FLOOR REFLECTED CEILING PLAN
SCALE 1:100 METERS

SECOND FLOOR REFLECTED CEILING PLAN
SCALE 1:100 METERS

THIRD FLOOR REFLECTED CEILING PLAN FOR FUTURE EXPANSION
SCALE 1:100 METERS

SCHEDULE OF WINDOWS
SCALE 1:100 METERS

DESIGNATION	W4	W5	W6	W7
TYPE	FIXED WINDOW WITH CLEAR ALUMINUM FRAMES	FIXED WINDOW WITH CLEAR ALUMINUM FRAMES	AWNING WINDOW WITH CLEAR ALUMINUM FRAMES	AWNING WINDOW WITH CLEAR ALUMINUM FRAMES
DESCRIPTION	glazing: fully tempered glass, ultra-clear;	glazing: fully tempered glass, ultra-clear;	glazing: fully tempered glass, ultra-clear;	glazing: fully tempered glass, ultra-clear;
	frames: aluminum anodized, clear (silver) finish	frames: aluminum anodized, clear (silver) finish	frames: aluminum anodized, clear (silver) finish	frames: aluminum anodized, clear (silver) finish
	window assembly shall be dustproof	window assembly shall be dustproof	hinge: heavy-duty casing hinge operable up to 180 degrees	hinge: heavy-duty casing hinge operable up to 180 degrees
			heavy-duty locking mechanism, lever type handle	heavy-duty locking mechanism, lever type handle
				window assembly shall be dustproof
SET	1 SET	1 SET	46 SETS	1 SET

SECTION

TYPICAL T & B DETAIL
SCALE 1:25 METERS

PLAN

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

FERDINAND A. DUMPA
ARCHITECT OF RECORD
Ave No. 13 Year — PRC No. 0025253 A
TIN No. 65-892-431 — DATE 08-28-2020
PLACE ILIGAN CITY

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: Brgy MACASANDIG, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMPA, PROJECT ARCHITECT
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCAD, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMADOR B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

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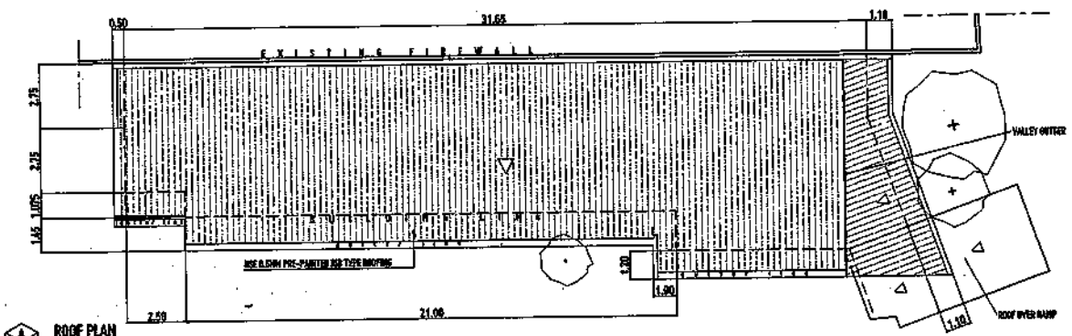
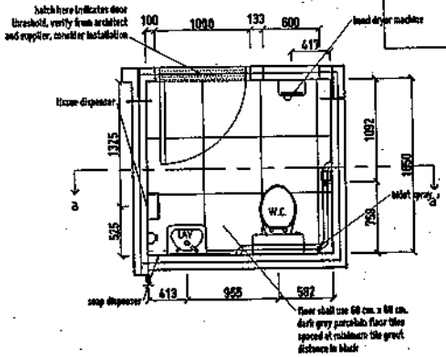
DATE:
FILE:

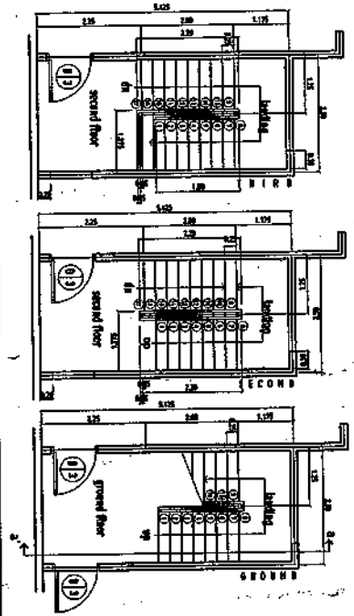
A4

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL



A 6 1 ROOF PLAN
SCALE 1:100 METERS





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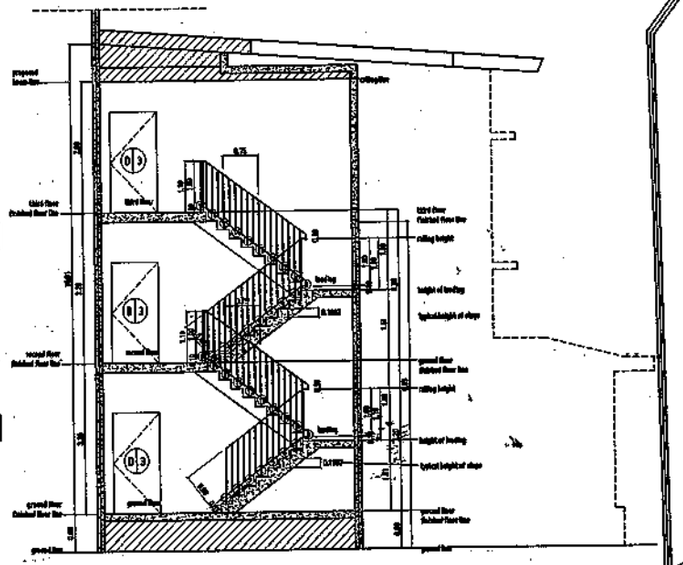

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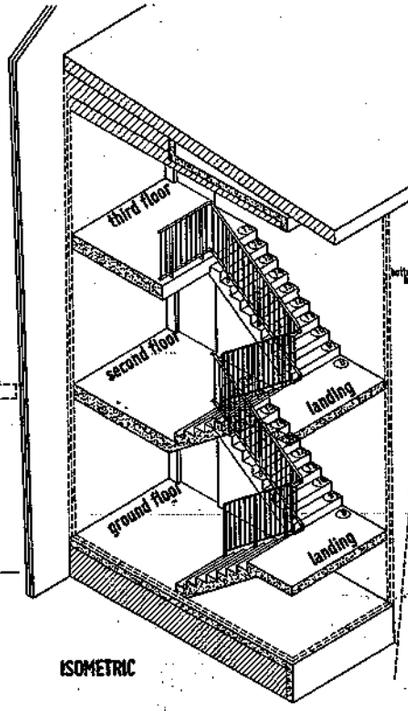

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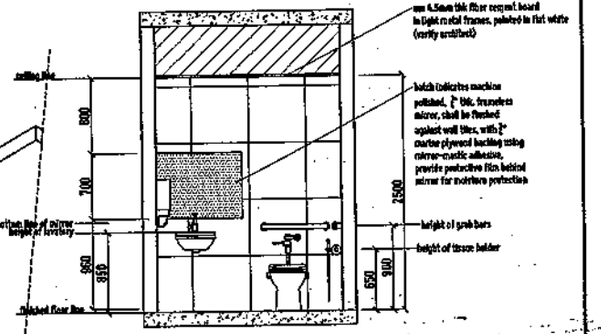

A 5 3 PWD RESTROOM DETAIL
SCALE 1:25 METERS

A 5 2 STAIR DETAIL B (FIRE EXIT)
SCALE 1:50 METERS

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

FERDINAND A. DUMPA
ARCHITECT (RECORD)
PRC NO. [illegible] | EXPIRY [illegible]
TIN 201-461-892-037 | PTR/OR [illegible]

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: CM RECTO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMPA, UMPO HEAD
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUENO, HEAD, ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. ANDRES G. CULTURA II, DIRECTOR, USTP SYSTEM

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DATE DRAWN:
DATE CHECKED:
SCALE:

A5

REPUBLIC OF THE PHILIPPINES
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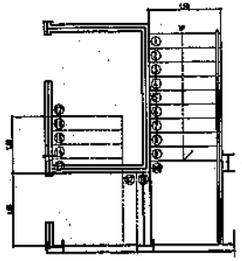
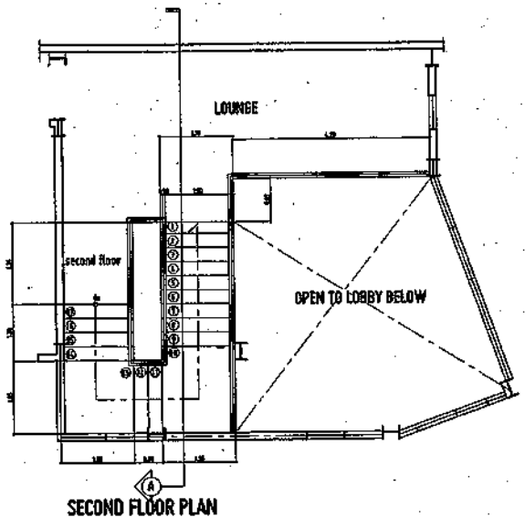
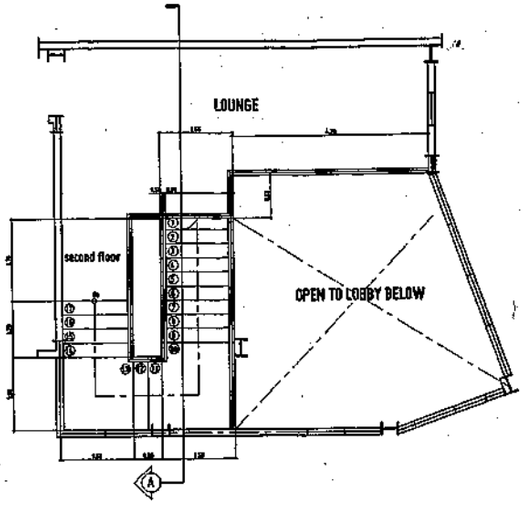


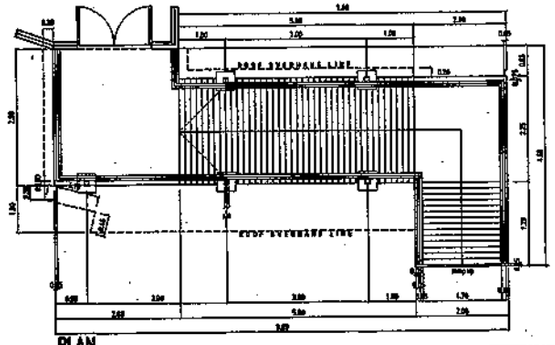
GROUND FLOOR PLAN



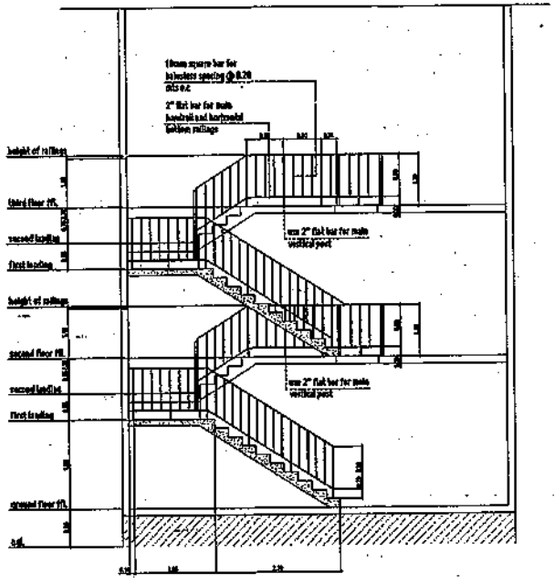
SECOND FLOOR PLAN



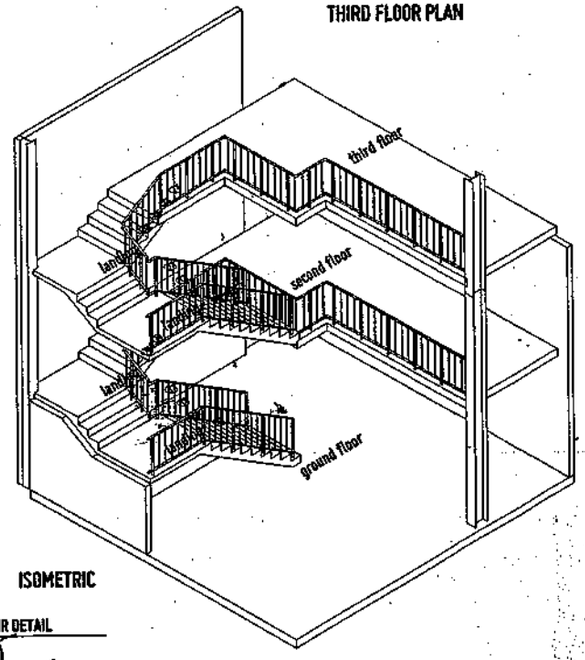
THIRD FLOOR PLAN



PLAN



ELEVATION



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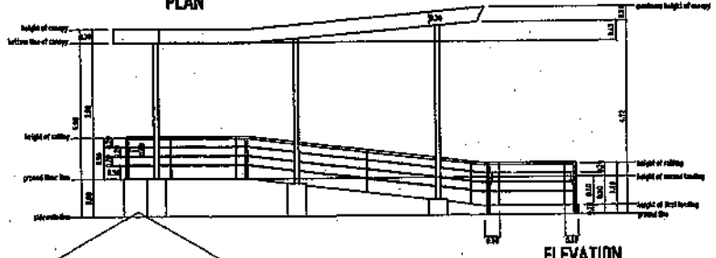
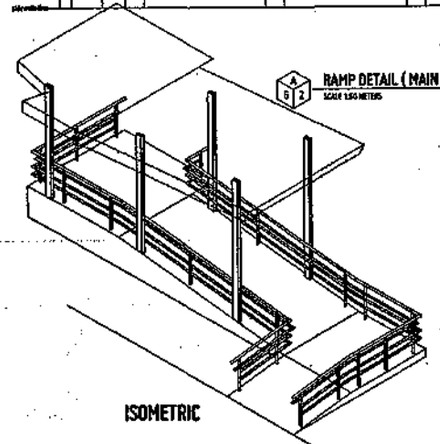


ELEVATION

RAMP DETAIL (MAIN ENTRANCE)
SCALE 1:50 METERS



ISOMETRIC

MAIN STAIR DETAIL
SCALE 1:50 METERS

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REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

ARCH. FERDINAND A. DUMPA
ARCHITECT OF RECORD
PRC NO. 1 1 2 2 4 6 — VALIDITY: 08/2021
DATE: 12-28-2021
TIN NO. 0 5 4 - 6 0 2 - 1 8 7 — PLACE: EL SALVADOR

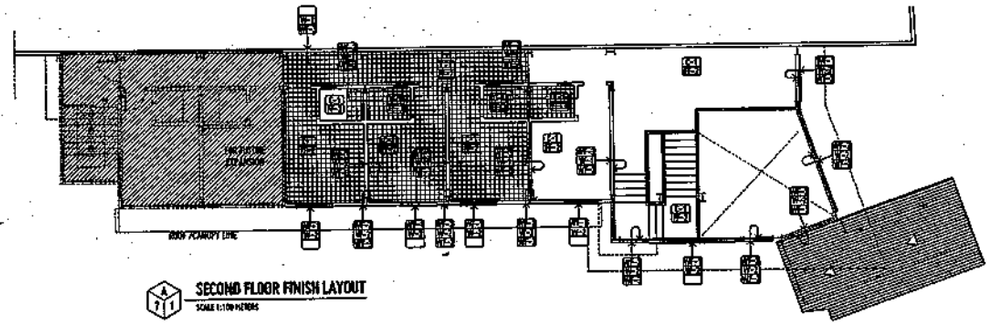
PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: ICM SECTR, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMPA, OIC-HEAD
RECOMMENDING APPROVAL: ATTY. ERWIN B. SUCID, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA II, PRESIDENT, USTP SYSTEM

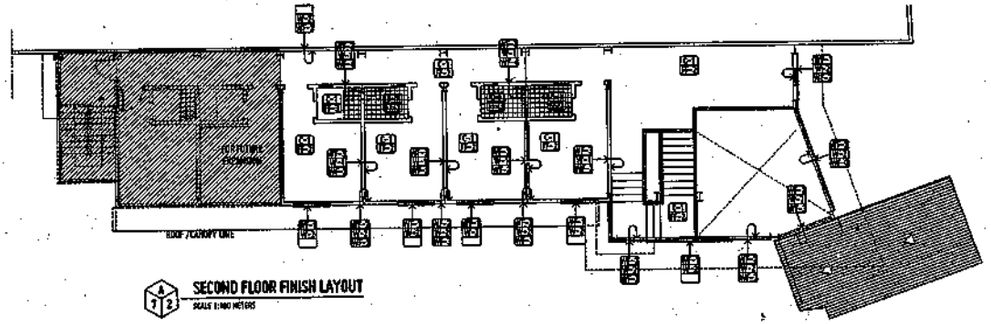
SHEET CONTENTS:
DRAWN BY:
DATE RECEIVED:
DATE ISSUED:
BY:

A6

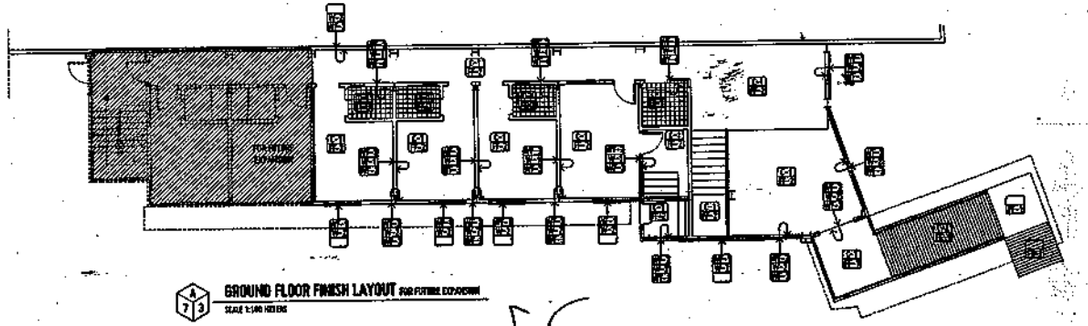
REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL



A 7 1 — SECOND FLOOR FINISH LAYOUT
SCALE 1:100 METERS



A 7 2 — SECOND FLOOR FINISH LAYOUT
SCALE 1:100 METERS



A 7 3 — GROUND FLOOR FINISH LAYOUT FOR FUTURE EXPANSION
SCALE 1:100 METERS

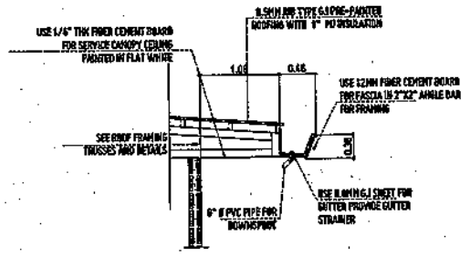
FLOOR FINISHES	
MARK	DESCRIPTION
FF-1	SCRUB WASHED FLOOR FINISH WITH BUSH HAMMER
FF-2	SMOOTH TROWEL FINISHED CONCRETE FLOORING
FF-3	600 X 600MM NON-SKID CERAMIC FLOOR TILE IN BASE STAIR, WITH COUNTERSUNK WATERPROOFING MORTAR

WALL FINISHES	
MARK	DESCRIPTION
WF-1	ALUMINUM STONE CLADDING, MORTAR DESIGN AND SIZE
WF-2	PLAIN CEMENT PLASTER FINISH, TEXTURE "SPANISH" BRICK TEXTURE FINISH, FABRICATED SELF-LEVELING, WATERPROOFING, LOW-ODOR WATER BASED PAINTS IN WHITE COLOR (EXTERIOR)
WF-3	PLAIN CEMENT PLASTER FINISH, TEXTURE "SPANISH" BRICK TEXTURE FINISH, PAINTED WITH SATIN WHITE COLOR (INTERIOR)
WF-4	10MM+ 600MM X 600MM CERAMIC WALL TILE (WHITE) - PLAIN CEMENT PLASTER FINISH, PAINTED "SATIN" SEMI-GLOSS LATEX PAINT FINISH

PARTITION	
MARK	DESCRIPTION
WF-1	150MM THK. CHB INTERIOR AND EXTERIOR WALLS
WF-2	150MM THK CHB PERIMETER WALLS

CEILING FINISHES	
C-1	DROPPER CEILING, 6.5MM THK. FIBER CEMENT BOARD ON METAL FURRING SPACED HORIZONTALLY, PAINTED WITH FLAT WHITE

DRAWING SYMBOLS	
SCHEDULE OF FINISHES	
	CEILING FINISHES FLOOR FINISHES
	WALL FINISH OF SAME SIDE OF SYMBOL WALL OR PARTITION WALL FINISH OF OTHER SIDE



A 7 4 — GUTTER DETAIL
SCALE 1:30 METERS

USTP

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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

FERDINAND A. DUMPA
ARCHITECT OF RECORD
PRC NO. 0 0 0 0 0 0 | PTR NO. [redacted]
DATE 03-26-2021
TIN 000-000-192-000 | PHASE EL SALVADOR

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: SITIO PUETO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

DESIGNED / DRAWN: AR. FERDINAND A. DUMPA
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCIO, VP FOR ADMINISTRATION & CAMPUS AFFAIRS
APPROVED BY: DR. AMBROSIO V. CULTURA II, PRESIDENT, USTP SYSTEM

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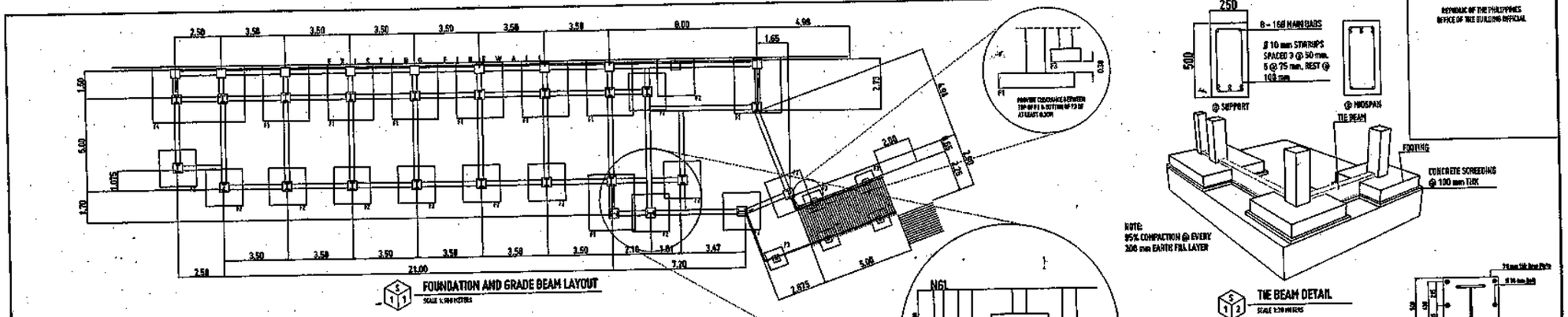
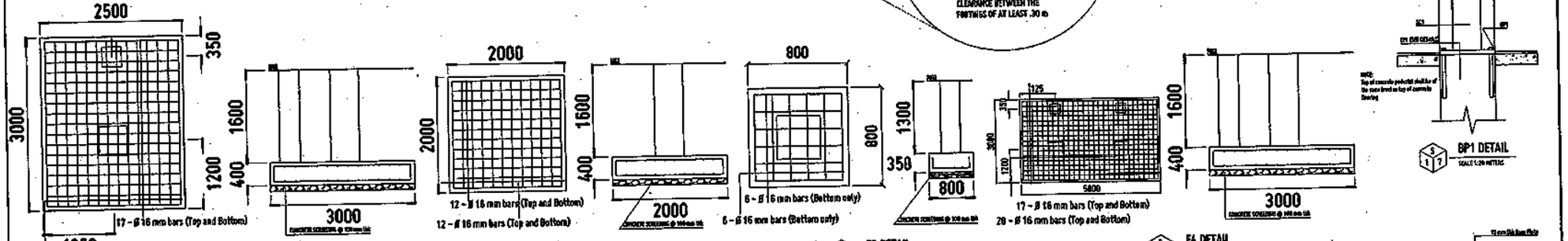
SIGNATURE:
DATE PAYABLE:
PAY:

A7





PEDESTAL AND COLUMN LAYOUT
SCALE 1:100 METERS

COLUMN AND PEDESTAL SCHEDULE

MARK	DIMENSIONS	REMARKS	MARK	DIMENSIONS	REMARKS
SC1	W14X61	STRUCTURAL STEEL TO ROOF BEAM	C1	9 - Ø 16 mm Main Bar; Ø 10 mm Lateral Ties spaced @ 3 @ 50 mm, 5 @ 100 mm, and rest @ 175 mm	FOOTING TO TOP OF FOOTING LEVEL
CP1	12 - Ø 16 mm Main Bar; Ø 10 mm Lateral Ties spaced @ 3 @ 50 mm, 5 @ 100 mm, and rest @ 175 mm	REINFORCED CONCRETE PEDESTAL	C2	9 - Ø 16 mm Main Bar; Ø 10 mm Lateral Ties spaced @ 3 @ 50 mm, 5 @ 100 mm, and rest @ 175 mm	TOP OF FOOTING LEVEL TO ROOF LEVEL
CP2	6 - Ø 16 mm Main Bar; Ø 10 mm Lateral Ties spaced @ 3 @ 50 mm, 5 @ 150 mm, and rest @ 175 mm	REINFORCED CONCRETE PEDESTAL	C3	6 - Ø 16 mm Main Bar; Ø 10 mm Lateral Ties spaced @ 3 @ 50 mm, 5 @ 75 mm, and rest @ 100 mm	ROOF LEVEL TO APEX

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

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

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND E. DUMPA, IPHO HEAD
RECOMMENDING APPROVAL: ATTY. EDWARD B. BUCIO, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA II, PRESIDENT, USTP SYSTEM

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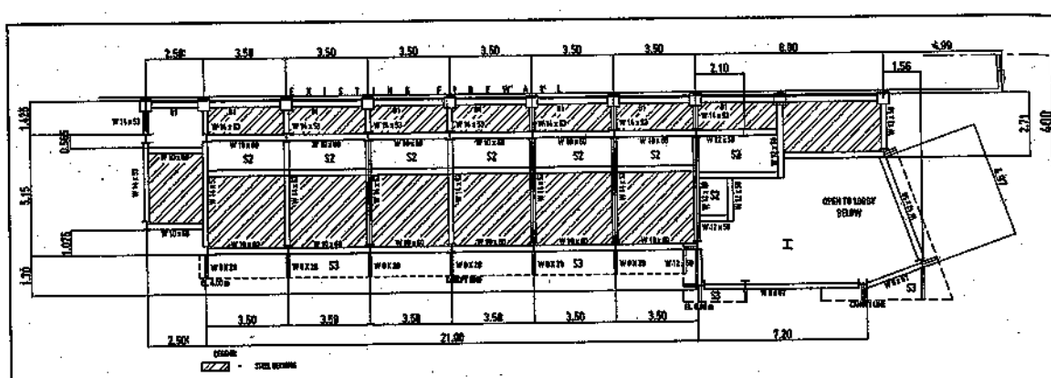
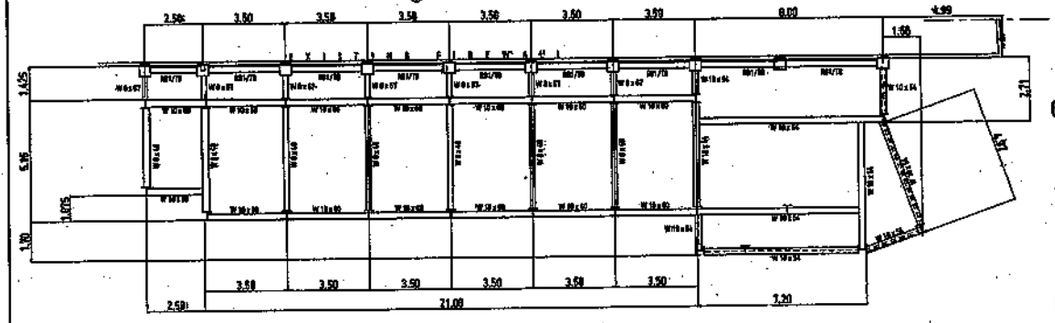
STA. / BRP
DATE DRAWN: 06.22.2020
DATE:

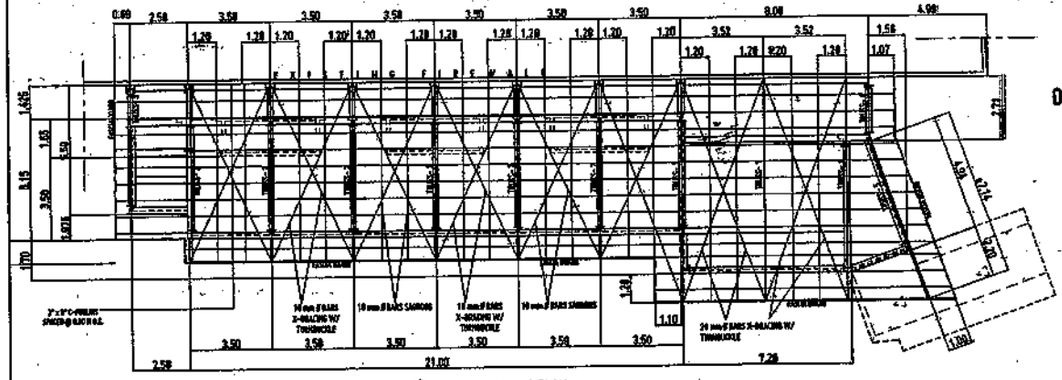
S1



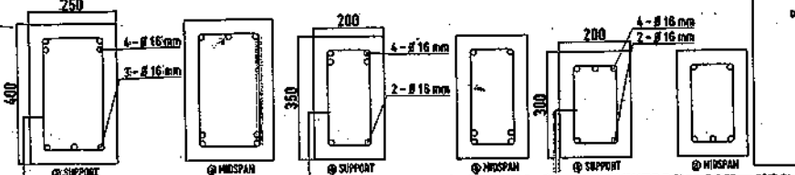
SECOND AND THIRD FLOOR FRAMING PLAN
SCALE 1:100 METERS



ROOF BEAM FRAMING PLAN
SCALE 1:100 METERS



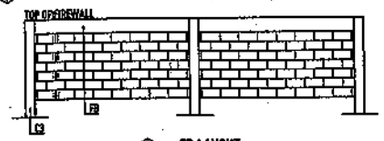
ROOF FRAMING PLAN
SCALE 1:100 METERS



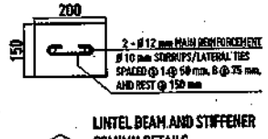
B1 DETAIL
SCALE 1:20 METERS

RB1 DETAIL
SCALE 1:20 METERS

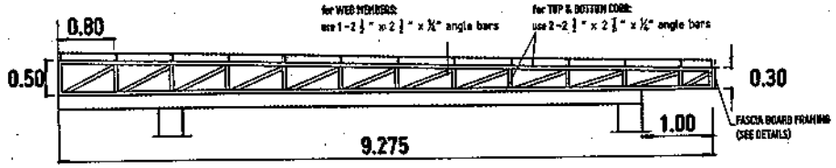
TB DETAIL
SCALE 1:20 METERS



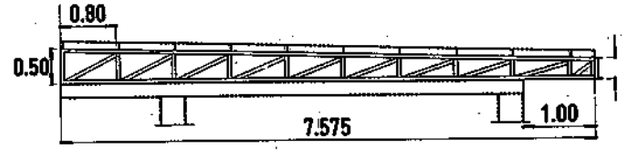
FB LAYOUT
SCALE 1:20 METERS



LINTEL BEAM AND STIFFENER COLUMN DETAILS
SCALE 1:20 METERS



TRUSS 1



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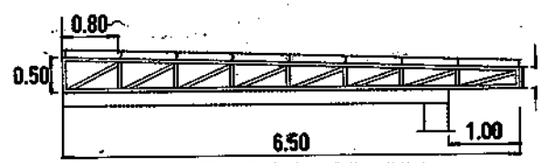

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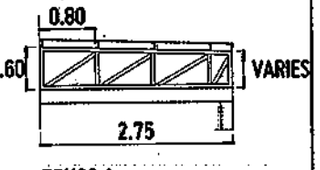

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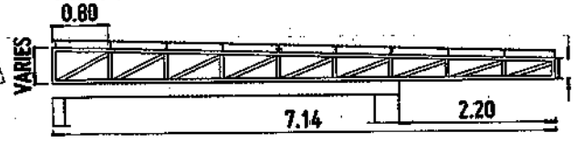
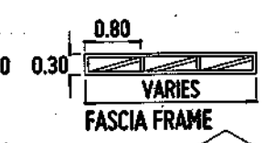


TRUSS 5

TRUSS DETAIL
SCALE 1:100 METERS



FASCIA FRAME

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OFFICE OF THE BUILDING OFFICIAL

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

STRUCTURAL ENGINEER
PRC NO. / VALID
TIN NO. / DATE / PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DIMPAS, DIRECTOR
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCAD, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROCIO B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS

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DATE DRAWN:
PLOT DATE:
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S2

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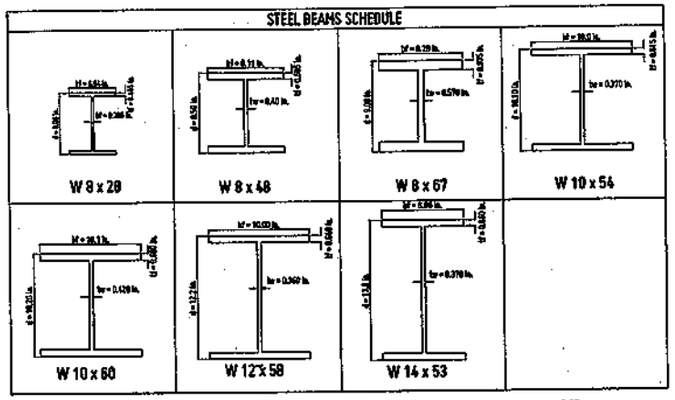
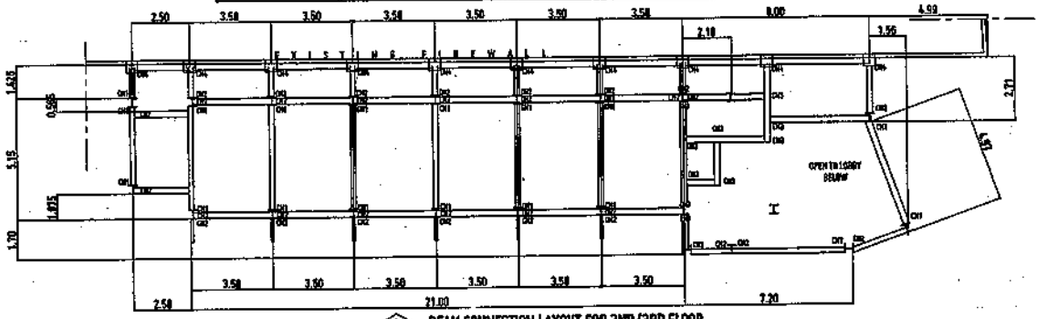
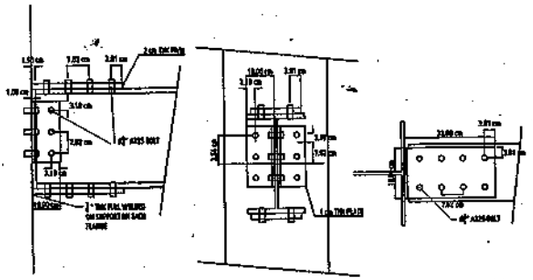
STEEL BEAMS SCHEDULE

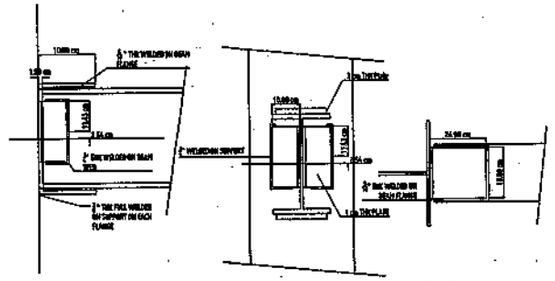




S 3 5 BEAM CONNECTION LAYOUT FOR 2ND/3RD FLOOR
SCALE 1:100 METERS



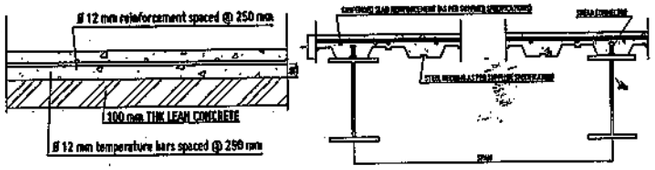
S 3 1 CN1 DETAIL
SCALE 1:100 METERS



S 3 2 CN2 DETAIL
SCALE 1:100 METERS

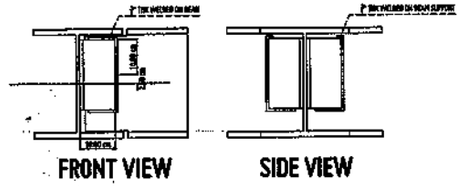
SCHEDULE OF SLABS

LEVEL	MARK	THICKNESS	REBAR SPACING ALONG SHORT DIRECTION		REBAR SPACING ALONG LONG DIRECTION		REMARKS
			TOP REINF.	BOTTOM REINF.	TOP REINF.	BOTTOM REINF.	
2ND,3,ROOFTP	S2	150 mm	@ 12 mm @ 150 mm	@ 10mm @ 150 mm	@12 mm @ 150 mm	@ 10mm @ 150 mm	TWO-WAY

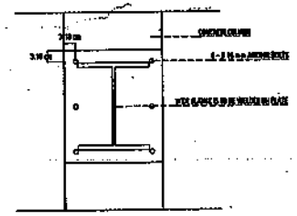


S 3 6 SLAB ON GRADE DETAIL
SCALE 1:20 METERS

S 3 7 SUSPENDED SLAB BLOW-UP DETAILS
SCALE 1:100 METERS

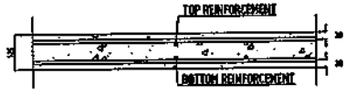


S 3 3 CN3 DETAIL
SCALE 1:100 METERS



S 3 4 CN4 DETAIL
SCALE 1:100 METERS

S 3 6 S2 DETAIL
SCALE 1:20 METERS



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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

STRUCTURAL ENGINEER
PRC NO. PTR NO. TIN NO. VALID VALID

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: CM RECTO, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMPA, DIRECTOR
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUGO, VICE-PRESIDENT FOR ADMINISTRATION & ADMIN. AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA III, PRESIDENT, USTP-SYSTEM

SHEET CONTENTS:

BUILDING BY:
SCALE:
DATE MEASURED:
04.22.2019
DATE:

S3

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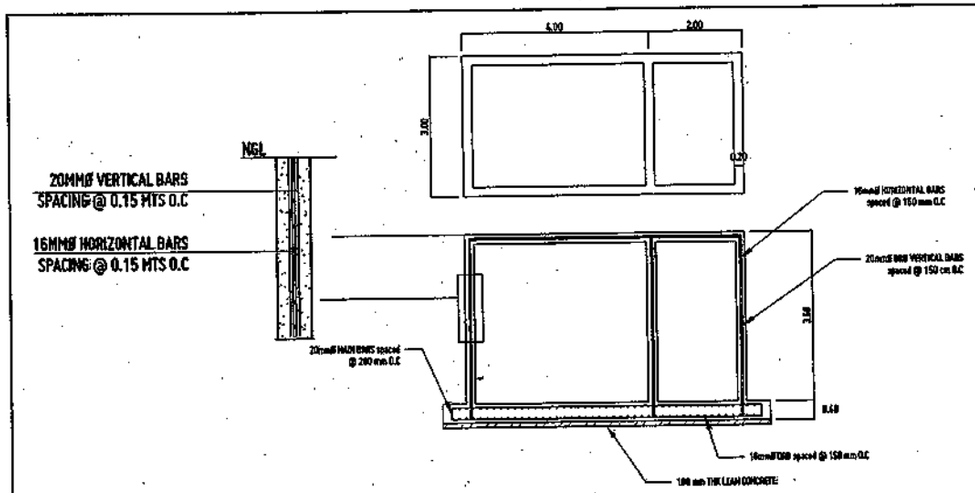
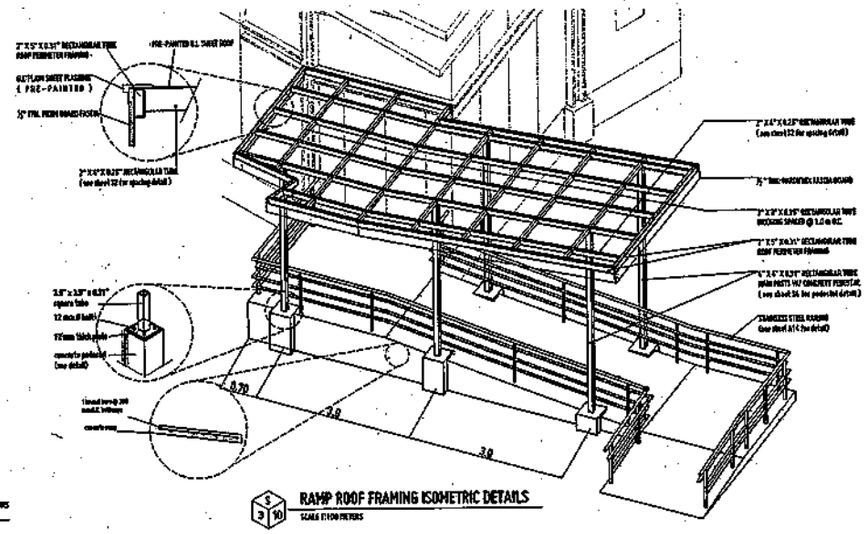
OFFICE OF THE BUILDING OFFICIAL



S 4 1 CISTERN TANK DETAIL
SCALE 1:50 MTS



S 3 10 RAMP ROOF FRAMING ISOMETRIC DETAILS
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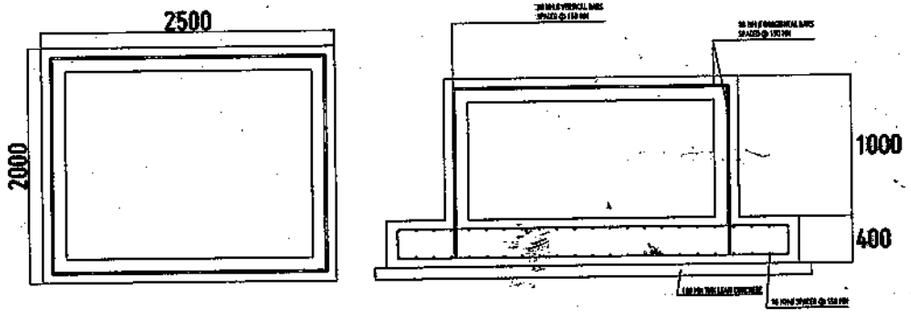

S 4 2 RAINWATER CATCHMENT TANK DETAIL
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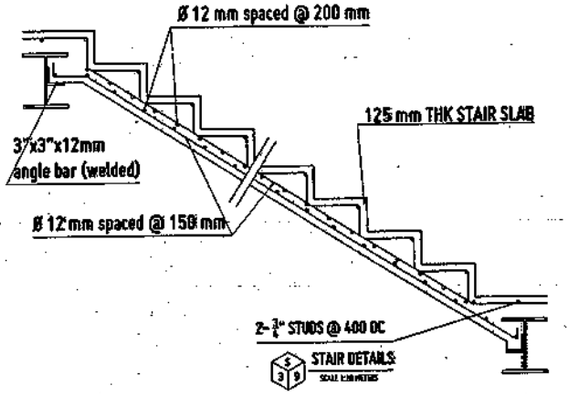

S 3 9 STAIR DETAILS
SCALE 1:20 METERS

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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

STRUCTURAL ENGINEER
PRC NO. | PTR NO.
TAX NO. | ISSUED AT

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: ON RESTR, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

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OIC-HEAD

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

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

SHEET CONTENTS:

DRAWN BY:
STA. JOSE
CHECKED BY:
06.22.2020
DWG NO.

S4

GENERAL NOTES

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

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 DIMENSIONS OF ALL OTHER TRADES AS TO SLEEVES, CHASES, 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 WHICH REPRESENT THE FINISHED STRUCTURE THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING AND BRACING REQUIRED TO ERECT AND HOLD THE STRUCTURE IN ITS PROPER ALIGNMENT DURING ALL STRUCTURAL WORK AND CONNECTIONS HAVE BEEN COMPLETED. THE INVESTIGATION, DESIGN, SAFETY, ADEQUACY AND INSPECTION OF EXCAVATION, 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 OF CONSTRUCTION SHALL BE USED, SUBJECT TO THE APPROVAL OF THE ROYAL COMMISSION.

1.5 LOADING (IES) 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 THE STRUCTURE ARE INDICATED ON THE "DESIGN CRITERIA NOTES". DO NOT APPLY ANY CONSTRUCTION LOADS BOTH STRUCTURAL FRAMING IS PROPERLY CONNECTED TOGETHER AND BRACED ALL TEMPORARY BRACING AS IN PLACE.

1.6 ALL ASTM AND OTHER REFERENCES ARE FOR 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. ROYAL COMMISSION'S STRUCTURAL DESIGN CRITERIA AND STRUCTURAL CODE.
B. ROYAL COMMISSION'S GUIDELINE SPECIFICATIONS.
C. BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI-318M)
D. INTERNATIONAL BUILDING CODE (IBC).
E. 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 BUILDING	f'_c = 20 MPa
C.	REINFORCING BARS	f_y = 414 MPa
D.	CONCRETE MASONRY UNITS	f'_m = 14 MPa
E.	STRUCTURAL STEEL PLATES AND SHAPES – ASTM A36	F_y = 248 MPa
F.	ANCHOR RODS – ASTM A307	F_y = 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	1.2 KN/M²
C.	150 MM CONCRETE MASONRY WALLS	2.70 KN/M²
D.	200 MM CONCRETE MASONRY WALLS	3.36 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 0.60 KN/M²
C.	CORRIDORS, STAIRS & BALCONIES	5.0 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 MC AND NC AREAS ARE AS FOLLOWS:

MC	105 KPH (96 MPH)
NC	144 KPH (97 MPH)

B. SIMPLIFIED DESIGN WIND SHALL BE DESIGNED AS GIVEN IN FIGURE 6-2 OF SEI/ASCE 7.

2.3.3.3 ARRANGEMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE (K)

A. ARRANGEMENT FACTOR FOR BUILDING HEIGHT AND EXPOSURE (K) 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 GIVEN IN SECTION 6.5.5 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 C94.

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 II CEMENT SHALL BE USED.

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

3.1.4 CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 318.

3.1.5.1 REPROCUREMENT FOR CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ACI 301M5

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 REMOVED FROM THE SITE.

3.2.2.2 THE EXPOSED SUB-GRADE SHALL BE INSPECTED PRIOR TO PLACING ANY FILL. THE INSPECTION SHALL BE ACHIEVED BY COMPACTION, AND SHALL CONSIST OF, BUT NOT LIMITED TO, 300 MM BELOW THE EXISTING SUB-GRADE, BE AT LEAST 90% OF THE ASTM D1557 MODIFIED 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 DISCUSSED IN THE GEO-TECHNICAL REPORT. WELL-POINTS HAVE BEEN SO THAT THE GROUND WATER LEVEL IS MAINTAINED AT LEAST 600 MM BELOW THE BOTTOM OF FOOTING DURING CONSTRUCTION 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. WHERE ELEVATIONS ARE A MINIMUM AND SHALL BE LOWERED AS REQUIRED TO OBTAIN THE REQUIRED DESIGN BEARING PRESSURE.

3.2.6 ALL UNBALANCED BACKFILLING SHALL BE DONE AGAINST FOUNDATION WALLS UNLESS WALLS ARE SECURELY BRACED AGAINST OVERTURNING, EITHER BY TEMPORARY BRACING OR PERMANENT CONSTRUCTION.

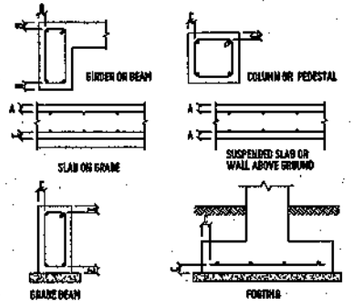
4. CONCRETE CONSTRUCTION

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 (SAME BARS) ON TOP OF GIRDER BARS.

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

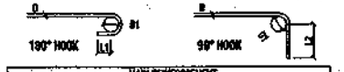
4.4 UNLESS OTHERWISE NOTED, THE FOLLOWING CLEAR CONCRETE COVER OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH SEI 60.205 AND NSCP AS FOLLOWS:



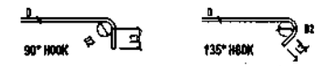
CAST-IN-PLACE CONCRETE		
CLEAR COVER	EXPOSED TO WEATHER OR EARTH	NOT EXPOSED TO WEATHER OR EARTH
A	50	75
B	50	40
C	75	50

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:

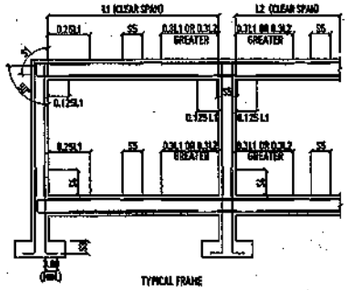


MAIN REINFORCEMENT			
BARS (MM)	MINIMUM BEND DIAMETER	EXTENSION	
	B1 (MM)	L1 (MM)	L2 (MM)
10	50	80	95
12	60	90	125
16	70	80	345
20	90	80	270
24	95	85	350
28	110	90	215
32	120	80	240
36	130	90	285
25	150	100	380
28	225	110	335



STIRRUPS AND TIES		
BARS (MM)	MINIMUM BEND DIAMETER	EXTENSION
	D2 (MM)	L3 (MM)
10	40	80
12	48	88
16	64	96
20	80	104
24	96	112
28	112	120
32	128	128

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



BARS (MM)	MIN. DEVELOPMENT LENGTH			MIN. LAP LENGTH	
	IN TENSION		IN COMPRESSION	IN TENSION	IN COMPRESSION
	S1 (MM)	S2 (MM)	S3 (MM)	S4 (MM)	S5 (MM)
10	420	325	200	420	300
16	525	405	210	525	300
12	630	485	250	630	355
14	735	585	285	735	410
16	840	645	325	840	470
18	945	725	360	945	530
20	1050	805	420	1050	590
22	1140	1110	480	1140	650
25	1040	1280	525	1640	735
28	1833	1410	580	1833	825
36	1905	1518	630	1905	880
32	2095	1615	670	2095	940

NOTES:

A. THE MINIMUM MINIMUM DEVELOPMENT AND LAP LENGTH IS FOR CLASS 25 CONCRETE. FOR f'c OTHER THAN 25 MPA, THE VALUES OF S1, S2, S3, AND S4 SHALL BE MULTIPLIED BY $\sqrt{25/f'_c}$.

B. WHEN LIGHTWEIGHT AGGREGATE CONCRETE IS USED, DESIGNATED MARK OF S1 AND S2 SHALL BE MULTIPLIED BY 1.3. HOWEVER WHEN THE AVERAGE SPLITTING TENSILE STRENGTH OF LIGHTWEIGHT AGGREGATE CONCRETE (fct) IS SPECIFIED, S3 AND S3 SHALL BE PERMITTED TO BE MULTIPLIED BY $6.7\sqrt{f'_c}/f_{ct}$ 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 DLS 44210 OR 04220, AND CONC MASONRY ASSEMBLIES SHALL BE BY ACCORDANCE WITH DLS 04810.

5.2 MASONRY MORTAR AND GROUTING GROUT SHALL CONFORM TO THE RECOMMENDATIONS OF DLS 04100 RESPECTIVELY.

5.3 ANCHORAGE AND REINFORCEMENT FOR MASONRY SHALL BE IN ACCORDANCE WITH DLS 04400.

5.4 MASONRY EXPANSION AND CONTROL JOINT REQUIREMENTS SHALL BE AS INDICATED IN DLS 04200.

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

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

5.7 DOWELS 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 DLS 05120.

6.2 STEEL JOIST REQUIREMENTS SHALL BE IN ACCORDANCE WITH DLS 05210.

6.3 STEEL DECK SHALL COMPLY WITH THE REQUIREMENTS OF DLS 05310.

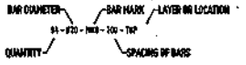
7. NOTES FOR DRAWING NOMENCLATURES

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

7.2 INDICATED DIMENSIONS SHALL PREVAIL AGAINST SCALED DIMENSION.

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

7.4 ALL REINFORCING BARS SHALL BE READ AS FOLLOWS:



8. ABBREVIATIONS

ACI	=	AMERICAN CONCRETE INSTITUTE
ADDTL	=	ADDITIONAL
ALT	=	ALTERNATELY PLACED
ALT	=	ALTERNATELY REVERSED
AS	=	ALTERNATELY STAGGERED
ASTM	=	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	=	AMERICAN WELDING SOCIETY
B	=	BARTOP
BF	=	BACK FACE
BW	=	BARTOP/WAYS
CL	=	CENTER LINE
CLR	=	CLEAR
CMU	=	CONCRETE MASONRY UNIT
CONC	=	CONCRETE
CONT	=	CONTINUOUS
DIA	=	DIAMETER
DISCONT	=	DISCONTINUOUS
DTL	=	DETAIL
DWG	=	DRAWINGS
EF	=	EACH FACE
EL	=	EXISTING LEVEL
ELEV	=	ELEVATION
EQ	=	EQUAL
EW	=	EACH WAY
EXT	=	EXTERIOR
FF	=	FRONT FACE
FIN	=	FINISH
GLS	=	GUIDELINE SPECIFICATION
HORI	=	HORIZONTAL
HT	=	INTERIOR
LNTH	=	LENGTH
MIN	=	MINIMUM
NTS	=	NOT TO SCALE
OC	=	ON CENTER
REBAR	=	REINFORCING BAR
TCONT	=	CONTRACTOR, REINFORCEMENT OR REINFORCING
SEC	=	SECTION
SP	=	SPACING
STIRR	=	STIRRUPS
SYMM	=	SYMMETRICAL
T	=	TOP
THK	=	THICK
TYP	=	TYPICAL
UON	=	UNLESS OTHERWISE NOTED
VERT	=	VERTICAL
WWF	=	WELDED WIRE FABRIC

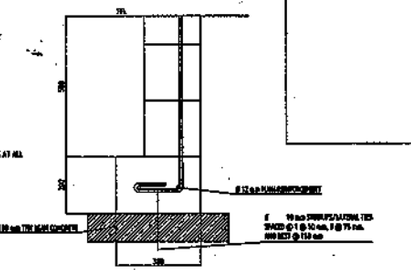
9. WATER PROOFING

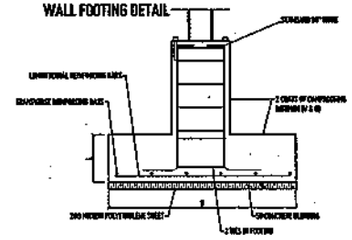
9.1 ALL STRUCTURAL CONCRETE IN CONTACT WITH THE GROUND SHALL BE PROTECTED AGAINST BY TWO COATS OF BITUMINOUS DAMPPROOFING OR BY USE OF WATER PROOF MEMBRANE AS BEEN SHOWN ON THE DETAILED DRAWING.

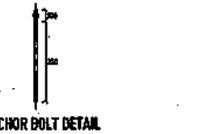
POLYETHYLENE SHEET OF 200 MICRON TO BE USED AS VAPOUR BARRIER UNDER SLAB.

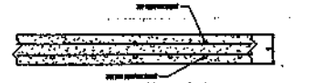
WATER PROOFING TO BE APPLIED ON TOP TOP OF SLAB CONCRETE AND ABOVE.

WHEN USING MEMBRANE PROOF MEMBRANE, IT SHOULD BE AS PER BC GUIDE SPEC. 07190 (HANDSON SYSTEM) INTIAL CONSTRUCTION GUIDELINE SPECIFICATION 07130.









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

USTP

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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIM M. BOTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088) 72-48-57 / (088) 856-1730 / 856-1738 | TELEFAX (088) 858-1096
WEBSITE: www.ustp.edu.ph

STRUCTURAL ENGINEER
PRC NO. | PTR NO.
DATE
TIN NO. | PTR/DATE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND B. DUMAYA
Project Architect

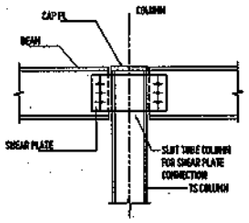
RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCOG
VP FOR ADMINISTRATION & CAMPUS ADMIN

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

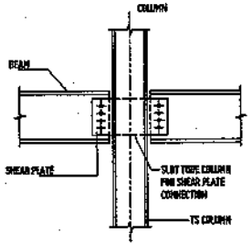
SHEET CONTENTS:

REVISIONS
DATE ISSUED:
FILE:

S5

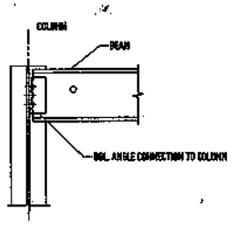


BEAM FRAMES ON BOTH SIDES OF TS COLUMN

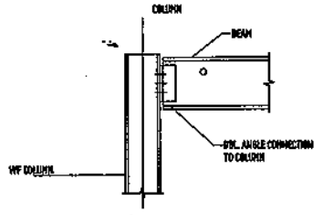


TS COLUMN RUNS CONTINUOUS

S 8 1 BEAM SHEAR CONNECTION DETAIL #1
N.T.S



BEAM FRAMES INTO WEB OF WF COLUMN



BEAM FRAMES TO FLANGE OF WF COLUMN

S 8 4 BEAM SHEAR CONNECTION DETAIL #2
N.T.S

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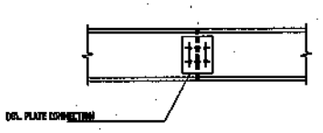
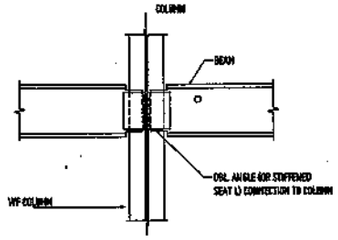


BEAM FRAMES TO BEAM SHEAR SPLICE



BEAM FRAMES BOTH SIDES INTO WEB OF WF COLUMN

S 8 5 BEAM SHEAR CONNECTION DETAIL #3
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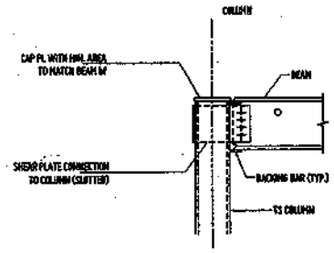
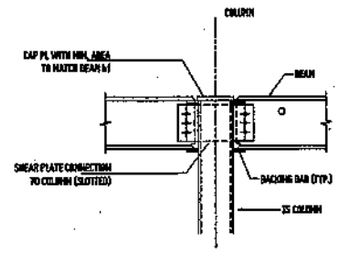


BEAM FRAMES ONE SIDE OF TS COLUMN



BEAM FRAMES BOTH SIDES OF TS COLUMN

S 8 6 BEAM MOMENT CONNECTION DETAIL #1[3]
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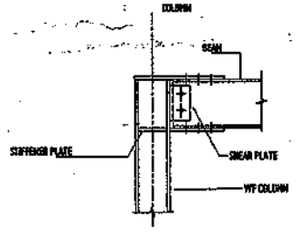
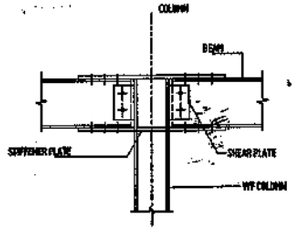


BEAM FRAMES ONE SIDE OF WF COLUMN



BEAM FRAMES BOTH SIDES OF WF COLUMN

S 8 3 BEAM MOMENT CONNECTION DETAIL #2[3]
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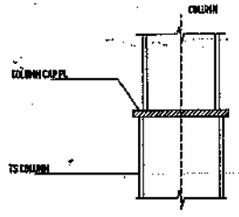
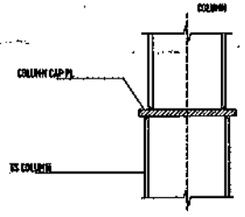


TS COLUMN SPLICE, FILLET WELDED



TS COLUMN SPLICE, PENETRATION WELDED

S 8 7 TYPICAL TS COLUMN SPLICE DETAILS[1]
N.T.S

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

ERNESTO CR. QUIJOTE
CIVIL/STRUCTURAL ENGINEER
PRC NO. — PRC VAL. 0051944 A
EXP. — DATE 03 - 22 - 2021
PTR — PLACE TL SAN ANDRES

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. OMPA
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCLO, VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. ANDRESITO B. CULTURA II, PRESIDENT, USTP SYSTEM

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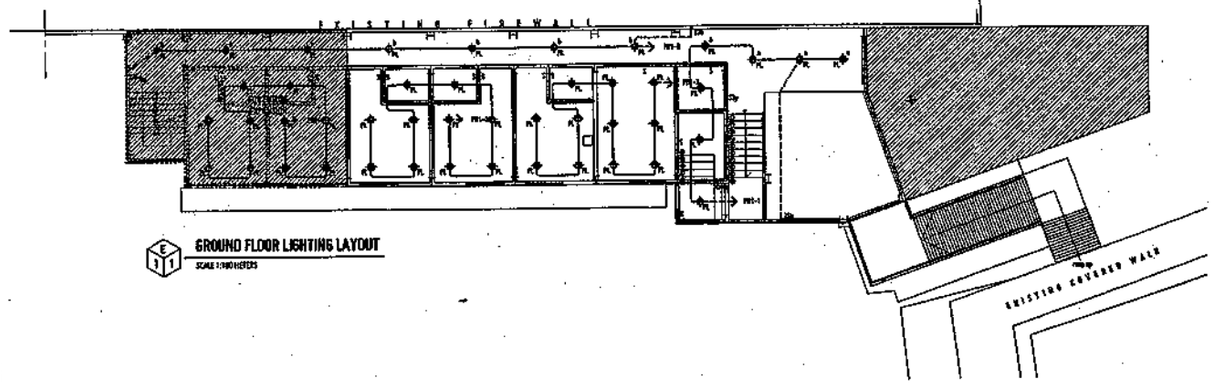
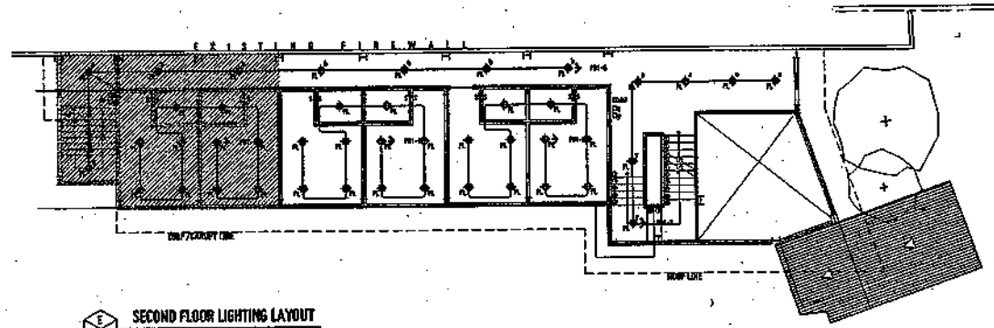
REV. DATE: MO
DATE RECEIVED:
07/10/2020
REF:

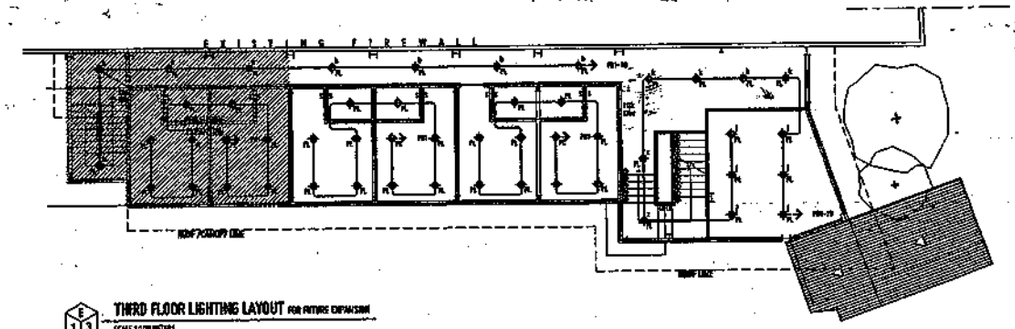
S6



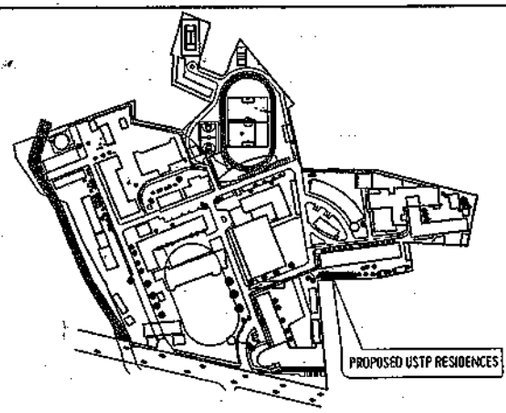
GROUND FLOOR LIGHTING LAYOUT
SCALE 1:100 METERS



SECOND FLOOR LIGHTING LAYOUT
SCALE 1:100 METERS



THIRD FLOOR LIGHTING LAYOUT FOR FUTURE EXPANSION
SCALE 1:100 METERS



LOCATION MAP
NTS

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

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

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

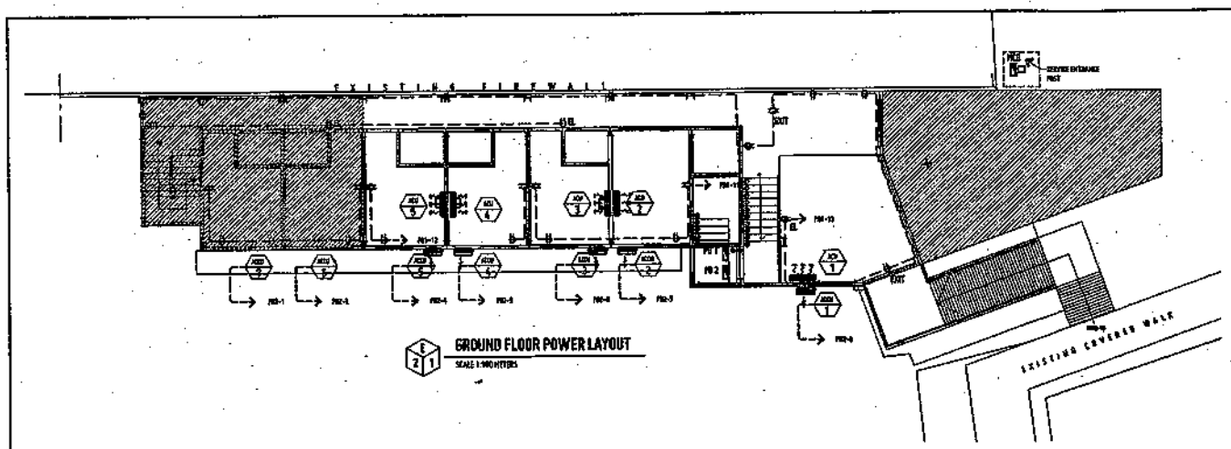
PROFESSIONAL ELECTRICAL ENGINEER
PRC NO. | PRC BD.
DATE
TIN | BLACK

PROJECT: PROPOSED 3-STOREY USTP-COO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-COO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

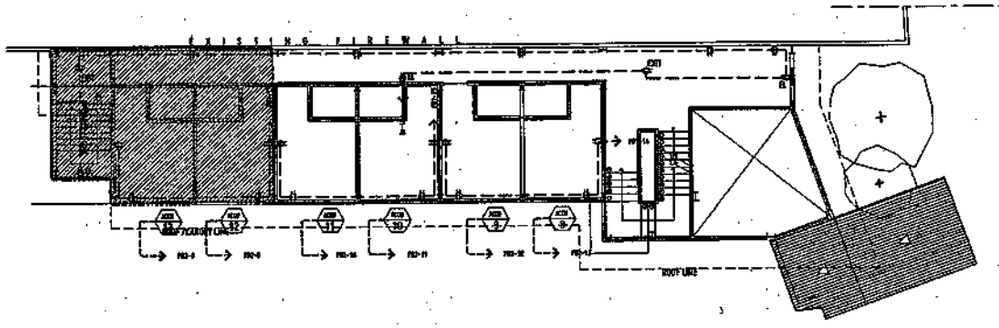
RECOMMENDING APPROVAL: ARC. FERDINAND A. QUIMPA
RECOMMENDING APPROVAL: ATTY. ERWIN B. RIMCID
APPROVED BY: DR. AMBROSIO B. CULTURA II

SHEET CONTENTS:
DRAWN BY:
DATE SHOWN:
SCALE:

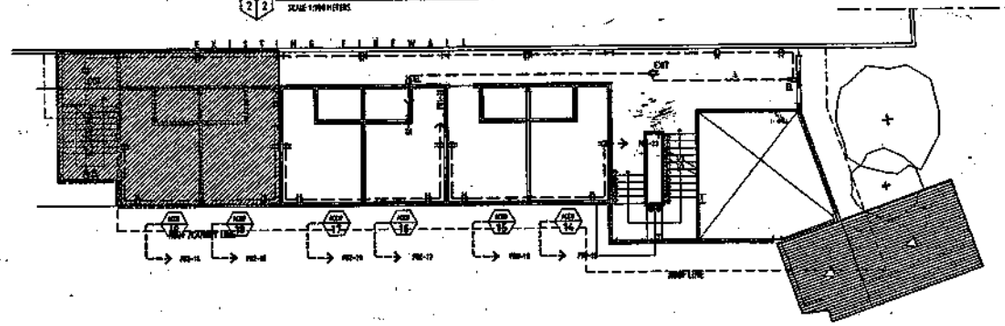
E1



GROUND FLOOR POWER LAYOUT
SCALE 1:100 METERS



SECOND FLOOR POWER LAYOUT
SCALE 1:100 METERS



THIRD FLOOR POWER LAYOUT FOR FUTURE EXPANSION
SCALE 1:100 METERS

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

SPECIFICATIONS:

A. CODE AND REGULATIONS:
THE ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL THE REQUIREMENTS OF THE LATEST ISSUE OF THE PHILIPPINE ELECTRICAL CODE, WITH RULES AND REGULATIONS AND ORDINANCES OF THE LOCAL ENFORCING AUTHORITIES AND REQUIREMENTS OF THE LOCAL COMPANY.

1. SCOPE OF WORK:

1-A. THE WORK CONSIST OF FURNISHING OF ALL MATERIALS AND LABOR, TOOLS AND EQUIPMENT AND ALL NECESSARY.

1-B SERVICES TO COMPLETE THE ELECTRICAL WORK READY FOR OPERATION AS SHOWN IN THE DRAWING AND SPECIFIED AS FOLLOWS.

1-B. SUPPLY AND INSTALLATION OF ELECTRICAL PANEL BOARDS, GUTTERS, PULLBOX AND ACCESSORIES BOX AS REQUIRED.

1-C. SUPPLY OF WIRING DEVICE PORCELAIN RECEPTACLES, OUTLETS, SWITCHES, ETC. COMPLETE WITH SUITABLE COVER PLATES AS PER SPECIFICATIONS.

1-D. SUPPLY AND INSTALLATION OF ALL OTHERS MISCELLANEOUS MATERIALS SUCH AS LIGHTING FIXTURES AND ELECTRICAL CONTROL.

1-E. SUPPLY OF INSTALLATION FOR ALL BRANCH FEEDERS CIRCUITS FROM PANEL BOARD UP TO ALL OUTLETS, SWITCHES CONTROL OR OTHER LOADS; OTHER WIRING AS SHOWN IN PLAN.

1-F. GROUNDING SYSTEM AS PER DE REQUIREMENTS.

LEGEND	
Symbol	Remarks
S	Single Pole Toggle Switch, 15A, 300V 2S, 3S, Etc. Indicates Gang Switches, Small Letter Subscript Indicates Eights or Devices Being Controned Combine Hadmgn of Three (3) Toggles on One Standard Device Plate For Switch Location with More Than Nine (9) Toggle, Use Switch Bank Plate.
S3	Same as Above Except 3-Way Switch
Φ	Duplex Convenience Outlet, 1P, 250V, 15A Universal Slots Grounding Type.
Φ_{EL}	Simplex Ceiling Convenience Outlet for Emergency Light, 1P, 250V, 15A Universal Slots Grounding Type.
Φ_{EXIT}	Simplex Ceiling Convenience Outlet for Emergency Light, 1P, 250V, 15A Universal Slots Grounding Type.

NOTE: LIGHTING CODE PER LOCATION SUBJECT FOR ARCHITECTS APPROVAL

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 LOCATION OF SERVICE PEDESTAL WITH EXISTING UTILITY POLE AT SITE & WITH ELECTRIC UTILITY COMPANY FOR THEIR COMMENTS PRIOR TO IMPLEMENTATION. IN GENERAL, LOCATE PEDESTAL ON THE SIDE NEAR THE EXISTING POLE.

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REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

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

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDED FOR APPROVAL: AR. EDWIN V. L. DUPRA, DIRECTOR, IPDO

RECOMMENDED APPROVAL: ATTY. ERWIN G. EUGIO, OIC - VP FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY: DR. AMBROCIO B. GOLTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

DRAWN BY:
DATE DRAWN:
SCALE:

E2

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

PROJECT: PROPOSED 2-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines
DATE: 06-May-21
FEEDER:

NO OF SETS	THHN/THWN				CONDUIT	
	N	Y	X	G	ϕ	TYPE
1		50		14	63	CABLE LADDER

PANEL: PB1
VOLT: 220
LOCATION: GROUND FLOOR
PHASE: 3
BRANCH KAIC: 10
MAINS: 3P 150 AT
AF 225
KAIC 18

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕ AB AMPS	ϕBC AMPS	ϕCA AMPS	3ϕ AMPS	FEEDER/CIRCUIT WIRES (SQMM)					
										NO OF SETS	THHN/THWN				CONDUIT	
											N	Y	X	G	ϕ	TYPE
1	2	30	60	PB1-1 LIGHTING OUTLET GF	0.7	3.19							3.5	3.5	20	PVC
				12 Watts LED Pin Light	0.7											
2	2	30	60	PB1-2 LIGHTING OUTLET GF	1.1	5.08							3.5	3.5	20	PVC
				12 Watts LED Pin Light	1.1											
3	2	30	60	PB1-3 LIGHTING OUTLET GF	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
4	2	30	60	PB1-4 LIGHTING OUTLET GF	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
5	2	30	60	PB1-5 LIGHTING OUTLET GF	0.7			3.19					3.5	3.5	20	PVC
				12 Watts LED Pin Light	0.7											
6	2	30	60	PB1-6 LIGHTING OUTLET 2ND/F	0.8			3.64					3.5	3.5	20	PVC
				12 Watts LED Pin Light	0.8											
7	2	30	60	PB1-7 LIGHTING OUTLET 2ND/F	0.6	2.73							3.5	3.5	20	PVC
				12 Watts LED Pin Light	0.6											
8	2	30	60	PB1-8 LIGHTING OUTLET 2ND/F	1	4.55							3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
9	2	30	60	PB1-9 LIGHTING OUTLET 2ND/F	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
10	2	30	60	PB1-10 LIGHTING OUTLET 2ND/F	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
11	2	30	60	PB1-11 CONVERIENCE OUTLET GF	2.16			9.82					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 6	2.16											
12	2	30	60	PB1-12 CONVERIENCE OUTLET GF	2.16			9.82					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 6	2.16											
13	2	30	60	PB1-13 CONVERIENCE OUTLET GF	4.32	19.64							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 12	4.32											
14	2	30	60	PB1-14 CONVERIENCE OUTLET 2ND/F	1.44	6.55							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
15	2	30	60	PB1-15 CONVERIENCE OUTLET 2ND/F	1.44		6.55						3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
16	2	30	60	PB1-16 CONVERIENCE OUTLET 2ND/F	3.6		16.38						3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 10	3.6											
17	2	30	60	PB1-17 CONVERIENCE OUTLET 2ND/F	1.44			6.55					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
18	2	30	60	PB1-19 LIGHTING OUTLET 3RD/F	0.8			3.64					3.5	3.5	20	PVC
				12 Watts LED Pin Light	0.8											
19	2	30	60	PB1-19 LIGHTING OUTLET 3RD/F	1.2	5.45							3.5	3.5	20	PVC
				12 Watts LED Pin Light	1.2											
20	2	30	60	PB1-20 LIGHTING OUTLET 3RD/F	1	4.55							3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
21	2	30	60	PB1-21 LIGHTING OUTLET 3RD/F	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
22	2	30	60	PB1-22 LIGHTING OUTLET 3RD/F	1		4.55						3.5	3.5	20	PVC
				12 Watts LED Pin Light	1											
23	2	30	60	PB1-23 CONVERIENCE OUTLET 3RD/F	1.44			6.55					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
24	2	30	60	PB1-24 CONVERIENCE OUTLET 3RD/F	3.6			16.38					3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 10	3.6											
25	2	30	60	PB1-25 CONVERIENCE OUTLET 3RD/F	1.44	6.55							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
26	2	30	60	PB1-26 CONVERIENCE OUTLET 3RD/F	1.44	6.55							3.5	3.5	20	PVC
				Duplex Universal Convenience Outlet - 4	1.44											
27	2	30	60	PB1-27	0		0.00						3.5	3.5	20	PVC
				SPARE	0											
28	2	30	60	PB1-28	0		0.00						3.5	3.5	20	PVC
				SPARE	0											
29	2	30	60	SPACE	0			0.00					3.5	3.5	20	PVC
				SPACE	0											
30	2	30	60	SPACE	0			0.00					3.5	3.5	20	PVC
				SPACE	0											
				TOTAL	39.39	64.73	50.18	58.95	0.00							

DESIGN ANALYSIS

AVE P.F. 0.90	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	0	0	0	0	0	0	0
LIGHTS	13.9	0.8	11.12	1	29.22	25.00	36.52
CO	24.48	0.8	19.58	0.8	64.32	25.00	80.40
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(CONTI)	0	0	0	0	0	0	0
MOTOR(NON-CONTI)	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	38.38	0.80	30.70		93.54		116.92

GENERAL NOTES:

1. All wiring devices shall be flush mounted.
2. All junction box/pull box/outlet box shall be identified and color coded with permanent marker.
3. All conductors and devices shall be sized and selected per NEC and PEC unless otherwise stated.
4. Wiring shall be concealed, except in mechanical rooms.
5. Splices or connections shall be made only within the junction box, or other approved enclosures. No splices shall be made in conduits.
6. Verify actual location of all existing utilities before construction.
7. Verify actual dimensions and site conditions prior to construction.
8. All wiring devices shall be specification grade unless otherwise noted.
9. All wiring devices shall be flush mounted, provide at minimum, single pole switch, duplex receptacle and telephone outlet.
10. All electrical contractor, sub-contractor working on this project shall have valid copy of their respective licenses and shall submit the same prior to the start of work.

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 # (088)25 21-60-95 / (088) 856-1726 / 856-1728 | Telefax (088) 856-1626 Website: www.ustp.edu.ph	PROFESSIONAL ELECTRICAL ENGINEER PRC NO. / PTR NO. DATE TIN / PLACE	PROJECT LOCATION OWNER	PROPOSED THREE STOREY UNIVERSITY RESIDENCES PHASE 1 USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES	RECOMMENDING APPROVAL: ARCH. FERDINAND B. DUMPA DIRECTOR, IPDU	RECOMMENDING APPROVAL: ATTY. ERWIN B. SUGID OIC-VP FOR ADMINISTRATION & LEGAL AFFAIRS	APPROVED BY: DR. AMBROSIO B. CULTURA II PRESIDENT, USTP SYSTEM	SHEET CONTENTS:	DRAWING NO. DRAWING NO. DATE:

E3

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

PROJECT	PROPOSED 2-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING	DATE:	06-May-21
ADDRESS	USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines	FEEDER:	
PANEL	PB2	VOLT:	220
LOCATION	GROUND FLOOR	PHASE:	3ϕ
BRANCH KAIC	10/10	MAINS:	3P

Feeder:

NO OF SETS	THHN/THWN N	THHN/THWN Y	THHN/THWN X	THHN/THWN G	CONDUIT ϕ	CONDUIT TYPE
1		125		22	65	CABLE CADDER

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	250 ϕAB AMPS	AF ϕBC AMPS	AF 300 ϕCA AMPS	KAIC 10 3ϕ AMPS	NO.OF SETS	THHN/THWN N	THHN/THWN Y	THHN/THWN X	THHN/THWN G	CONDUIT ϕ	CONDUIT TYPE
1	2	30	60	PB2-1	2	9.09							3.5	3.5	20	PVC
				ACCU-7 GF	2											
2	2	30	60	PB2-2	2	9.09							3.5	3.5	20	PVC
				ACCU-6 GF	2											
3	2	30	60	PB2-3	3		13.64						5.5	5.5	20	IMC
				ACCU-1 GF	3											
4	2	30	60	PB2-4	2		9.09						3.5	3.5	20	PVC
				ACCU-5 GF	2											
5	2	30	60	PB2-5	2			9.09					3.5	3.5	20	PVC
				ACCU-4 GF	2											
6	2	30	60	PB2-6	2			9.09					3.5	3.5	20	PVC
				ACCU-3 GF	2											
7	2	30	60	PB2-7	2	9.09							3.5	3.5	20	PVC
				ACCU-2 GF	2											
8	2	30	60	PB2-8	2	9.09										
				ACCU-13 2ND/F	2											
9	2	30	60	PB2-9	2		9.09						3.5	3.5	20	PVC
				ACCU-12 2ND/F	2											
10	2	30	60	PB2-10	2		9.09									
				ACCU-11 2ND/F	2											
11	2	30	60	PB2-11	2			9.09					3.5	3.5	20	PVC
				ACCU-10 2ND/F	2											
12	2	30	60	PB2-12	2			9.09								
				ACCU-09 2ND/F	2											
13	3	30	60	PB2-13	2	9.09							3.5	3.5	20	PVC
				ACCU-08 2ND/F	2											
14	3	30	60	PB2-14	2	9.09							3.5	3.5	20	PVC
				ACCU-19 3RD/F	2											
15	2	30	60	PB2-15	2		9.09						3.5	3.5	20	PVC
				ACCU-18 3RD/F	2											
16	2	30	60	PB2-16	2		9.09									
				ACCU-17 3RD/F	2											
17	2	30	60	PB2-17	2			9.09					3.5	3.5	20	PVC
				ACCU-16 3RD/F	2											
18	2	30	60	PB2-18	2			9.09								
				ACCU-15 3RD/F	2											
19	3	30	60	PB2-19	2	9.09							3.5	3.5	20	PVC
				ACCU-14 3RD/F	2											
20	3	30	100	PB2-20	7				10.39	1		5.5		5.5	20	PVC
				Plumbing Transfer Pump - Main	7											
21	3	30	60	PB2-21	0	0.00										
				SPARE												
22	3	30	100	PB2-22	7				10.39	1		5.5		5.5	20	PVC
				Plumbing Transfer Pump - Backup	7											
23	3	30	150	PB2-23	3				7.98	1		5.5		5.5	20	PVC
				2HP Jockey Pump	3											
				TOTAL	58.00	63.64	59.09	54.55	44.87							

DESIGN ANALYSIS

AVE P.F. 0.85	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	39.00	0.8	31.2	0.85	96.44	25	120.56
MOTOR(CONT)	14.00	1	14.00	0.85	43.28	25	54.09
MOTOR(NON-CONT)	3.00	0.8	2.40	0.8	7.88	25	9.85
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	58.00	0.85	47.6		147.60		184.50

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

PROFESSIONAL ELECTRICAL ENGINEER

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMAGA, DIRECTOR, IPFDU

RECOMMENDING APPROVAL: ATTY. EDWIN D. BACIO, VICE-PRESIDENT FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:

DRAWN BY:

DATE/CHECKED:

E4

PROJECT: PROPOSED 2-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING
ADDRESS: USTP C.M. Recto Avenue, Lapasan, Cagayan de Oro City 9000 Philippines

DATE: 28-Apr-21
FEEDER:

NO OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1		250		30	90	PVC

PANEL: MCB

LOCATION: GROUND FLOOR
BRANCH KAIC: 10

VOLT: 220
PHASE: 3
WIRE: 3P 400 AT

AF	KAIC
500	22

CKT No.	CB POLES	CB TRIP	AF	LOAD DESCRIPTION	KW	ϕ AB AMPS	ϕ BC AMPS	ϕ CA AMPS	3ϕ AMPS
1	3	150	225	PB1	30.38				116.92
1	3	250	300	PB2	56.00				184.50
2	3	150	225	20HP FIRE PUMP	15.00				39.41
3	3		225	SPACE					
				TOTAL	109.38	0.00	0.00	0.00	340.83

FEEDER/CIRCUIT WIRES (SQMM) NO.OF SETS	THHN/THWN N	Y	X	G	CONDUIT ϕ	TYPE
1		50.0		14.0		Cable Ladder
1		125.0		22.0		Cable Ladder
1		8.0		5.5	32	PVC

DESIGN ANALYSIS

AVE P.F. 0.83	KW	DEMAND FACTOR	DEMAND KW	POWER FACTOR	DEMAND AMPS	% SPARE AMPS	TOTAL AMPERES
BIGGEST MOTOR	15.00	0.9	12	0.85	37.06	0	46.37
LIGHTS	13.90	0.80	11.12	1	29.22	25	36.52
C.O.	24.48	0.80	19.58	0.85	60.54	25	75.67
HEATING MACHINE	0	0.00	0	0	0.00	0	0.00
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	39.00	0.00	31.2	0.85	98.44	25	120.55
MOTOR(CONT'D	14.00	1.00	14.00	0.85	43.28	25	54.09
MOTOR(NON-CONT'D)	3.00	0.80	2.4	0.85	7.42	25	9.27
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	109.38	0.83	90.304		273.98		342.48

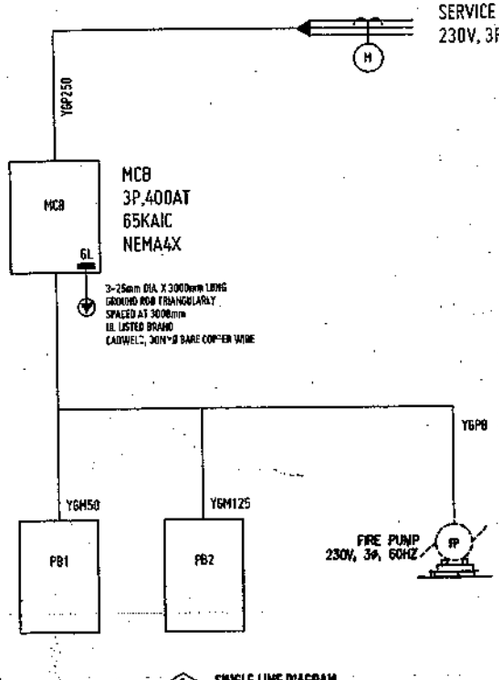
GENERATOR SIZING	
TOTAL AMPS	342.48
KVA	130.35

NOTE: GENSET AND TRANSFORMER REQUIREMENTS 150KVA, 3 PHASE, 60 HZ.

THHN/THWN CODE AND CONDUIT SIZE

PHASE WIRE SQMM (AWG)	AMPS	GROUND WIRE SQMM (AWG)	2-WIRE + GROUND uPVC CODE	2-WIRE + GROUND uPVC SIZE mm ϕ	3-WIRE + GROUND uPVC CODE	3-WIRE + GROUND uPVC SIZE mm ϕ	4-WIRE + GROUND uPVC CODE	4-WIRE + GROUND uPVC SIZE mm ϕ	2-WIRE + GROUND METAL CODE	2-WIRE + GROUND METAL SIZE mm ϕ	3-WIRE + GROUND METAL CODE	3-WIRE + GROUND METAL SIZE mm ϕ	4-WIRE + GROUND METAL CODE	4-WIRE + GROUND METAL SIZE mm ϕ
3.5(#12)	25	3.5(#12)	XGP3.5	20	Y6P3.5	20	HYGP3.5	20	X6M3.5	15	Y6M3.5	15	HYGM3.5	15
5.5(#10)	30	5.5(#10)	XGP5.5	20	Y6P5.5	32	HYGP5.5	32	X6M5.5	15	Y6M5.5	20	HYGM5.5	20
8.0(#8)	40	5.5(#10)	XGP8.0	25	Y6P8.0	32	HYGP8.0	32	X6M8.0	20	Y6M8.0	25	HYGM8.0	25
14(#6)	55	5.5(#10)	XGP14	32	Y6P14	32	HYGP14	32	X6M14	25	Y6M14	25	HYGM14	32
22(#4)	70	8.0(#8)	XGP22	32	Y6P22	40	HYGP22	50	X6M22	25	Y6M22	32	HYGM22	40
30(#2)	90	8.0(#8)	XGP30	40	Y6P30	50	HYGP30	50	X6M30	32	Y6M30	40	HYGM30	40
38(#1)	100/125	8.0(#8)	XGP38	40	Y6P38	50	HYGP38	63	X6M38	32	Y6M38	40	HYGM38	50
50(#1/0)	145	14(#6)	XGP50	50	Y6P50	63	HYGP50	63	X6M50	40	Y6M50	50	HYGM50	50
60(#2/0)	168	14(#6)	XGP60	50	Y6P60	63	HYGP60	63	X6M60	40	Y6M60	50	HYGM60	50
80(#3/0)	195	14(#6)	XGP80	50	Y6P80	63	HYGP80	63	X6M80	40	Y6M80	50	HYGM80	50
100(#4/0)	220	22(#4)	XGP100	63	Y6P100	63	HYGP100	75	X6M100	50	Y6M100	50	HYGM100	65
125(250)	295	22(#4)	XGP125	63	Y6P125	75	HYGP125	90	X6M125	50	Y6M125	65	HYGM125	65
150(300)	298	22(#4)	XGP150	63	Y6P150	75	HYGP150	90	X6M150	50	Y6M150	65	HYGM150	80
200(400)	330	30(#2)	XGP200	75	Y6P200	90	HYGP200	90	X6M200	65	Y6M200	90	HYGM200	90
250(500)	375	38(#2)	XGP250	90	Y6P250	90	HYGP250	100	X6M250	80	Y6M250	90	HYGM250	90
400(800)	485	38(#2)	XGP400	100	Y6P400	110	HYGP400	5"	X6M400	90	Y6M400	90	HYGM400	100
500(1000)	450	38(#2)	XGP500	110	Y6P500	5"	HYGP500	5"	X6M500	90	Y6M500	100	HYGM500	-

NOTES:
X - TWO WIRES (L-N OR L-L), THHN/THWN
Y - THREE WIRES (THREE PHASE), THHN/THWN
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, RSC OR EMT
P - uPVC CONDUIT



SINGLE LINE DIAGRAM
SCALE:N.T.S

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

GENERAL NOTES:
1. ALL ... STANDARDS AND RUBBER LIVING ARE ...
2. ALL ... AND ...
3. ALL ... SHALL ...
4. ... TO ...
5. ... SHALL BE ...
6. VERIFY ... DIMENSIONS.
7. VERIFY ... CONDUCTOR WIRE.
8. ALL ... SHALL ...
9. ... SHALL ...

*ALL THE ABOVE CONSTRUCTION, NON-CONFORMITY INCLUDING OTHERS NOT ENUMERATED, SHALL STRICTLY ADHERE TO PHILIPPINE ELECTRICAL CODE (PEC) AND OTHER APPLICABLE LAWS, RULES AND REGULATIONS FOR HIGHRISE BUILDINGS.

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

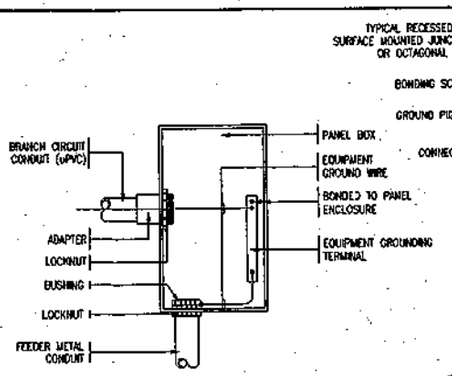
PROFESSIONAL ELECTRICAL ENGINEER
PRC NO. | PTR NO.
DATE | DATE
TIN | PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

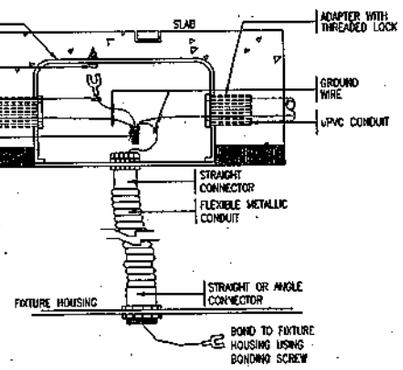
RECOMMENDED FOR APPROVAL: AR. FERDINAND A. BUTIZA, Director, IPDM
RECOMMENDED FOR APPROVAL: ATTY. ERWIN B. UGCID, OIC-VP for Administration & Legal Affairs
APPROVED BY: DR. AMBROCIO B. CULTURA II, President, USTP System

SHEET CONTENTS:
DRAWN BY:
DATE DRAWN:
REV:

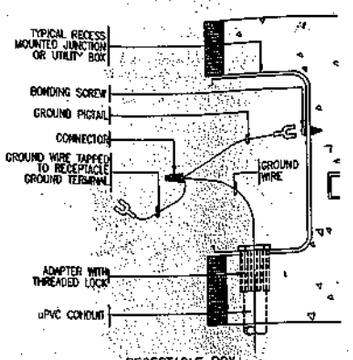
E5



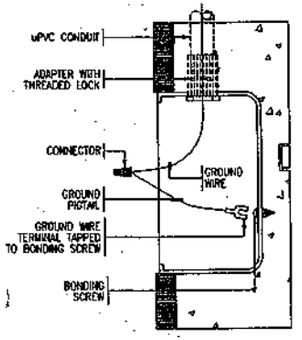
PANELBOARD



LIGHTING FIXTURE BOX

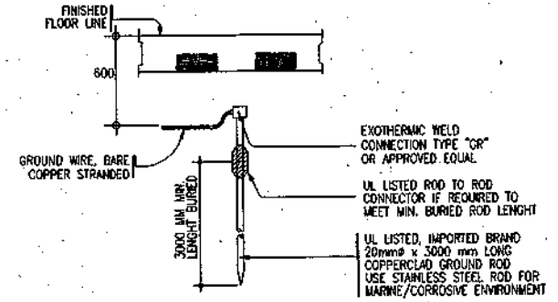


RECEPTACLE BOX



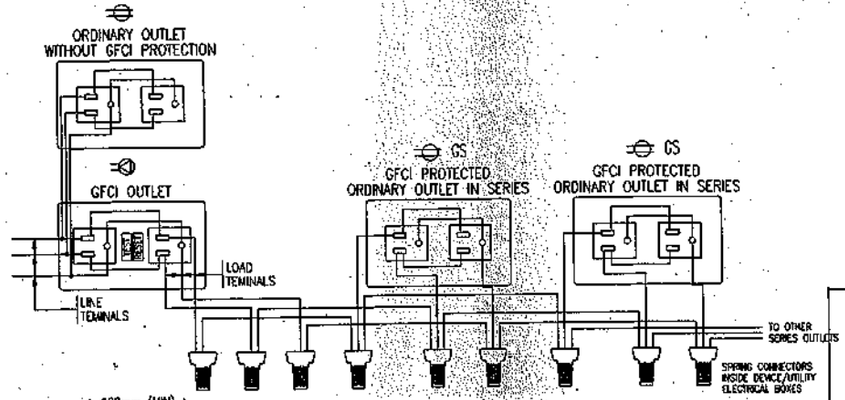
SWITCH BOX

TYPICAL GROUNDING CONNECTION DETAILS
E6/1 DRAWN NOT TO SCALE

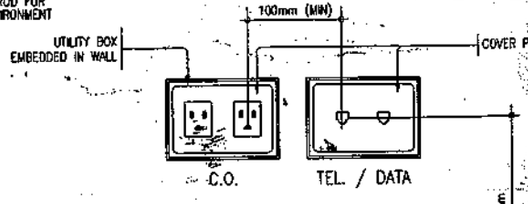


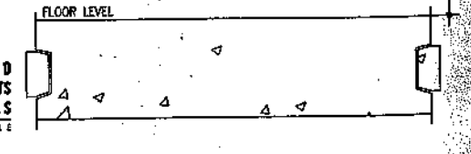
SECTION

TYPICAL GROUND ROD DETAIL
E6/2 DRAWN NOT TO SCALE

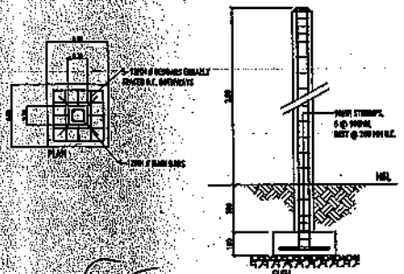


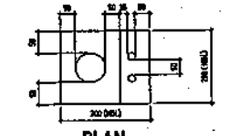
CONV. OUTLET IN SERIES WITH GCFI OUTLET WIRING CONNECTION DETAIL
E6/4 DRAWN NOT TO SCALE

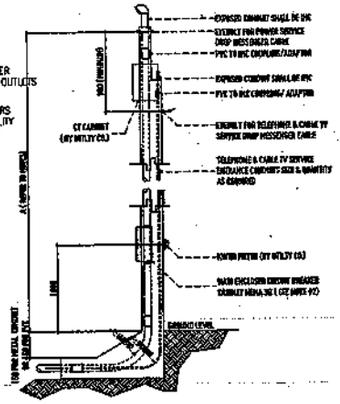




TYPICAL C.O. AND TELEPHONE, DATA OUTLETS MOUNTING DETAILS
E6/3 DRAWN NOT TO SCALE







SERVICE PEDESTAL DETAIL
E6/5 DRAWN NOT TO SCALE

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE DIVISION OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

GENERAL NOTES

1. [illegible]
2. [illegible]
3. [illegible]
4. [illegible]
5. [illegible]
6. [illegible]
7. [illegible]
8. [illegible]
9. [illegible]
10. [illegible]

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 # (088)23 73-00-95 / (088) 858-1700 / 858-1730 | TELE FAX (088) 858-1699
WEBSITE: www.ustp.edu.ph

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

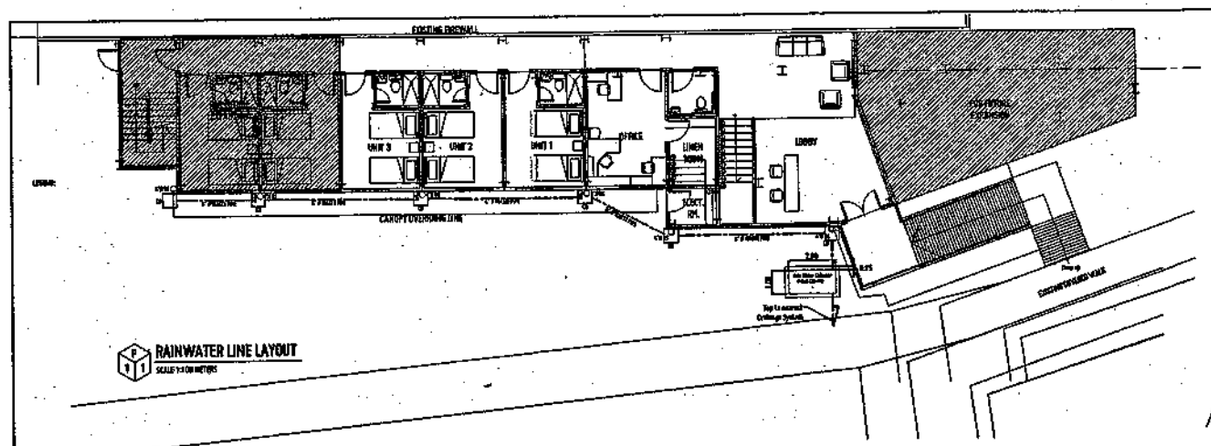
PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: ATTY. ERWIN S. BUCTO, OIC-VP FOR ADMINISTRATION & LEGAL AFFAIRS

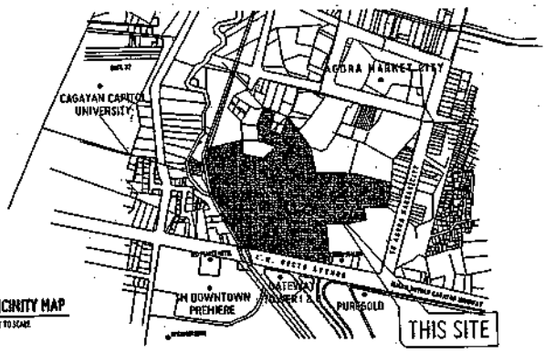
APPROVED BY: DR. AMBROSIO B. CULTURA II, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

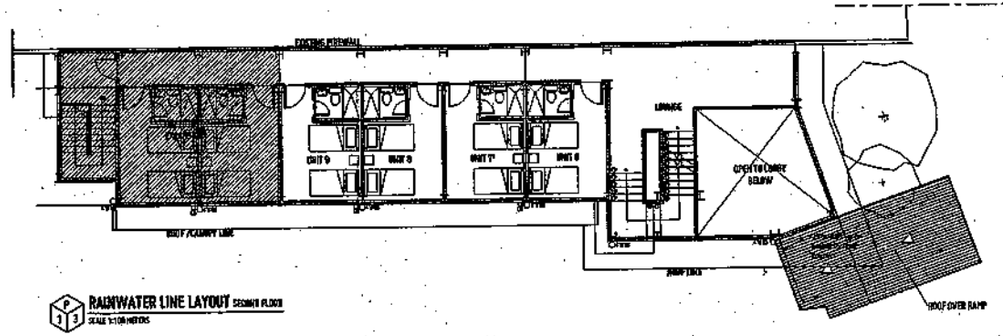
E6



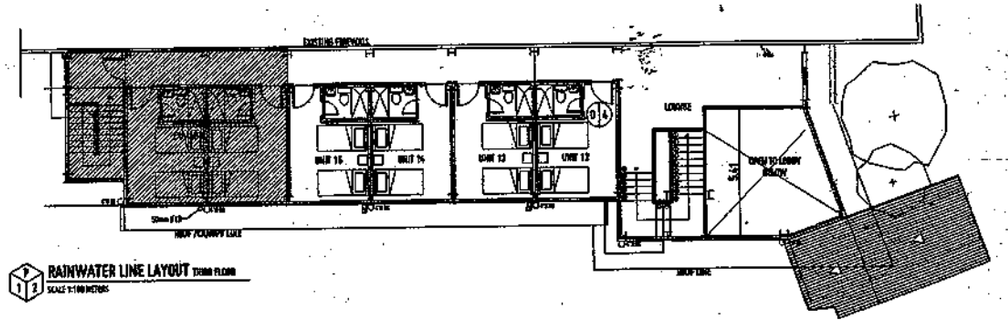
P 1 1 RAINWATER LINE LAYOUT
SCALE 1:100 METERS



P 8 1 VICINITY MAP
NOT TO SCALE



P 1 3 RAINWATER LINE LAYOUT SECOND FLOOR
SCALE 1:100 METERS



P 1 2 RAINWATER LINE LAYOUT THIRD FLOOR
SCALE 1:100 METERS

REPUBLIC OF THE PHILIPPINES
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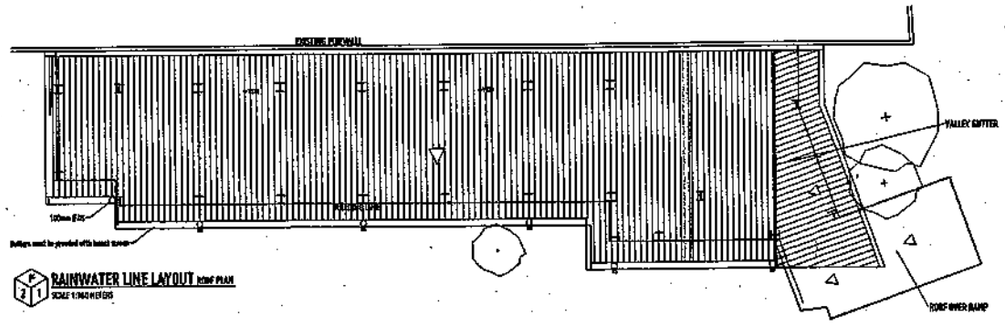
Plumbing Symbol

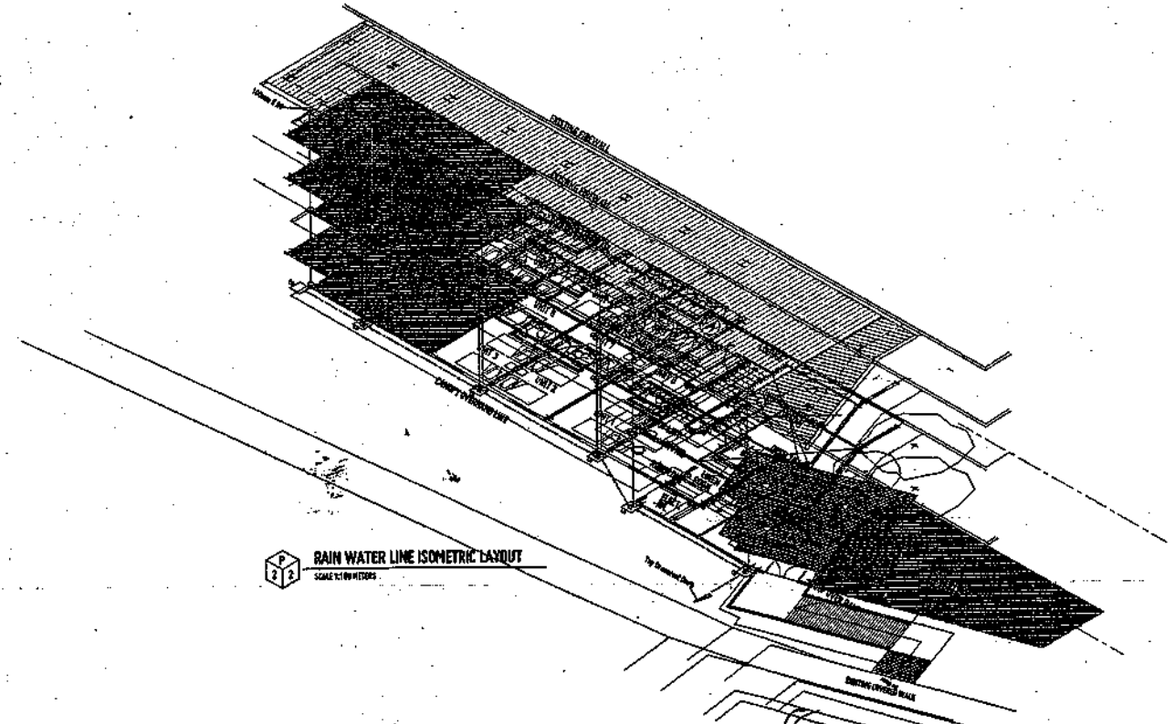
	Corner Bathtub
	Recessed Bathtub
	Bidet
	Bidet
	Shower Head
	Shower Head
	Overhead Ring Shower
	Pedestal Lavatory
	Wall Lavatory
	Corner Lavatory
	Vanity Lavatory
	Overhead Lavatory
	Double Kitchen Sink
	Kitchen Sink, R.S.S. Grate Guard
	Kitchen Sink, L.S.S. Grate Guard
	Combination Sink & Washer Set
	Combination Sink & Laundry Tray
	Service Sink
	Wash Sink (Wall-Type)
	Wash Sink
	Laundry Tray (Single)
	Laundry Tray (Double)
	Water Closet (Tank-Type)
	Water Closet (Bidgood Seat)
	Water Closet (Flush Valve, Floor Outlet)
	Water Closet (Flush Valve, Wall-Hung)
	Urinal (Wall-Hung)
	Urinal (Stall)
	Urinal (Trough-Type)
	Drinking Fountain (Wall-Mounted)
	Drinking Fountain (Semi-Recessed)
	Drinking Fountain (Projecting-Type)
	Hot Water Tank
	Water Heater
	Meter
	Hose Rack
	Hose Bibb
	Gas Outlet
	Shower Outlet
	Drain
	Grease Separator
	Oil Separator
	Cleanout
	Garage Drain
	Floor Drain with Backwater Valve
	Roof Drain
	Gate-valve
	Filter
	Globe Valve
	Check Valve
	Meter Box
	Y.I. / V.M.P. PVC Pipe Series 1000
	or 4" PVC Pipe Series 2000
	Service Drop
	DOWNSPOUT
	EARTH BOND
	LAVATORY
	WATER CLOSET
	FLOOR DRAIN
	VENT STACK THRU ROOF

USTP	REPUBLIC OF THE PHILIPPINES UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES CAGAYAN DE ORO CAMPUS INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT	MASTER PLUMBER PRC No. / PTR No. DATE TIN	PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1 LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES	RECOMMENDING APPROVAL: ENGR. FERDINAND A. BUMPA CAMPUS ENGINEER	RECOMMENDING APPROVAL: ATTY. ERWIN B. BOCID VP FOR ADMINISTRATION & LEGAL AFFAIRS	APPROVED BY: DR. AMBROSIO B. CULTURA II PRESIDENT, USTP SYSTEM	SHEET CONTENTS:	DRAWN BY: DATE DRAWN: SCALE:	P1

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL



P 2 1 RAINWATER LINE LAYOUT ROOF PLAN
SCALE 1:100 METERS



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

LEGEND:

	WATERLINE
	WASTE WATERLINE
	STACK VENT LINE
	RISER
WM	WATER METER
SOV	SHUT-OFF VALVE
CV	CHECK VALVE
DS	DOWNSPOUT
CB	CATCH BASIN
LAV	LAVATORY
WC	WATER CLOSET
FD	FLOOR DRAIN
VSTR	VENT STACK THU ROOF
HB	HOSE BIBB

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

MASTER PLANNER
PRC NO. | PRC NO.
DATE
TIN | PLACE

PROJECT: PROPOSED 3I-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

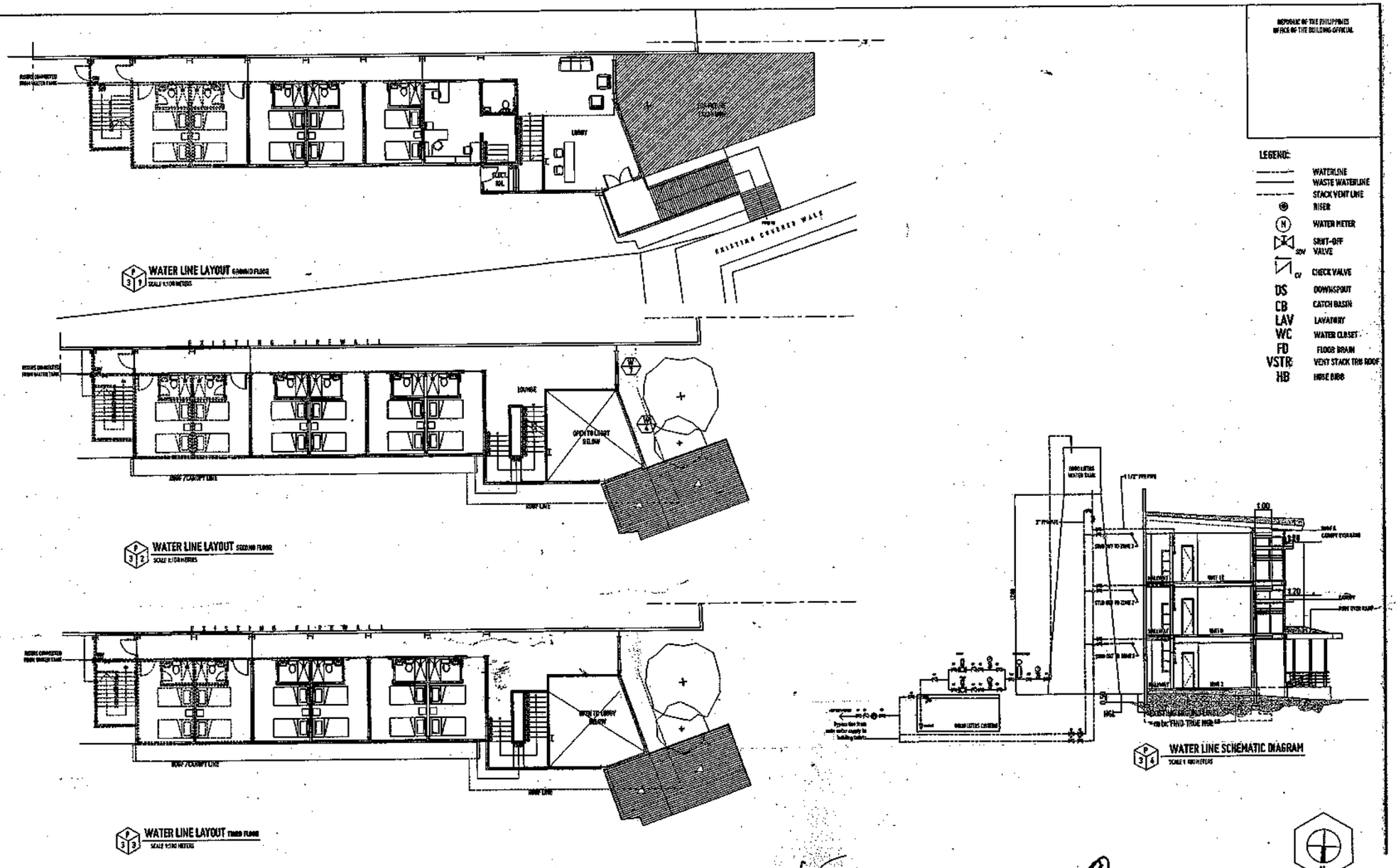
DESIGN/DRAWING BY/PREPARED:
AR. FERDINAND A. GUMPA
PRC NO.

RECOMMENDING APPROVAL:
ATTY. ERVIN B. BUCIO
VP FOR ADMINISTRATION & ADMIN. AFFAIRS

APPROVED BY:
DR. AMADO S.A.C. CULTURA II
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:

DRAWING NO.: P2
DATE DRAWN:
REV.:



REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

MASTER PLUMBER
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OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND A. DUBLAS
OPPD HEAD

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

APPROVED BY:
DR. AMERISTO V. CULTURA II
PRESIDENT, USTP SYSTEM

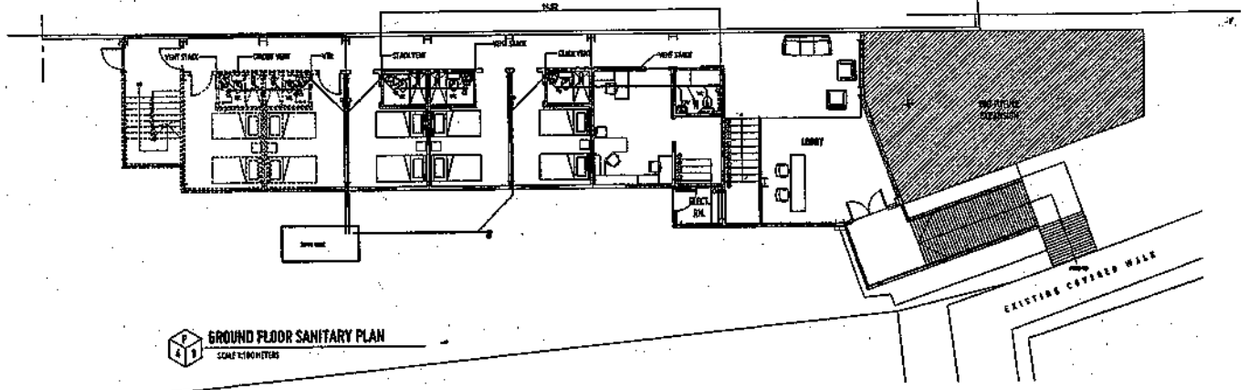
SHEET CONTENTS:

DRAWN BY:
DATE DRAWN:
CHK'D:

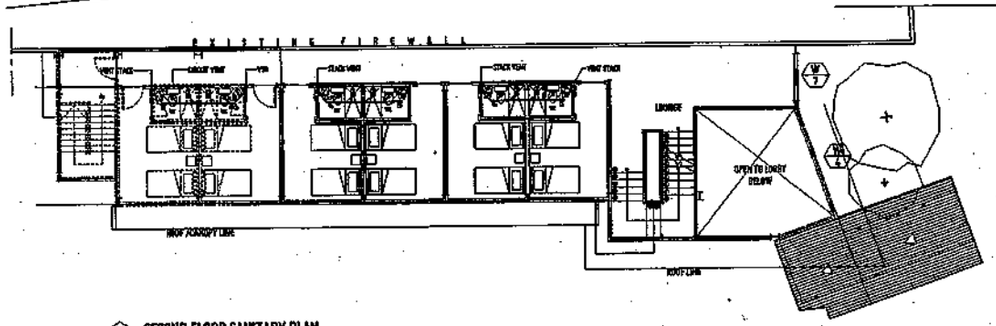
N

P3

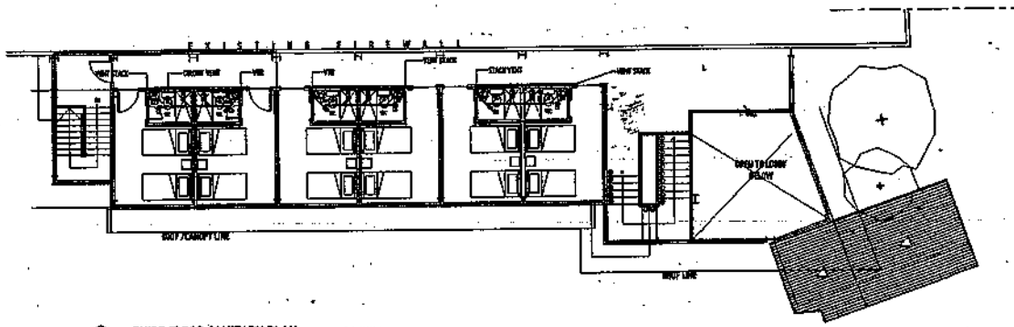
REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL



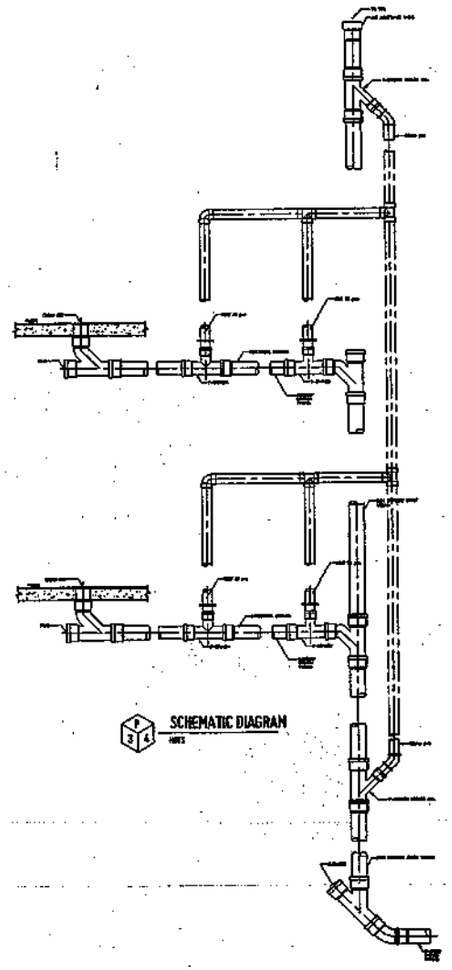
P 4 1 GROUND FLOOR SANITARY PLAN
SCALE 1:100 METERS



P 4 2 SECOND FLOOR SANITARY PLAN
SCALE 1:100 METERS



P 4 3 THIRD FLOOR SANITARY PLAN FOR FUTURE EXPANSION
SCALE 1:100 METERS



P 3 4 SCHEMATIC DIAGRAM
NTS

LEGEND:

	WATERLINE
	WASTE WATERLINE
	STACK VENT LINE
R	RISER
WM	WATER METER
SOV	SHUT-OFF VALVE
CV	CHECK VALVE
DS	DOWNSPOUT
CB	CATCH BASIN
LAV	LAVATORY
WC	WATER CLOSET
FD	FLOOR DRAIN
VSTR	VENT STACK THRU ROOF
HB	HOSE BIBB

USTP

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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
IN FRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT CORP
CLAVE N. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)22 72-40-85 / CP# 0918-1130 / 0916-1719 | FILE FAX (088) 858-1696
WEBSITE: www.ustp.edu.ph

MASTER PLUMBER
PRC NO. | PTR NO.
VALID | ISSUED AT | PLACE

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OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

DESIGNED/PREPARED BY: ENGR. FERDINAND A. DUMPA, PME, PEE, ECE, ME, CE, CSE, CHE, IE, ECE, ME, CE, CSE, CHE, IE
ENGR. FERDINAND A. DUMPA
CDO HEAD

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

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

SHEET CONTENTS:

DRAWING NO.: P4
DATE DRAWN:
SCALE:

N

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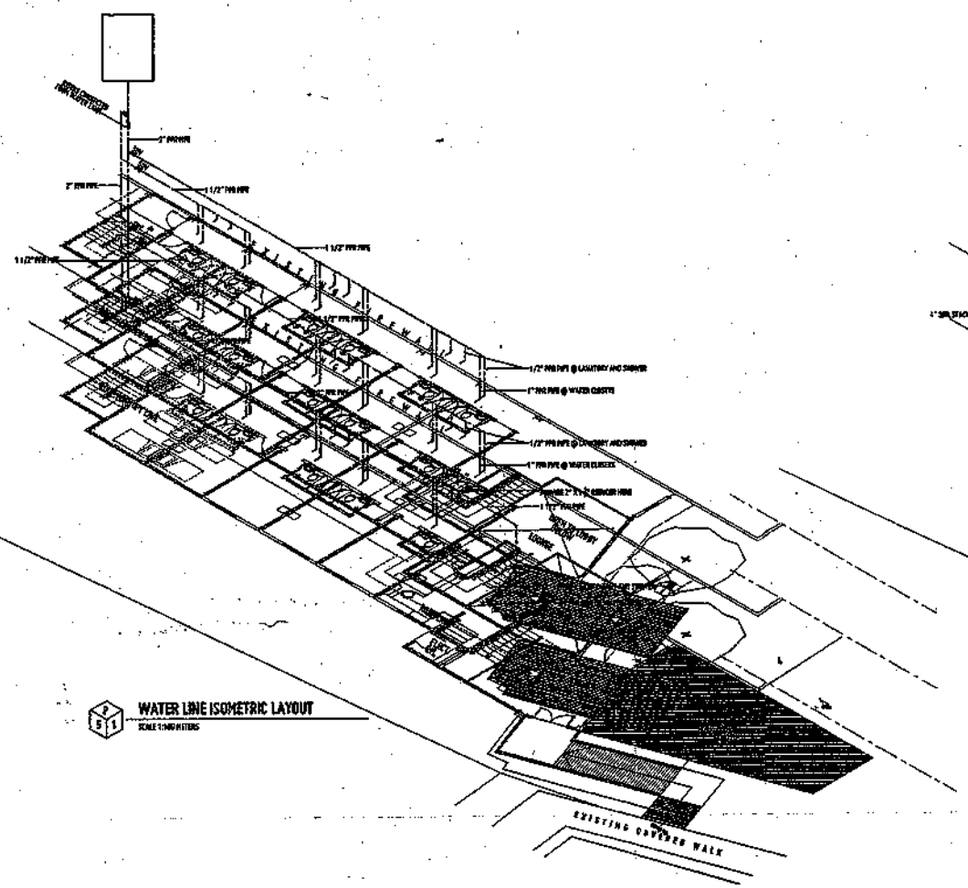
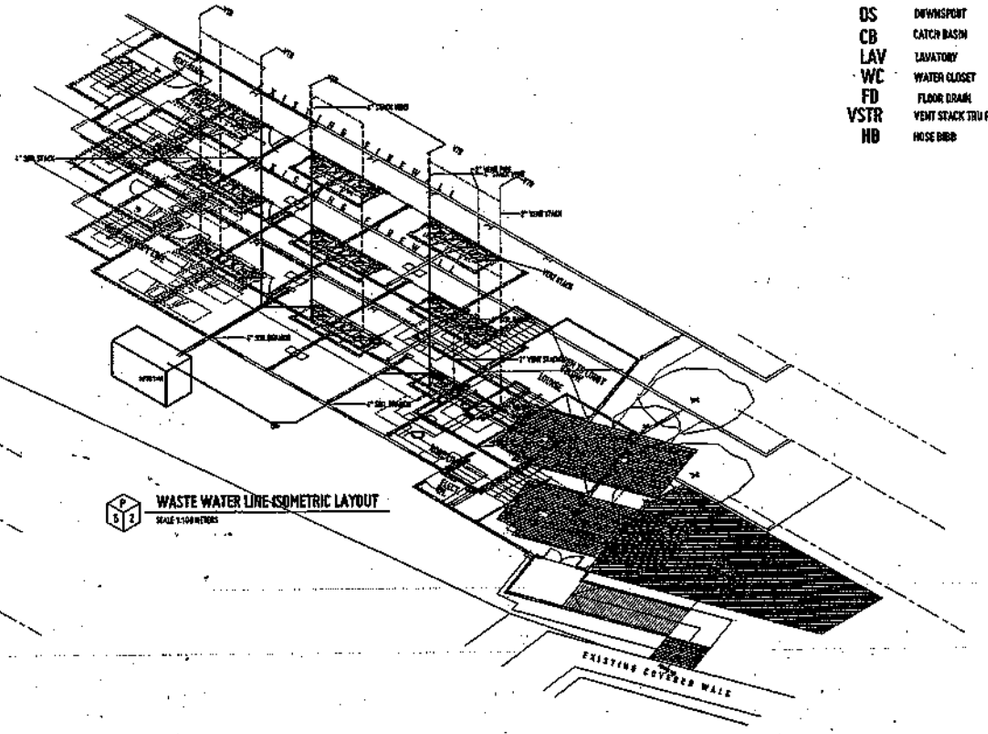
OFFICE OF THE BUILDING OFFICIAL

LEGEND:

	WATERLINE
	WASTE WATERLINE
	STACK VENT LINE
	RISER
M	WATER METER
SOV	SHUT-OFF VALVE
CV	CHECK VALVE
OS	DOWNSPOUT
CB	CATCH BASIN
LAV	LAVATORY
WC	WATER CLOSET
FD	FLOOR DRAIN
VSTR	VENT STACK THRU ROOF
HB	HOSE BIBB



P S 1 WATER LINE ISOMETRIC LAYOUT
SCALE 1:100 METERS



P S 2 WASTE WATER LINE ISOMETRIC LAYOUT
SCALE 1:100 METERS

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UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

MASTER PLUMBER
PRC No. | PTR No.
BME
Date | PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DURIPA, Head, PIDO

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

APPROVED BY: DR. AMBROCIO B. CULTURA II, President, USTP System

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DATE DRAWN:
SCALE:

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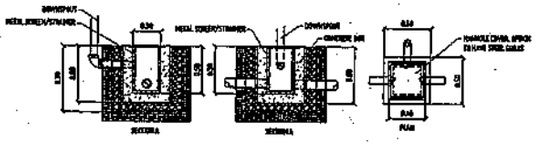
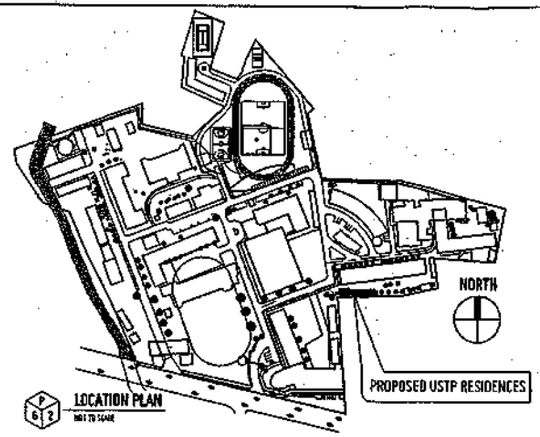
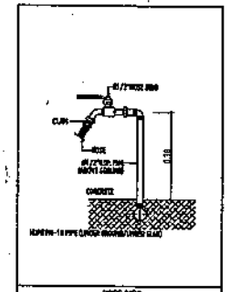


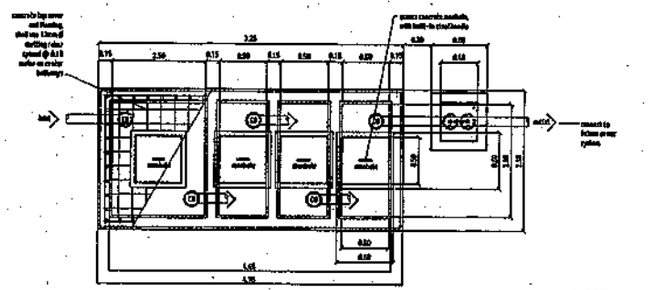
CATCH BASIN DETAIL
SCALE 1:20 METERS

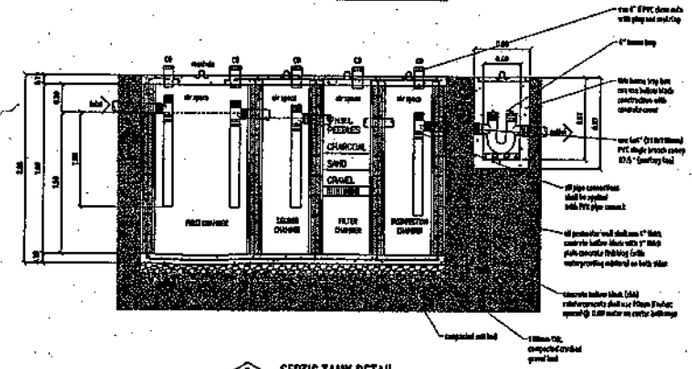


LOCATION PLAN
NOT TO SCALE

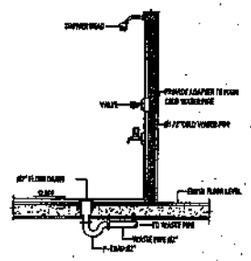


HOSE BIBB

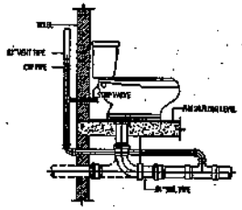




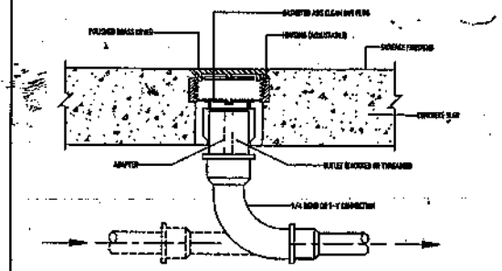
SEPTIC TANK DETAIL
SCALE 1:25 METERS



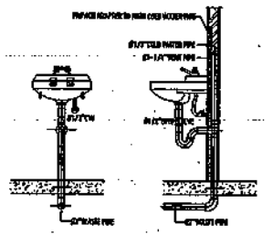
SHOWER HEAD



WATER CLOSET WITH FLUSH TANK (WC)



FLOOR CLEANOUT



LAVATORY

Plumbing Symbol

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

GENERAL NOTES

IT IS HEREBY SHOWN THAT THE WORKMANSHIP SHALL SHOW EVERY PIPE FITTING, VALVE AND APPURTENANCE, ALL SUCH ITEMS BURIED SPECIALLY MENTIONED OR NOT, AN INSULATION OR ANY REQUIRED SHALL BE PROVIDED AND INSTALLED IF NECESSARY TO COMPLETE THE SYSTEM TO THE SATISFACTION OF THE OWNER.

ALL PLUMBING WORKS SYSTEM SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE PHILIPPINES BUILDING CODE, NATIONAL PLUMBING CODE, RULES AND REGULATIONS AND CANTON AND PLUMBING ORDINANCE OF THE MUNICIPALITY OR CITY WHERE EMBODIMENT IS LOCATED.

ALL PLUMBING SYSTEM SHALL BE DONE UNDER THE SUPERVISION OF A DULY REGISTERED SANITARY ENGINEER OR A MASTER PLUMBER.

COMMENCING THE WORKMANSHIP WITH REFERENCE DRAWINGS AND SPECIFICATIONS, THE ARCHITECT AND MASTER PLUMBER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY FOUND THEREIN.

- ALL PIPES SHALL BE INSTALLED AS INDICATED ON PLANS, ANY REMAINING REQUIRED FOR PROPER EXECUTION OF OTHER TRADE SHALL BE WITH PRIOR APPROVAL OF THE ARCHITECT OR ENGINEER.

PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL MEASURE, DEPTH AND INVERT ELEVATION OF ALL EXISTING PIPE AND STRUCTURES AS VERIFIED BY THE CONTRACTOR.

ALL SLOPES FOR HORIZONTAL DRAINAGE SHALL RUN NOT LESS UNLESS OTHERWISE SPECIFIED.

SIZE OF WATER SUPPLY PIPES TO FIXTURES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AS TO SIZE, ESTABLISH THE TIE-INS WITH THE EXISTING LINE EFFLUENT DISPOSAL PIPING AND WATER SUPPLY SERVICE, DISCONNECTION WORK, AND ALL OTHERWISE SPECIFIED.

ALL SEWER LINES SHALL BE PVC SPECIFICATION, CORRUGATED PIPES WHERE NOTED SHOWN OF THE DRAWINGS.

ALL WATER LINE SHALL BE GI PIPE PIPES WITH SIZES SHOWN IN THE DRAWINGS.

CONTAMINATED FLOOR DRAIN PIPES, PASSING UNDER THE FLOOR SLAB OR FILL SHALL BE PVC PIPES WITH SIZES SHOWN IN THE DRAWINGS.

ALL SANITARY SEWER PIPES SHALL BE DIRECTLY CONNECTED TO ANY STORM DRAINAGE PIPE.

ALL JOINTS MUST BE SEALED WITH PVC CEMENT CEMENT TO PREVENT WATER LEAKAGE.

ALL PIPINGS SHALL BE PERMANENTLY EARTH.

TANK SEACTION WALL (TYPE) PIPE SHALL BE UNDER THE BOTTOM OF RB.

ALL COST FOR THE PROVISION AND INSTALLATION OF THE SEPTIC TANK INCLUDING THE OUTLET PIPE CONNECTION TO THE STREET MAIN SEWER SHALL BE CHARGED TO THE LAND DEVELOPMENT COSTS OF THE PROJECT.

JOINT SEAL SHALL THE NEW CAST-IN-PLACE SEPTIC TANK IS AT LEAST HALF FILLED WITH WATER TO PREVENT POSSIBLE FLOATING DUE TO GROUNDWATER RISING ATTRIBUTED BY THE PASSIBLE PRESENCE OF UNDERGROUND WATER.

NO SEPTIC TANK SHALL BE CONSTRUCTED UNDER THE BUILDING.

THE INVERT OF THE OUTLET PIPE OF A SEPTIC TANK SHALL BE AT A LEVEL NOT LESS THAN 50mm (2") ABOVE THE INVERT OF THE INLET PIPE.

THE SYSTEM SHALL CONSIST OF A SEPTIC TANK AND WATER CHAMBER. SEPTIC TANK SHALL BE CONSTRUCTED LESS THAN 1.20m ABOVE THE WATER TABLE LEVEL.

ALL PIPE SIZE ARE IN MILLIMETERS OR INCHES AND ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.

MINIMUM SERVICE PIPE SIZE SHALL BE AS FOLLOWS:

SOIL PIPE	4"	100MM
WASTE PIPE	3"	80MM
VENT PIPES	2"	50MM
DOWNSPOUT	2"	50MM

ALL PLUMBING INSTALLATION INCLUDED HEREIN SHALL BE UNDER THE DIRECT SUPERVISION OF A DULY REGISTERED AND LICENSED MASTER PLUMBER

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLMD NI, BECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE # (088)22 70-80-45 / (088) 858-1100 / 858-1799 | TELEFAX (088) 858-1000
WEBSITE www.ustp.edu.ph

MASTER PLUMBER
PRC NO. | PTR NO.
NAME
TIN | PTR NO.

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

SUBMITTED/PREPARED BY: AR. FERDINAND A. DUMPA
DESIGNER

RECOMMENDING APPROVAL: ATTY. ERWIN O. OTOM
VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:

DRAWN BY:
DATE DRAWN:
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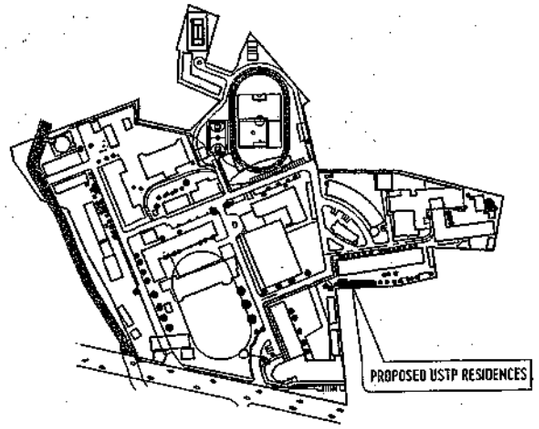
FILE:

P6

GENERAL NOTE:

1. ALL ELECTRONIC WORKS HERE IN SHALL BE DONE ACCORDANCE WITH THE PROVISION OF THE LATEST EDITION OF THE PHILIPPINE ELECTRONICS CODE, THE RULES AND REGULATIONS OF THE LOCAL ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE UTILITY TELEPHONE COMPANY.
2. ALL ELECTRONIC WORKS SHOWN OR INCLUDED SHALL BE EXECUTED BY THE PERSONNEL WITH ELECTRICAL EXPERIENCE UNDER THE DIRECT SUPERVISION OF A FULL TIME LICENSED ELECTRONICS ENGINEER, WORKS SHALL BE NEATLY PLACED, SECURELY FASTENED AND PROPERLY FINISHED.
3. THE CONTRACTOR SHALL VERIFY AND SECURE THE ACTUAL LOCATION OF THE TAPPING POINT FOR CONNECTION TO COMMUNICATION SUPPLY.
4. ALL MATERIALS SHALL BE BRAND NEW AND SHALL CONFORM WITH THE PROVISIONS OF THE UNDER WRITERS LABORATORIES INC., IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED.
5. ALL CONDUITS MUST BE PROTECTED AGAINST DAMAGES BY THE ENTRANCE OF THE WATER AND FOREIGN MATTERS DURING CONSTRUCTION ALL ENDS OF CONDUITS SHALL BE PLUGGED TO EXCLUDE MOISTURE AND DUST IMMEDIATELY AFTER THE CONDUITS LINE PLACED.
6. UNLESS OTHERWISE SPECIFIED, ALL ELECTRONICS WIRING INSTALLATION SHALL BE USED EXCLUSIVE MINIMUM SIZE OF CONDUIT SHALL BE 19MM Ø.
7. ALL RACEWAYS, WALL, AND FLOOR PENETRATION SHALL BE PROVIDED WITH FIRE BARRIER OF THE APPROVED TYPE.
8. ALL OUTLET BOXES SHALL BE GALVANIZED GAGE NO. 16 DEEP TYPE WITH THE FACTORY KNOCKOUTS. PULLBOXES SHALL BE USED WHEN APPLICABLE FOR EASY PULLING OF WIRES AND SHALL BE IN ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE REQUIREMENT. PREFERRED STANDARD FOR JUNCTION, PULLBOXES OR UTILITY SQUARE BOXES SHALL BE FOR 4"x4"x2" AND 6"x6"x4" OR APPROVED EQUAL.
9. MOUNTING HEIGHTS OF DEVICES SHALL BE CORRECT TO ARCHITECTS APPROVAL PRIOR TO INSTALLATION
10. ALL SPEAKER WIRING SHALL BE 2-0.75 SQ.MM SHIELDED SPEAKER WIRE.
11. NETWORK CABLE/WIRE/ CONDUIT SHALL HAVE A MINIMUM DISTANCE OF 6.1M FROM POWER CONDUIT WHEN LAID PARALLEL AND MUST BE PERPENDICULAR TO THE STEEL CONDUIT WHEN CROSSING ACROSS A POWER LINE.
12. THE PLANS AS SHOWN ARE BASED UPON THE ARCHITECTURAL PLANS AND THE DETAILS AND SHOWN LOCATION AS ACCURATELY AS IT IS POSSIBLE TO INDICATE THEM IN SCALE. THE PLANS ARE DIAGRAMMATICAL AND DOES NOT NECESSARILY SHOW ALL FITTINGS NECESSARY TO FIT TO THE BUILDING CONDITIONS. THE LOCATIONS OF OUTLETS, APPARATUS AND APPLIANCES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTORS SHALL BE HELD RESPONSIBLE FOR THEIR PROPER LOCATION IN ORDER TO MAKE THEM FIT WITH THE ARCHITECTURAL DETAILS AND DISTRICTIONS FROM THE ENGINEER'S REPRESENTATIVE AT THE SITE.



ECE 1 | 3 LOCATION MAP
NOT TO SCALE

NOTES:

1. SYMBOL

CCTV — CLOSED CIRCUIT TELEVISION, DOME TYPE PROVIDE SIGNAL CABLE & POWER CABLE FOR EACH CAMERA. WARRANTY IS SUBJECT TO MANUFACTURER'S STANDARD.

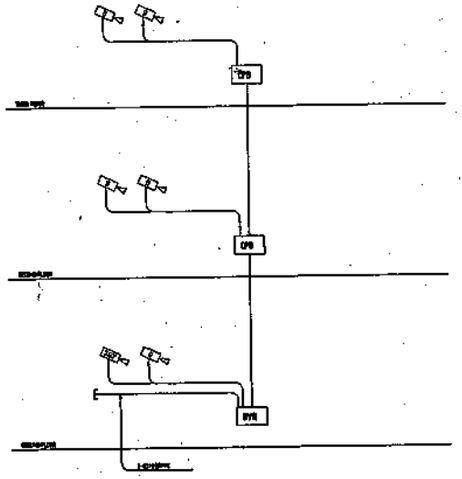
PTZ CCTV — PLASER DOMONT TELEVISION, REVOLVING 360°

CPB — CCTV WIRING PULLBOX WITH POWER SUPPLY

DVR — DIGITAL VIDEO RECORDER

2. MINIMUM CONDUIT SHALL BE 20MM Ø/4"Ø. USE EMC FOR ALL EXPOSED CONDUIT OR INSIDE DRYWALL AND PVC FOR ALL CONCRETE EMBEDDED CONDUIT.
3. VERIFY EXACT NUMBER OF CCTV CAMERA WITH LAYOUT.
4. VERIFY AND/OR COORDINATE WITH OWNER/USP THE EXACT LOCATION OF DVR PRIOR TO LAYOUT OF CONDUIT.
5. BOND ALL CPB, CABLE TRAY USING 5.5MM² GREEN WIRE AND BOND TO GRID
6. CCTV SYSTEM AND WIRING SCHEDULE

C	CONDUIT SIZE, MM² (INCH)	
	METAL	uPVC
1	20	25 (3/4)
2	20	25 (3/4)
4	25	32 (1)
8	32	40 (1-1/4)
10	40	50 (1-1/2)
15	50	63 (2)



ECE 1 | 3 CCTV SYSTEM RISER DIAGRAM
NOT DRAWN TO SCALE

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

GENERAL NOTES:

1. ALL ELECTRONIC WORKS HERE IN SHALL BE DONE ACCORDANCE WITH THE PROVISION OF THE LATEST EDITION OF THE PHILIPPINE ELECTRONICS CODE, THE RULES AND REGULATIONS OF THE LOCAL ENFORCING AUTHORITIES AND THE REQUIREMENTS OF THE UTILITY TELEPHONE COMPANY.
2. ALL ELECTRONIC WORKS SHOWN OR INCLUDED SHALL BE EXECUTED BY THE PERSONNEL WITH ELECTRICAL EXPERIENCE UNDER THE DIRECT SUPERVISION OF A FULL TIME LICENSED ELECTRONICS ENGINEER, WORKS SHALL BE NEATLY PLACED, SECURELY FASTENED AND PROPERLY FINISHED.
3. ALL MATERIALS SHALL BE BRAND NEW AND SHALL CONFORM WITH THE PROVISIONS OF THE UNDER WRITERS LABORATORIES INC., IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED.
4. ALL CONDUITS MUST BE PROTECTED AGAINST DAMAGES BY THE ENTRANCE OF THE WATER AND FOREIGN MATTERS DURING CONSTRUCTION ALL ENDS OF CONDUITS SHALL BE PLUGGED TO EXCLUDE MOISTURE AND DUST IMMEDIATELY AFTER THE CONDUITS LINE PLACED.
5. UNLESS OTHERWISE SPECIFIED, ALL ELECTRONICS WIRING INSTALLATION SHALL BE USED EXCLUSIVE MINIMUM SIZE OF CONDUIT SHALL BE 19MM Ø.
6. ALL RACEWAYS, WALL, AND FLOOR PENETRATION SHALL BE PROVIDED WITH FIRE BARRIER OF THE APPROVED TYPE.
7. ALL OUTLET BOXES SHALL BE GALVANIZED GAGE NO. 16 DEEP TYPE WITH THE FACTORY KNOCKOUTS. PULLBOXES SHALL BE USED WHEN APPLICABLE FOR EASY PULLING OF WIRES AND SHALL BE IN ACCORDANCE WITH THE PHILIPPINE ELECTRICAL CODE REQUIREMENT. PREFERRED STANDARD FOR JUNCTION, PULLBOXES OR UTILITY SQUARE BOXES SHALL BE FOR 4"x4"x2" AND 6"x6"x4" OR APPROVED EQUAL.
8. MOUNTING HEIGHTS OF DEVICES SHALL BE CORRECT TO ARCHITECTS APPROVAL PRIOR TO INSTALLATION
9. ALL SPEAKER WIRING SHALL BE 2-0.75 SQ.MM SHIELDED SPEAKER WIRE.
10. NETWORK CABLE/WIRE/ CONDUIT SHALL HAVE A MINIMUM DISTANCE OF 6.1M FROM POWER CONDUIT WHEN LAID PARALLEL AND MUST BE PERPENDICULAR TO THE STEEL CONDUIT WHEN CROSSING ACROSS A POWER LINE.
11. THE PLANS AS SHOWN ARE BASED UPON THE ARCHITECTURAL PLANS AND THE DETAILS AND SHOWN LOCATION AS ACCURATELY AS IT IS POSSIBLE TO INDICATE THEM IN SCALE. THE PLANS ARE DIAGRAMMATICAL AND DOES NOT NECESSARILY SHOW ALL FITTINGS NECESSARY TO FIT TO THE BUILDING CONDITIONS. THE LOCATIONS OF OUTLETS, APPARATUS AND APPLIANCES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTORS SHALL BE HELD RESPONSIBLE FOR THEIR PROPER LOCATION IN ORDER TO MAKE THEM FIT WITH THE ARCHITECTURAL DETAILS AND DISTRICTIONS FROM THE ENGINEER'S REPRESENTATIVE AT THE SITE.

NOTES:

1. FIRE ALARM SYSTEM SHALL BE CONVENTIONAL TYPE
2. MINIMUM CONDUIT SIZE SHALL BE 20MM Ø/4"Ø. USE EMC FOR ALL EXPOSED CONDUIT OR INSIDE DRY WALL AND PVC IF CONCRETE EMBEDDED.
3. ALL RISER CONDUIT SHALL BE EMC. PROVIDE 50MM (2") Ø SPARE EMC RISER CONDUIT.
4. FR&S WIRING AND CONDUIT SCHEDULE.

CONDUIT SIZE MM Ø (INCH)		NUMBER OF TF WIRES (CU. CABLE TYPE)		CONDUIT SIZE MM Ø (INCH)		NUMBER OF TF WIRES (CU. CABLE TYPE)	
METAL	uPVC	#18	#14	METAL	uPVC	#18	#14
20	25(3/4)	25	16	80	150(-1/2)	234	172
25	32(1)	41	30	80	90(3)	360	286
32	40(1-1/4)	72	50	90	100(3-1/2)	498	397
40	50(1-1/2)	90	72	100	110(4)	627	650
50	63(2)	104	120				

5. SYMBOLS

A = #18/2 AWG. CIRCUIT INTEGRITY CI CABLE TYPE. UL LISTED BRAND

FACP — FIRE ALARM CONTROL PANEL, UL LISTED BRAND

S — SMOKE DETECTOR- CEILING MOUNTED

S — SMOKE DETECTOR- WALL MOUNTED

H — HEAT DETECTOR, CEILING MOUNTED

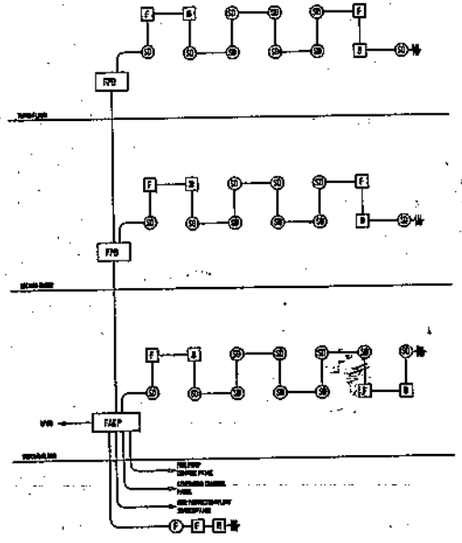
F — FIRE ALARM STROBE AND BOHDL UL LISTED BRAND

F — FIRE ALARM MANUAL PULL STATION, UL LISTED BRAND

— END OF LINE RESISTOR

FPB — FIRE ALARM SYSTEM WARNING PULL BOX

6. PROVIDE SUPERVISORY WIRES TO THE FOLLOWING:
   A. ELEVATOR/S
   B. FIRE PROTECTION FLOW SWITCH (CONTROL PANEL, NO INDIVIDUAL FLOW SWITCH VERIFY LOCATION)
   C. SPARE PRESSURIZATION DUMPER/S OR FAN/SE VERIFY EXACT LOCATION)
   D. SMOKE VENTILATION SYSTEM AND/OR SMOKE CONTROL SYSTEM,
   E. FIRE PUMP CONTROL PANEL
7. PROVIDE WIRING FROM FACP TO GENERATOR CONTROL PANEL TO MONITOR THE FOLLOWING CONDITIONS:
   A. GENERATOR SMOKING
   B. GENERATOR FAULT
   C. GENERATOR SWITCH IN NON-AUTOMATIC POSITION/MODE
8. FINAL WIRING SHALL BE AS PER MANUFACTURER'S STANDARDS.



ECE 1 | 2 FIRE ALARM SYSTEM RISER DIAGRAM
NOT DRAWN TO SCALE

NOTES:

1. SYMBOL

T — SINGLE TELEPHONE WALL OUTLET, RJ11

T — SINGLE TELEPHONE FLOOR MONUMENT OUTLET

— SINGLE UNIVERSAL DATA WALL OUTLET, RJ45

— DUPLEX UNIVERSAL DATA WALL OUTLET, RJ45

IMF — INTERMEDIATE DISTRIBUTION FRAME

MDF — MAIN DISTRIBUTION FRAME

TTVSB — TELEPHONE AND CABLE TV SERVICE BOX, FLUSHED MOUNTED, 1500(D)x1000 (W) MOUNTED 1500 MM AT WALL NEAR SERVICE PEDESTAL OR IF POSSIBLE AT THE PEDESTAL

2. PROVIDE INDICATED CABLE FOR EACH OUTLET. CAT.5/6P UTP CABLE FOR TELEPHONE AND CAT.6/6P UTP CABLE FOR DATA
3. BOND ALL TTVSB CABINET, PULLBOX AND CABLE TRAY WITH 14 SQ.MM GROUND WIRE AND BOND INTO.
4. TELEPHONE AND DATA SYSTEM WIRING AND CONDUIT SCHEDULE.

CONDUIT SIZE MM Ø (INCH)		NUMBER OF TEL/DATA CAT5e CABLE			
METAL	uPVC	CAT 5 OR 6e 4 PAIR	25 -PAIR	50 -PAIR	100 -PAIR
20	25 (3/4)	4	1	-	-
25	32 (1)	6	1	-	-
32	40 (1-1/4)	12	2	1	-
40	50 (1-1/2)	18	6	2	1
50	63 (2)	27	7	2	1
65	75 (2-1/2)	39	10	4	1
80	90 (3)	60	15	6	2
90	100 (3-1/2)	65	20	9	4
100	110 (4)	104	28	11	8

NOTE:
CABLE SHALL HAVE SUFFICIENT SLACK INSIDE THE CABINET OR PULLBOX
USE ONLY LONG ELBOW FOR ALL 90° CONDUIT BEND.

ECE 1 | 4 TELEPHONE AND INTERNET RISER DIAGRAM
NOT TO SCALE

USTP

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
[illegible] | TELEFAX (088) [illegible]
WEBSITE: www.ustp.edu.ph

PROFESSIONAL ELECTRONICS ENGINEER	
PRC NO.	PTR NO.
	DATE
TIN	PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1

LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY

OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

DESIGNED AND APPROVED BY: AR. FERDINAND A. CIMBER, DIRECTOR, PDEB

RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCU, OIC- VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

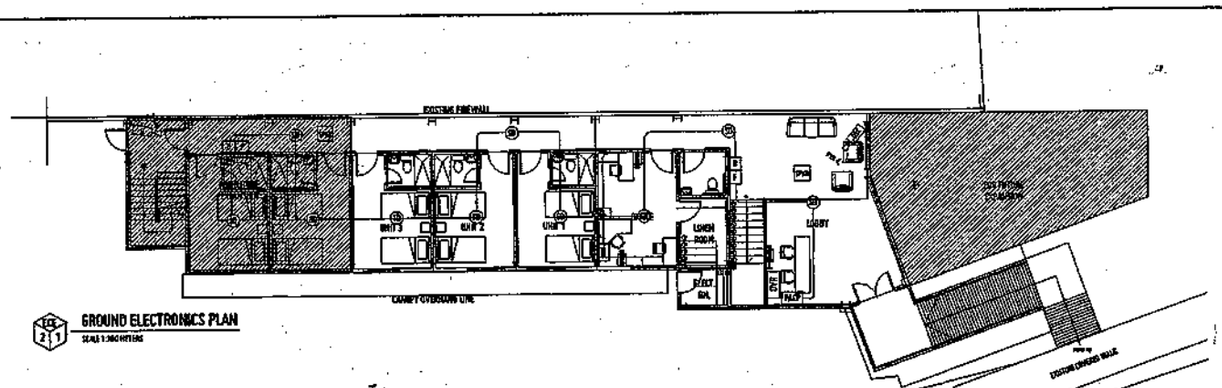
SHEET CONTENTS:

DRAWN BY:

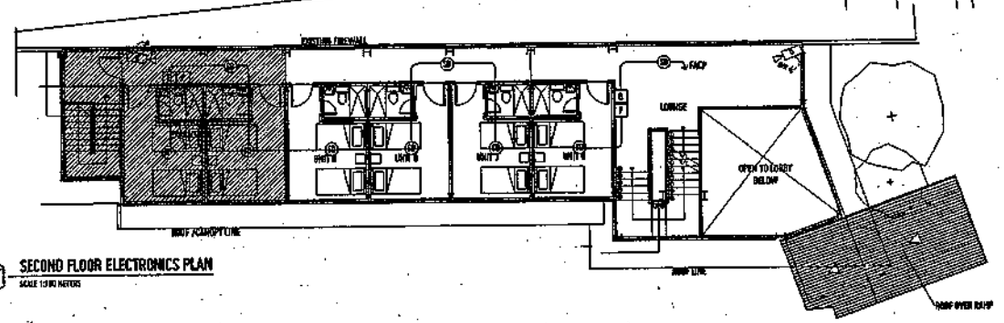
DATE DRAWN:

REV:

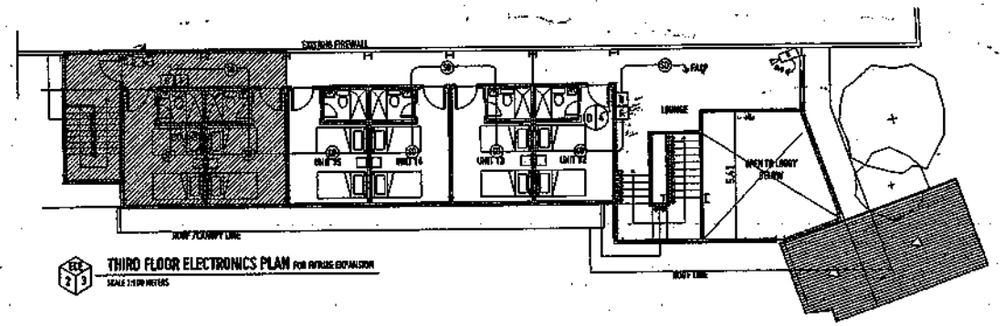
ECE1



GROUND ELECTRONICS PLAN
SCALE 1:100 METERS



SECOND FLOOR ELECTRONICS PLAN
SCALE 1:100 METERS



THIRD FLOOR ELECTRONICS PLAN FOR FUTURE EXPANSION
SCALE 1:100 METERS

LEGEND

- T — SINGLE TELEPHONE WALL OUTLET, RJ11
- T — SINGLE TELEPHONE FLOOR MOUNTED OUTLET
- DUPLEX TELEPHONE AND DATA WALL OUTLET, RJ11 AND RJ45
- DUPLEX TELEPHONE AND DATA FLOOR MOUNTED OUTLET.
- SINGLE UNIVERSAL DATA WALL OUTLET, RJ45
- DUPLEX UNIVERSAL DATA WALL OUTLET, RJ45
- IDF — INTERMEDIATE DISTRIBUTION FRAME
- MDF — MAIN DISTRIBUTION FRAME
- WALL CABLE TV OUTLET, PROVIDE 1– 3GS/8 COAXIAL CABLE
- CTB — CABLE TV BOX
- TCB — TELEPHONE/LAN/ CABLE TV BOX
- PROVISION FOR HDMI/VGA CABLING FOR OVERHEAD PROJECTOR, VERIFY EXACT LOCATION WITH ARCHITECT.
- PROVIDE 2-GANG WALL OUTLET W/ SINGLE PLATE INTERCONNECT WITH TIME OVERHEAD PROJECTOR HDMI/VGA TYPEMS PROVISION OR T.V APPEARANCES HDMI/ VGA CABLE VIA 6.35MMØ PVC/METER 30 LATOUT.

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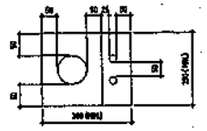
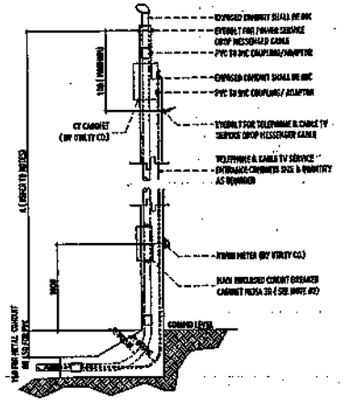
APPROVED BY:

GENERAL NOTES:

1. ALL + POINTS ABOVE SHALL VERIFY FLOOR FINISHES/MATERIALS.
2. ALL WIRING SHALL BE IN RIGID CONDUIT AND SHALL NOT BE LESS THAN 3/4" DIAMETER, UNLESS OTHERWISE SPECIFIED.
3. ALL LIGHTING LAYOUT AND FIXTURES ARE MINIMUM ONLY AND MAY CHANGE. VERIFY LIGHTING ARCHITECTURAL DRAWINGS.
4. ALL NEW WALLS DRAWINGS, UNLESS OTHERWISE NOTED.
5. ALL LOCATIONS OF EQUIPMENT AND OUTLETS ARE APPROXIMATE AND SHALL BE VERIFIED IN FIELD PRIOR TO ANY ROUGH-IN WORK. ARCHITECTURAL DRAWINGS.
6. VERIFY ALL EXISTING CONDITIONS.
7. VERIFY EXISTING CONDITIONS, LOCATION OF EQUIPMENT, PANELS TO BE REMOVED, WORK.
8. ALL WIRES SHALL BE COPPER UNLESS OTHERWISE NOTED.
9. ALL EXISTING EQUIPMENT, CONDUIT, WIRING, DEVICES, ETC. REMOVED AS PART OF THIS WORK SHALL BE DISPOSED AS DIRECTED BY THE ARCHITECT.
10. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES TO AVOID CONFLICTS WITH DUCTWORK, PIPING, STRUCTURAL MEMBERS, ETC.





SERVICE PEDESTAL DETAIL
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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIRVIEW, NORTH AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
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WEBSITE www.ustp.edu.ph

PROFESSIONAL ELECTRONICS ENGINEER		
PRC No.	PTR No.	
	DATE	
TIN	PLACE	

PROJECT	PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION	USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

DESIGNED/DRAWN/APPROVED:
ENGR. JOHN PAUL P. QUIMPO
ENGINEER III

RECOMMENDING APPROVAL:
ATTY. ERWIN B. BUCIO
DIR., ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:

DRAWING NO.:
DATE DRAWN:
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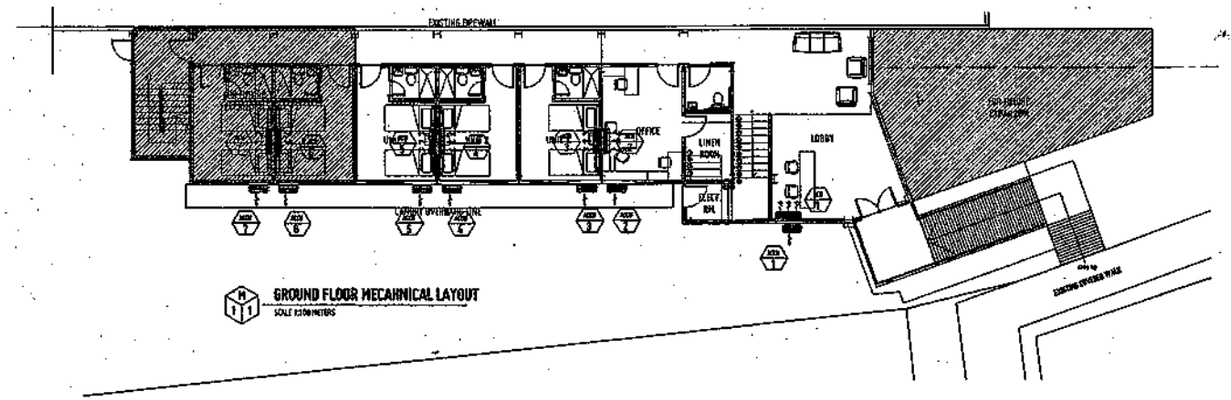
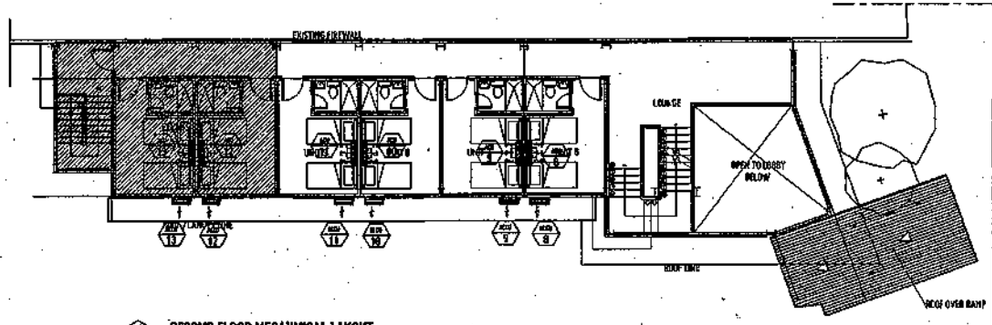
CAGAYAN DE ORO CITY

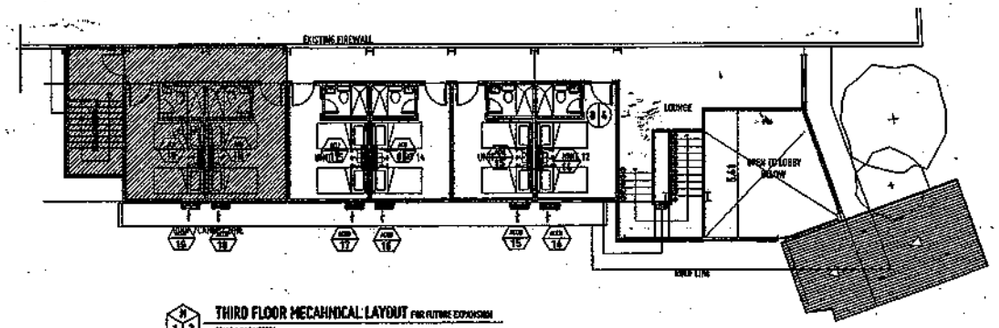
APPROVED BY:



GROUND FLOOR MECHANICAL LAYOUT
SCALE 1:100 METERS



SECOND FLOOR MECHANICAL LAYOUT
SCALE 1:100 METERS



THIRD FLOOR MECHANICAL LAYOUT FOR FUTURE EXPANSION
SCALE 1:100 METERS

EQUIPMENT SCHEDULE

SPLIT-TYPE AIR CONDITIONING UNIT SCHEDULE

WORK NO.		QTY.	TYPE	CAPACITY	COOLING CAPACITY (BTU/HR)	SUPPLY AIR (CFM)		OPERATING TEMPERATURE					COMPRESSOR DATA			REFRIGERANT DATA	REMARKS
								E.A.T.		EVAPORATING		CONDENSING	VARIABLE SPEED DRIVE (VSD)	ELECTRICAL SUPPLY			
OUTDOOR	INDOOR					UNIT	MOTOR	°C	°D	°F	°C	°F		VOLTS	PH	Hz	TYPE	
ACOU-1	ACU-1	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-2	ACU-2	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-3	ACU-3	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-4	ACU-4	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-5	ACU-5	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-6	ACU-6	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-7	ACU-7	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-8	ACU-8	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-9	ACU-9	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-10	ACU-10	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-11	ACU-11	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-12	ACU-12	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-13	ACU-13	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-14	ACU-14	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-15	ACU-15	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-16	ACU-16	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-17	ACU-17	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-18	ACU-18	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER
ACOU-19	ACU-19	1	WALL MOUNTED	3.0 HP	VARIABLE	VARIABLE		27	6.44	40	48.8	120	VARIABLE	230	1	60	R32	INVERTER-TYPE AIRCONDITIONER

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WEBSITE: www.ustp.edu.ph

PROFESSIONAL MECHANICAL ENGINEER	
PRC NO.	PCOMA
	DATE
TIN	PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
AR. FERDINAND A. DUMPAY
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

RECOMMENDING APPROVAL:
ATTY. ERWIN B. RUCIO
OIC - VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

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DRAWN BY:
DATE DRAWN:
DWG NO.:

M1

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL
CAGAYAN DE ORO CITY

APPROVED BY:

GENERAL NOTES:

1. ALL MECHANICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE PHILIPPINE MATERIAL GRADING CODE, PLUMBING CODE, PRIVATE SCHOOL STANDARD, FIRE CODE OF THE PHILIPPINES AND OTHER REGULATIONS OF THE LOCAL GOVERNMENT.

2. THE TYPICAL SCOPE OF WORKS SHALL INCLUDE ALL WORKS DESCRIBED IN THE PLANS LISTED IN THE TECHNICAL SPECIFICATIONS FOR MECHANICAL WORKS.

3. THE WORKS SHALL BE EXECUTED BY CLOSED COORDINATION WITH ALL OTHER TRADES.

4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, EQUIPMENT CATALOG, SAMPLES OF ALL THE MATERIAL TO BE USED BEFORE EXECUTION OF THE WORKS.

5. THE CONTRACTOR OR SUPPLIER SHALL INSTALL ALL MATERIAL AND EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION.

6. ALL PIPE AND DUCT PENETRATIONS SHALL BE CAULKED WITH FIRE SEALANT.

7. ALL EQUIPMENT RESTING ON SLAB AND CEILING SHALL BE PROVIDED WITH VIBRATION ISOLATOR TO PREVENT VIBRATION AND NOISE TRANSMISSION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONCRETE PAD AND SUPPORT OF ALL MECHANICAL EQUIPMENT.

9. THE CONTRACTOR SHALL ARRANGE THE PIPING, DUCTING AND EQUIPMENT TO HAVE EASY ACCESS FOR SERVICING, CLEANING AND SERVICING WITHOUT DISMANTLING THE SYSTEM.

10. ALL POWER WIRING UP TO SPLICE BOX SHALL BE THE ELECTRICAL CONTRACTOR FROM SPLICE BOX TO THE EQUIPMENT BY MECHANICAL CONTRACTOR.

11. PROVIDE AND INSTALL CONTROLS AND CONTROL WIRINGS FOR ALL NON-CONVENTIONAL EQUIPMENT.

12. PROVIDE DYNAMO TAP TO ALL MOTOR UNITS.

13. PROVIDE SEPARATE CONDENSER DRAIN RISER.

14. PIPE AIR EQUIPMENT DRAIN TO THE NEAREST FLOOR DRAIN PROVIDED BY PLUMBING CONTRACTOR.

15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BALANCING, TESTING AND ORDERING CHECK OF THE WHOLE AIR CONDITIONING, VENTILATION SYSTEM AND SUBMIT WRITTEN DATA FIGURE TO TURN OVER.

16. WORKMANSHIP: THE WORK THROUGHOUT SHALL BE EXECUTED IN THE BEST & MOST THOROUGH MANNER KNOWN TO TRADE & TO THE SATISFACTION OF THE ARCHITECT AND THE ENGINEER.

17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ALL GOVERNMENT/LOCAL CONSTRUCTION AND OPERATION PERMITS AND PAY ALL THE REQUIRED FEES.

NOTES ON PIPING INSTALLATION:

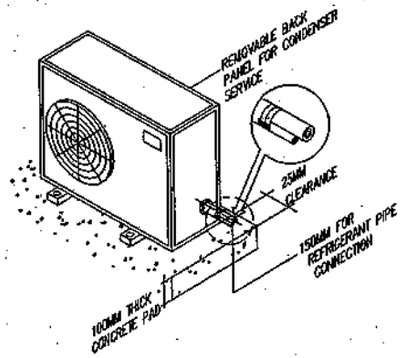
1. REFRIGERANT PIPES SHALL BE INTERNALLY CLEANED BY SWABBING WITH CLEAN COTTON CLOTH TO REMOVE ALL DUST, SWARF, AND OTHER MISCELLANEOUS DIRT.

2. WHILE SOLDERING JOINTS, A SWEEP OF INERT NITROGEN GAS SHOULD BE PASSED THROUGH PIPES TO PREVENT OXIDATION DEPOSITS INSIDE.

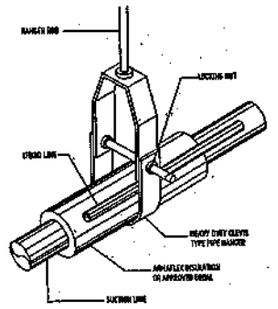
3. FITTINGS:
   A. USE STANDARD LONG RADIUS COPPER ELBOWS, REDUCERS, ETC. DO NOT USE SHARP-TO-BEND ELBOWS, REDUCERS, ETC.
   B. JOINTS BETWEEN PIPES SHOULD BE MANUFACTURED STANDARD COPPER COUPLING FORMED FITTING MADE BY SWAGING OR ENLARGING ONE PIPE END TO BE ABLE TO RECEIVE THE OTHER PIPE SECTION WITHOUT ANY REDUCTION.
   C. JOINTS TO SCREWED ACCESSORIES SUCH AS EXPANSION VALVES, FILTER DRIER, ETC. SHALL BE MADE WITH STANDARD FLARED FITTINGS.

4. THE COMPLETED PIPING INSTALLATION SHALL BE LEAK TESTED BY SUBJECTING THE SAME (HIGH AND SUCTION SIDE) TO A PRESSURE OF 2000 Pa USING DRY NITROGEN GAS. THIS PRESSURE SHOULD BE KEPT FOR 24 HOURS AND IF DUE TO ANY UNAVOIDABLE REDUCTION IN PRESSURE WITHIN THIS PERIOD, THE NITROGEN CHARGE SHALL BE RENEWED AGAIN TO 2000Pa. BE SURE AS POSSIBLE CHANGE WHILE TESTING FOR THE TEMPERATURE CORRECTION. IF THERE IS NOTICEABLE REDUCTION IN THE TEST PRESSURE, LEAK SHOULD BE LOCATED AND REPAIRED.

5. PROPERLY TESTED PIPING SHOULD BE SECURELY CAPPED AT BOTH ENDS AND INSULATION CHARGED AS SPECIFIED WITHIN 6 HOURS WHILE WAITING FOR FINAL CONNECTION TO EQUIPMENT. INSULATING SYSTEM PIPING ONLY AFTER PROPER LEAK TESTING.



M 2 1 ACCU MOUNTING DETAIL
NOT TO SCALE



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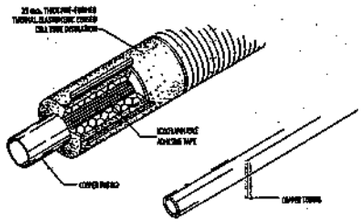
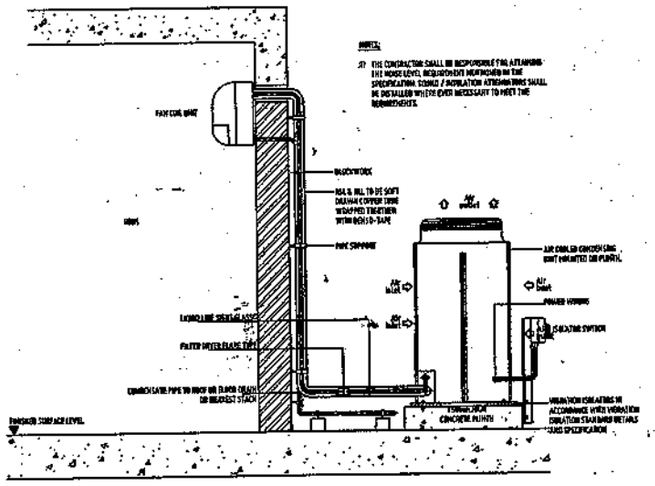
M 2 2 REFRIGERANT PIPE HANGER DETAIL
NOT TO SCALE

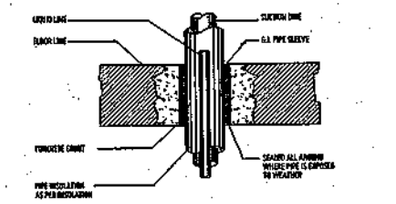


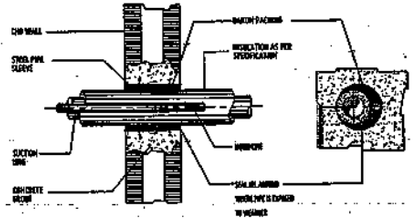
NOTE:
1. CONDENSATE DRAIN PIPE INSULATION SHALL BE OF SIMILAR MATERIAL BUT 10 mm. THICK.
2. PROVIDE ALUMINUM CLADDING FOR OUTDOOR EXPOSED PIPING.

M 2 3 REFRIGERANT PIPE INSULATION DETAIL
NOT TO SCALE



M 2 4 TYPICAL SPLIT-TYPE CONNECTION DETAIL
NOT TO SCALE





M 2 5 REFRIGERANT PIPE THRU WALL DETAIL
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WEBSITE: www.ustp.edu.ph

PROFESSIONAL MECHANICAL ENGINEER	
PRC NO.	EXPIRY DATE
TIN	PTR NO.

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

DESIGNED BY/APPROVAL: AR. HERBERT A. RUMPA, MBOEC Reg. No. 0000
RECOMMENDING APPROVAL: ATTY. ERWIN B. BUCIO, SEC. VP FOR ADMINISTRATION & LEGAL AFFAIRS
APPROVED BY: DR. AMBROSIO B. CULTURA III, PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
DRAWN BY:
DATE DRAWN:
DWG NO.: M2

GENERAL NOTES :

1. MOTORS, STARTERS AND OTHER ELECTRICAL EQUIPMENT SHALL BE PROVIDED WITH NON-COMBUSTIBLE DRUMS FROM SHROUD AS POSSIBLE.
2. SPRINKLER HEADS SPACED LESS THAN 1.80 m. (6 FT.) SHALL BE PROVIDED WITH BAFFLES OR DEFLECTORS.
3. FLOOR DRAINS FOR OIL SPILLS SHALL BE PROVIDED IN FLOOR SLAB FOR TRANSFORMER VAULT, BY PLUMBING CONTRACTOR.
4. ALL PORTABLE FIRE EXTINGUISHER (PFE) INSIDE FIRE HOSE CABINET SHALL BE "ABC" TYPE DRY CHEMICAL.
5. ALL ELECTRICAL, MECHANICAL, AND PIPING TO BE AS PROVIDED WITH 10 LBS. "ABC" TYPE PORTABLE FIRE EXTINGUISHER.
6. SPRINKLER VALVE SHALL BE PROVIDED WITH 1-10 LBS. WHEELED TYPE PE-30 PORTABLE FIRE EXTINGUISHER.
7. ALL WORK FOR LAND SIDE SHALL BE BY FIRE PROTECTION CONTRACTOR SCOPE OF WORK.
8. PUMP CONCRETE PUMP SHALL BE BY OWNERS SCOPE.
9. PROVIDE FIRE SIGNAGE TO ALL FIRE PROTECTION RISER AND FLOOR LEVELS.
10. ALL SPRINKLERS AT AREAS WITH CEILING SHALL BE CONCEAL TYPE. ALL SPRINKLERS AT AREAS WITHOUT CEILING SHALL BE UPRIGHT TYPE.
11. UNDERGROUND SPRINKLER SPRINKLER HEAD AND LOOPING FIXTURE SHALL BE TOUCHED.
12. ALL PIPES PASSING THRU SEISMIC/EXPANSION SHALL BE PROVIDED WITH FIRE SEISMIC UNIT (1) SET ABOVE.
13.
14. FIRE AND JOCKEY PUMP SHALL HAVE SERVICE SERVING UNIT. MANUAL SHALL BE STAINLESS STEEL.

MATERIAL SPECIFICATIONS :

FIRE LINES — FIRE LINES SHALL BE BLACK IRON (BI) PIPES SCHEDULE 30 NO. "SEAMLESS" CONFORMING TO ASTM A-120-1-84, "WELDED" OR "SEAMLESS" BRAND OR APPROVED EQUIVALENT.

GATE VALVES — SHALL BE OUTSIDE SCREW AND YOKE (OSAY) AND FLANGED CONFORMING TO ASTM B-16.

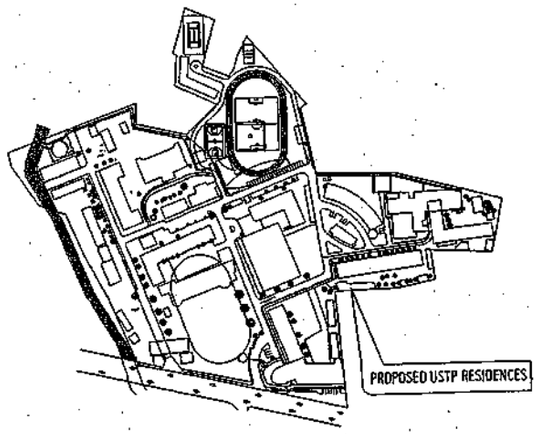
SPRINKLER HEADS — ALL SPRINKLER HEADS ACCEPT CONCEALED, RECESSED & CONCEALED) SHALL BE RATED 175 (165°F) TO 212 (100°F) EXCEPT ON AIR, PUMP, MECHANICAL ROOMS & BOILER SHALL BE 286 (176°F) TO 360°F (182°C).

LEGEND :

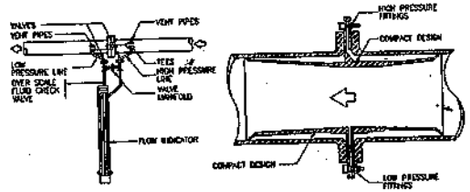
- RECESSED PENDENT TYPE SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- SPRINKLER RISER
- DRY SPRINKLER RISER
- OIL RISER
- DOWNCOMER OR FEEDMAIN LINE
- EXISTING FIRE DEPARTMENT CONNECTION (SIAMESE) LINE
- PLUMBING CONNECTION
- BRANCH LINE
- RISER NIPPLE
- 2-WAY LONGPATTERN WAY GATE
- 3-WAY SWING CHECK VALVE
- 4-WAY RISER WAY GATE
- FIRE HOSE VALVE
- HANGER
- FIRE HOSE CABINET
- PIPE SLEEVES
- (10 LBS.) PORTABLE FIRE EXTINGUISHER
- (50 LBS.) PORTABLE FIRE EXTINGUISHER WHEELED TYPE
- TANK LINE
- INSPECTOR TEST CONNECTION
- DRAIN VALVE
- 2-WAY 65Ø X 65Ø FIRE DEPT. CONNECTION PIPE
- 2-WAY GALVETE FIRE HOSE GUARD WITH CHAIN
- ALARM CHECK VALVE ASSEMBLY
- PRESSURE GAUGE

ABBREVIATION:

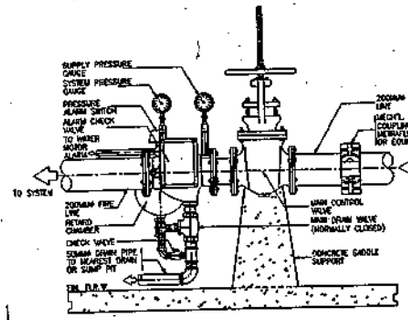
BP	BOY STAND PIPE
APS	AUTOMATIC FIRE SPRINKLER SYSTEM
GAS	GATE VALVE(ELECTRIC MOTOR in WORD)
GV	GATE VALVE
DV	DRAIN VALVE
CV	CHECK VALVE
FCV	FLOOR CONTROL VALVE
FH	FIRE HYDRANT
FL	FIRE LINE
FDC	SIAMESE(DEPT TEST CONNECTION
PFE	PORTABLE FIRE EXTINGUISHER
FHV	FIRE HOSE VALVE
ACV	ALARM CHECK VALVE
DL	DRAIN LINE
FHC	FIRE HOSE CABINET
MTR	MOTOR PUMP MOTOR
PG	PRESSURE GAUGE



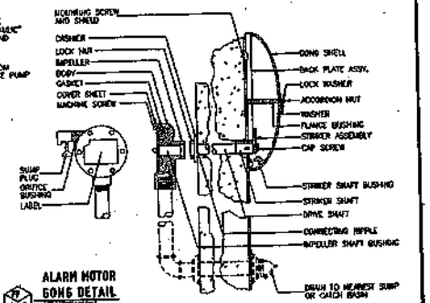
FP 1.1 LOCATION MAP
NOTS



FP 1.1 FLOW MEASURING DEVICE DETAIL



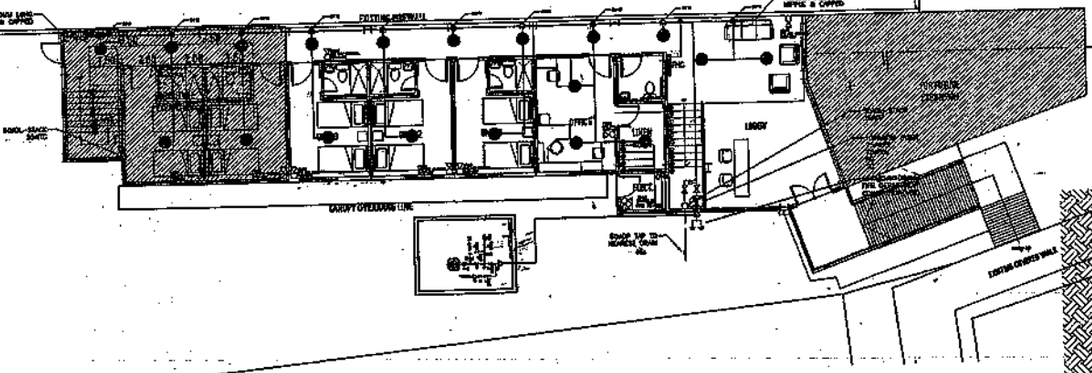
ELEVATION

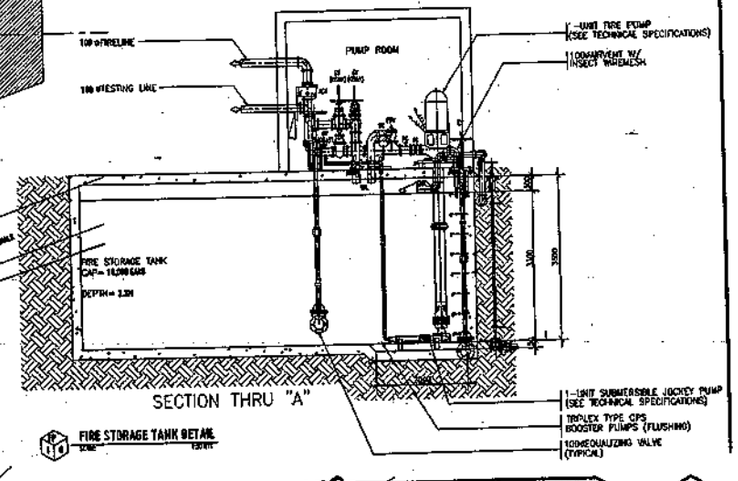


FP 1.1 ALARM MOTOR GONG DETAIL

SECTIONAL

FP 1.1 ALARM CHECK VALVE ASSEMBLY (WET TYPE)





SECTION THRU "A"

FP 1.2 FIRE PROTECTION LAYOUT
SCALE: 1:100 METERS

FP 1.4 FIRE STORAGE TANK DETAIL
SCALE: 1:50 METERS

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USTP

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
ENGINEERING CAMPUS
IN FIRE STRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT
CLAIM H., NICOR AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000
TELEPHONE & FAX NO.: 72-88-48 / (088) 858-1536 / 858-1780 | TELEFAX (088) 858-1088
WEBSITE: www.ustp.edu.ph

PROFESSIONAL MECHANICAL ENGINEER	
PRC NO.	PTR NO.
TIN	DATE
	PLACE

PROJECT	PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION	USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER	UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. ARLENE MANDA-GUMBA, MSFPE, FPEC

RECOMMENDING APPROVAL: ATTY. ERWIN S. RUDO, DIR.- VP FOR ADMINISTRATIVE & LEGAL AFFAIRS

APPROVED BY: DR. AMBROCIO B. CULTURA II, DIRECTOR, USTP SYSTEM

SHEET CONTENTS: GENERAL NOTES, FIRE PROTECTION LAYOUT, FIRE STORAGE TANK DETAIL, PUMP MECHANICAL TYPICAL DETAIL, ALARM CHECK VALVE DETAIL, ALARM MOTOR GONG DETAIL

DRAWN BY:
CHECKED BY:
DATE:

FP1

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GENERAL NOTES :

1. ALARMS, INDICATORS AND OTHER ELECTRICAL DEVICES SHALL BE PROVIDED WITH WEATHERTIGHT SPLASH PROOF SHIELDS OR HOODS.
2. SPRINKLER HEADS SHALL BE USED TYPE 1.80 M. (6 FT.) SHALL BE PROVIDED WITH GUARDS OR DEFLECTORS.
3. FLOOR OPENING FOR OIL SHALL SHALL BE PROVIDED BY FLOOR SLAB FOR TRANSFORMER VAULT BY PLUMBING CONTRACTOR.
4. ALL PORTABLE FIRE EXTINGUISHER (PFE) INSIDE FIRE HOSE CABINETS SHALL BE "HOT" TYPE DRY CHEMICAL.
5. ALL ELECTRICAL MECHANICAL ARE TOUCH TO BE PROVIDED WITH 10 LBS. EC-20 TYPE PORTABLE FIRE EXTINGUISHER.
6. TRANSFORMER VAULT SHALL BE PROVIDED WITH 1-20 LBS. WHEELED TYPE EC-20 PORTABLE FIRE EXTINGUISHER.
7. ALL WIRE FOR BOND WIRE SHALL BE OF FIRE PROTECTION CONTRACTOR SCOPE OF WORK.
8. FIRE CONCRETE PUMP SHALL BE OF CHARGE SCOPE.
9. PROVIDE FIRE SEALANT TO ALL PIPE PENETRATIONS WITH ROOMS AND FLOOR SLABS.
10. ALL SPRINKLERS AT HEAD WITH CEILING SHALL BE POSSIBLE TYPE. ALL SPRINKLERS AT HEAD WITHOUT CEILING SHALL BE UPRIGHT TYPE.
11. MINIMUM SPACING BETWEEN SPRINKLER HEAD AND LIGHTING FIXTURE SHALL BE 300mm.
12. ALL PIPES PASSING THRU BEAMS/GIRDERS SHALL BE PROVIDED WITH PIPE SLEEVE ONE (1) SIZE HIGHER.
13. FIRE PUMP SHALL BE PROVIDED WITH AUTOMATIC TRANSFER SWITCH (ATS).
14. PIPE AND HOSES FROM SHALL HAVE SERVICE SERVING LINE MATERIAL SHALL BE STAINLESS STEEL.

MATERIAL SPECIFICATIONS :

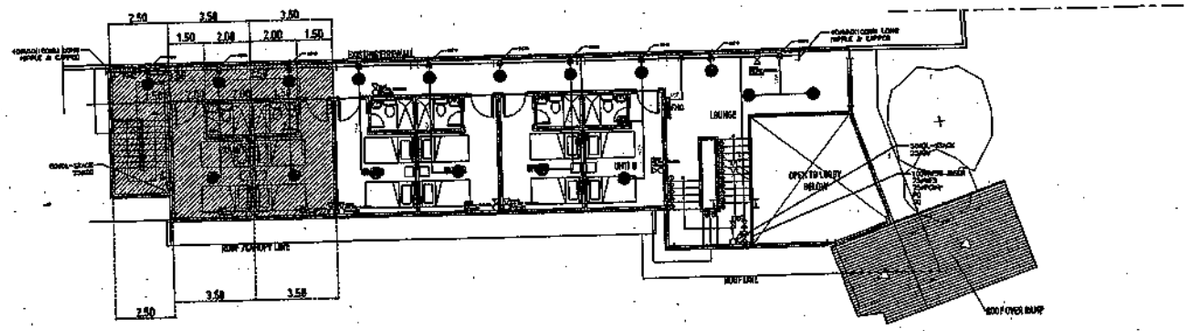
FIRE MAINS	FIRE LINES SHALL BE BLACK SCH 30(A) PIPES SHORTLY MARK "SPRINKLER" CONFORMING TO ASTM A-53-1988 "SPECIFICATION FOR WELDED AND SEAMLESS STEEL PIPE" OR "SEAMLESS" GRADE OR APPROVED EQUIVALENT.
CHECK VALVES	SHALL BE CHECKED SCHED AND TYPE STAMP TO ASTM A-53 CHECK AND GLOBE VALVES TO ASTM B-61.
SPRINKLER HEADS	ALL SPRINKLER HEADS, PENDENT RECESSED, (PENDENT & SIDEWALL) SHALL BE RATED 57°C (135°F) TO 74°C (165°F) EXCEPT IN KIDS, WHERE ORDINARY RATED & SHOULD SHALL BE 79°C (175°F) TO 100°C (212°F).

LEGEND :

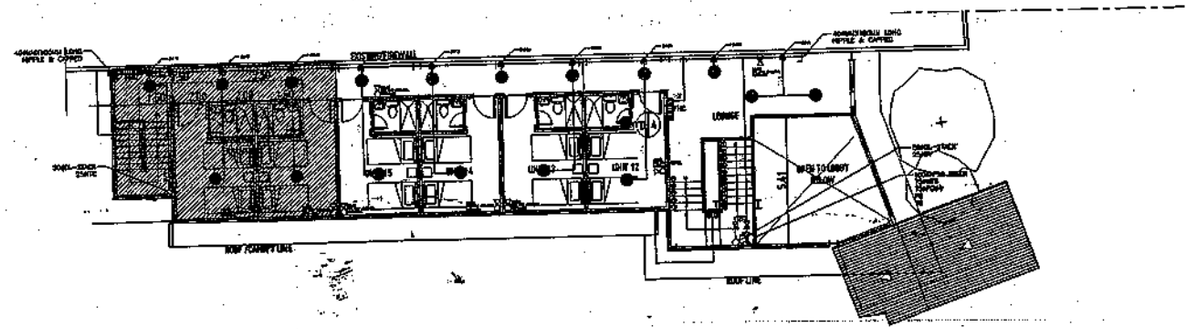
- RECESSED PENDENT TYPE SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- SIDEWALL SPRINKLER HEAD
- ENGRAVED PLATE
- DRY SPRINKLER RISER
- GL STAND
- CROSSMAIN OR FEEDMAIN LINE
- (SUPPLYING) FIRE DEPARTMENT CONNECTION SUPPLY LINE
- FLUSHING CONNECTION
- BRANCH LINE
- HOSE NIPPLE
- 3-WAY LONGITUDINAL TEMP BRACE
- 2-WAY LATERAL TEMP BRACE
- 4-WAY CROSS TEMP BRACE
- FIRE HOSE VALVE
- HANGER
- FDC HOSE CONNECTION
- PIPE SLEEVES
- (10 LBS.) PORTABLE FIRE EXTINGUISHER
- (20 LBS.) PORTABLE FIRE EXTINGUISHER WHEELED TYPE
- DRAIN LINE
- INSPECTOR TEST CONNECTION
- GATE VALVE
- 2-WAY FDC (4 INCH FIRE DEPT. CONNECTION INLET
- 2-WAY SIAMESE TEMP ROOF OUTLET/ ROOF MANIFOLD
- AUTO CHECK VALVE ASSEMBLY
- PRESSURE GAUGE

ABBREVIATION:

DSP	DRY STAND PIPE
AFSS	AUTOMATIC FIRE SPRINKLER SYSTEM
SDS & TSW	SIDE WALL/SIDEWALL SCREW & WOOD
GV	GATE VALVE
BV	BRASS VALVE
CV	CHECK VALVE
FCV	FLOOR CONTROL VALVE
FDC	FIRE DEPARTMENT
FL	FIRE LINE
FDC	CONNECTION TEST CONNECTION
FHC	FIREHOSE FIRE CONNECTION
FHV	FIRE HOSE VALVE
FCV	ALARM CHECK VALVE
DL	DRAIN LINE
FHC	FIRE HOSE CABINET
WFS	WATER FLOW SWITCH
PG	PRESSURE GAUGE



FP 2 1 SECOND FLOOR FIRE PROTECTION PLAN
SCALE 1:100 METERS

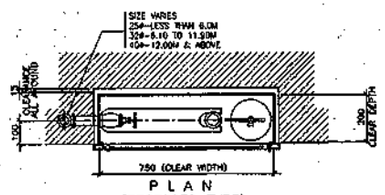


FP 2 1 THIRD FLOOR FIRE PROTECTION PLAN FOR FUTURE EXPANSION
SCALE 1:100 METERS

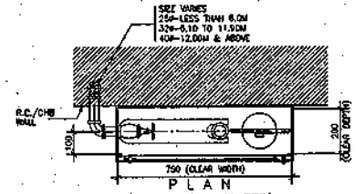
GENERAL NOTES:
1. PIPE = MINIMUM PIPES LINE, EVERY BASIS MATERIALS.
2. ALL MATERIALS MUST BE NEW AND WITHOUT DEFECTS AND IMPERFECTIONS, WORKS APPROVED BY [illegible].
3. ALL LAYOUT OF ARCHITECTURAL DRAWINGS AND EXISTING DUCTS AND PIPE LINES, VERIFY ON SITE WORK BEFORE INSTALLATION.
4. ALL WORK SHALL CONFORM TO APPROVED DRAWINGS AND SPECIFICATIONS.
5. IN CASE OF DISCREPANCIES BETWEEN THE PLANS AND SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL BE FOLLOWED.
6. VERIFY ALL ELEVATIONS, LOCATIONS AND DIMENSIONS.
7. VERIFY ALL ELECTRICAL DRAWINGS AND EQUIPMENTS PRIOR TO CONSTRUCTION.
8. ALL WORKS SHALL BE DONE UNDER THE STRICT SUPERVISION OF DULY LICENSED AND EXPERIENCED ENGINEER.
9. ALL DRAWINGS AND WORKS SHALL BE CONFORMED TO APPLICABLE CODES AND STANDARDS. VERIFY EXISTING CONDITIONS, EQUIPMENT AND SYSTEMS.

ANY OF MATERIAL CONTRACTOR, SUB-CONTRACTORS, MECHANICAL ENGINEERS, SHALL CLEARLY PROVIDE NON-COMBUSTIBLE INSULATION MATERIALS (SAMPLE) FROM THE MANUFACTURER AND SUBMIT TO ARCHITECT.

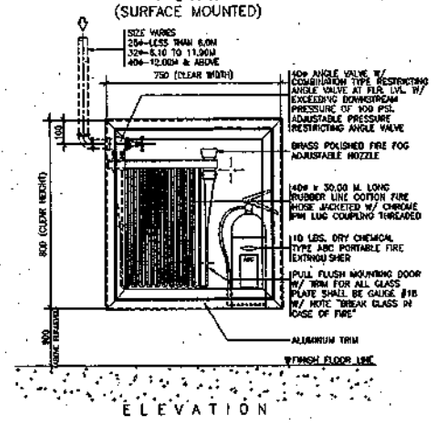
USTP REPUBLIC OF THE PHILIPPINES UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES CAGAYAN DE ORO CAMPUS INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT CLAIM M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY 9000 TELEPHONE # 088-858-1700 / 088-858-1701 | TELEFAX 088-856-1696 WEBSITE: www.ustp.edu.ph	PROFESSIONAL MECHANICAL ENGINEER PRC NO. / VALID UNTIL TIN / PLACE	PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1 LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES	RECOMMENDING APPROVAL: AR/FERDINAND A. CUMPA PROJECT IN-CHARGE, FPDD	RECOMMENDING APPROVAL: ATTY. ERWIN S. BUCIO OIC-AVP FOR ADMINISTRATION & LEGAL AFFAIRS	APPROVED BY: DR. AMBROSIO B. CULTURA II PRESIDENT, USTP SYSTEM	SHEET CONTENTS: SECOND FLOOR FIRE PROTECTION PLAN THIRD FLOOR FIRE PROTECTION PLAN LEGEND/NOTES/ABBR	DRAWING NO.: DATE DRAWN: DATE:	FP2



PLAN
(RECESSED TYPE)

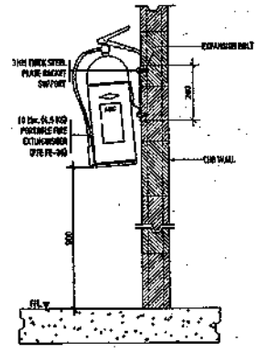


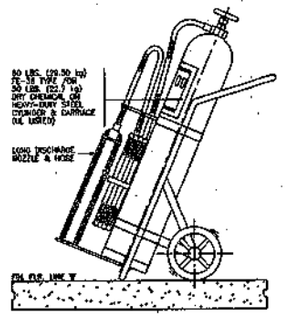
PLAN
(SURFACE MOUNTED)



ELEVATION

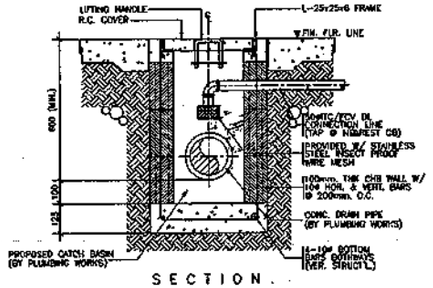
FIRE HOSE CABINET DETAIL
NOT DRAWN TO SCALE





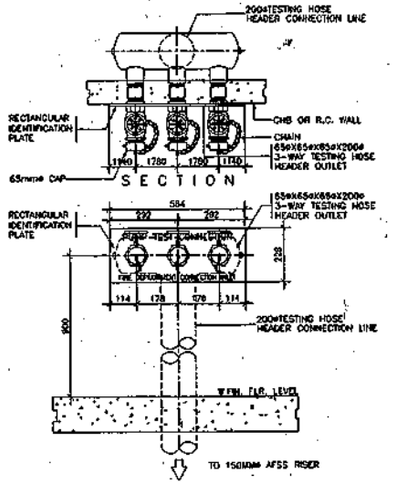
ELEVATION

10 lbs. (4.5kgs) PFE FE-36
PORTABLE FIRE EXTINGUISHER
NOT DRAWN TO SCALE

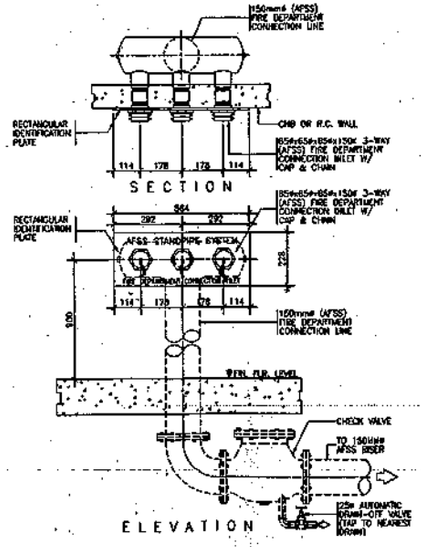


SECTION

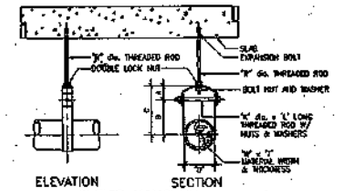
FTV/ITC DL CONNECTION
TO CATCH BASIN
SCALE: 1:50 M/S



PUMP TEST
CONNECTION DETAIL
SCALE: 1:50 M/S



AFSS FIRE DEPT. INLET DETAIL
SCALE: 1:50 M/S

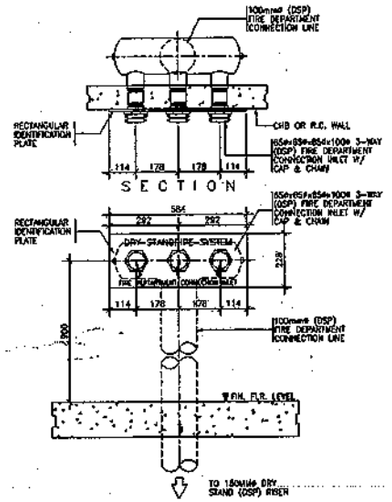


CLEVIS HANGERS

TABLE OF DIMENSIONS IN MM

PIPE SIZE "D" (MM)	ROD DIA. "X" (MM)	B	C	A MAX.	W x T	K x L
50	9.65	111.12	143	58.30	25 x 3	M10 x 65
75	12.7	103.0	165.1	30.22	40 x 6	M12 x 115
100	15.9	133.35	40	33.97	40 x 6	M12 x 130
150	19.1	175.12	267	50.00	40 x 5	M16 x 180

PIPE HANGER DETAIL
NOT DRAWN TO SCALE



DPSS FIRE DEPT. INLET DETAIL
SCALE: 1:50 M/S

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

PROFESSIONAL MECHANICAL ENGINEER
PRC NO. | PTR NO.
DATE | PLACE
TIN

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL:
DR. EDMUNDO K. DOMPA
DIRECTOR, DPDO

RECOMMENDING APPROVAL:
ATTY. ERWIN P. BUCOY
OIC–VP–FOR ADMINISTRATION & LEGAL AFFAIRS

APPROVED BY:
DR. AMBROCIO V. CULTURA III
PRESIDENT, USTP SYSTEM

SHEET CONTENTS:
FIRE HOSE CABINET DETAIL
PORTABLE FIRE EXTINGUISHER DETAIL
FTV/ITC DL CONNECTION TO CATCH BASIN DETAIL
PUMP TEST CONNECTION DETAIL
PIPE HANGER DETAIL
AFSS FIRE DEPT. INLET DETAIL
DPSS FIRE DEPT. INLET DETAIL

DRAWN BY:
DATE DRAWN:
DATE:

FP3

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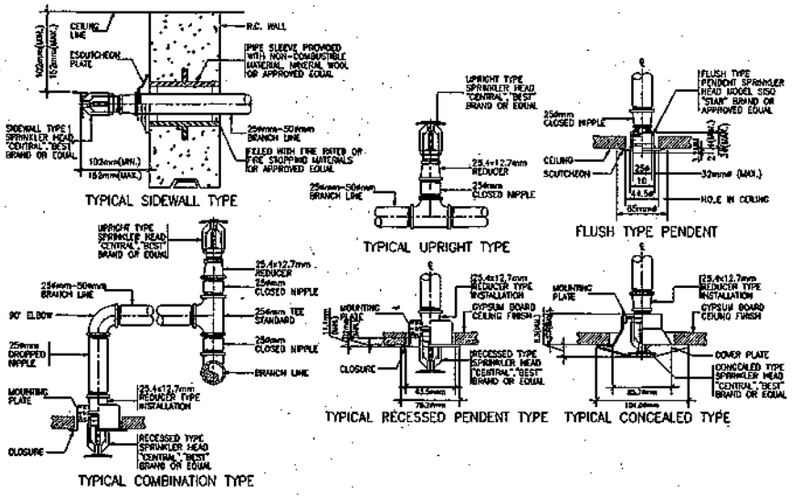
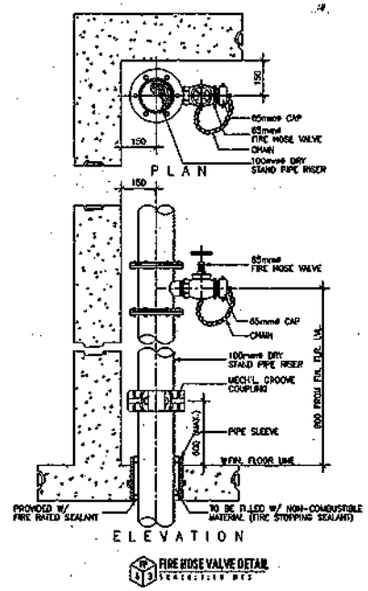
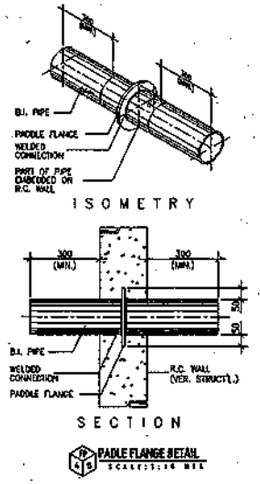


SPRINKLER HEADS DETAIL
NOT DRAWN TO SCALE



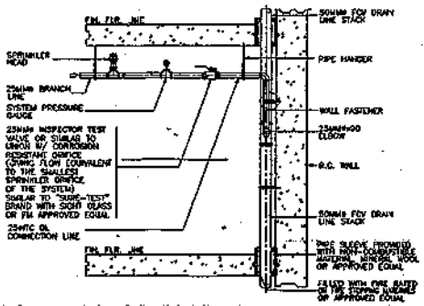
FIRE HOSE VALVE DETAIL
NOT DRAWN TO SCALE



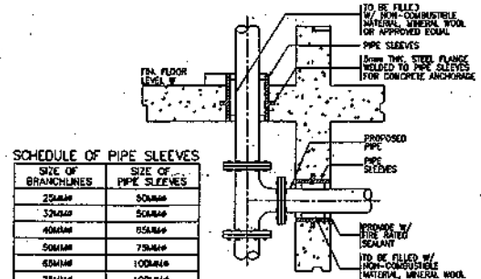
PADDLE FLANGE DETAIL
SCALE: 1:10

EQUIPMENT	TYPE	CAPACITY, GPM	APPROX. TDH, psi	MOTOR (HP)	ELECTRICAL CHARACTERISTIC			REMARKS
					VOLTS	PHASE	HERTZ	
FIRE PUMP WITH CONTROLLER	TO BE SPECIFIED BY THE PROFESSIONAL MECHANICAL ENGINEER							
JOCKEY PUMP								

FIC EQUIPMENT SCHEDULE
NOT DRAWN TO SCALE



INSPECTOR TEST CONNECTION DETAIL
NOT DRAWN TO SCALE



SCHEDULE OF PIPE SLEEVES

SIZE OF BRANCHLINES	SIZE OF PIPE SLEEVES
25MM	50MM
32MM	50MM
40MM	65MM
50MM	75MM
65MM	100MM
75MM	100MM
100MM	150MM
150MM	225MM
200MM	300MM

NOTES :
SLEEVES SHALL BE PROVIDED AROUND ALL PIPING EXTENDING THROUGH WALLS, FLOORS, PLATFORMS AND FOUNDATIONS.

1. THE CLEARANCE BETWEEN THE PIPE SLEEVES SHALL BE FILLED W/NON-COMBUSTIBLE FLEXIBLE MATERIAL SUCH AS MINERAL WOOL, FIBERGLASS OR EQUIVALENT.
2. MINIMUM CLEARANCE BETWEEN PIPE AND SLEEVES SHALL NOT BE LESS THAN 25MM FOR PIPE 25MM THROUGH 75MM & 40MM FOR PIPE SIZE 100MM AND LARGER FLOOR SLEEVES SHALL BE EXTENDED AT LEAST 75MM ABOVE THE TOP OF THE WEARING SURFACE.

PIPE SLEEVE DETAIL
NOT DRAWN TO SCALE

USTP

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CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

PROFESSIONAL MECHANICAL ENGINEER
REG NO. | PTR NO.
DATE
TIN | PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, F.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

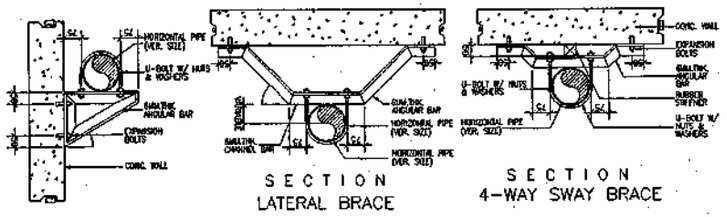
RECOMMENDING APPROVAL:
ATTY. ERWIN P. SUCIO
OIC- VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS:
SPRINKLER HEADS DETAIL
PIC EQUIPMENT SCHEDULE
INSPECTOR TEST CONNECTION DETAIL
PADDLE FLANGE DETAIL
PIPE SLEEVE DETAIL

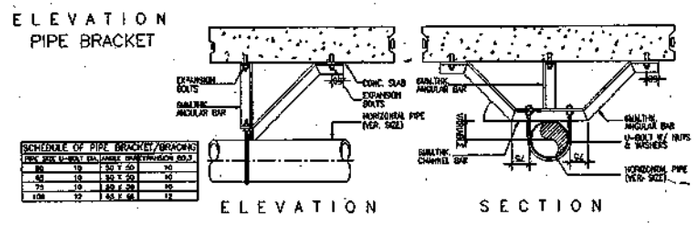
DRAWN BY:
DATE DRAWN:
REV:

FP4



SECTION
LATERAL BRACE

SECTION
4-WAY SWAY BRACE



ELEVATION
PIPE BRACKET

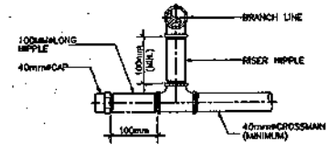
SCHEDULE OF PIPE BRACKET/BRACING			
PIPE SIZE	U-BOLT DIA.	ANGLE BAR	DISTANCE (C-C)
80	10	50 x 50	90
65	10	50 x 50	90
75	10	50 x 50	90
100	12	65 x 65	12

ELEVATION

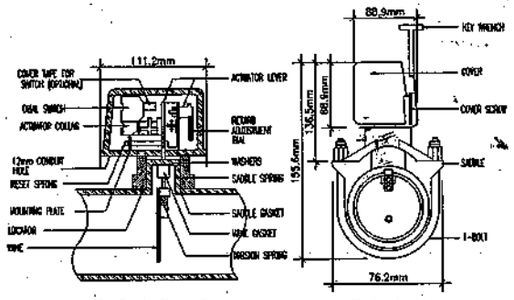
SECTION

LONGITUDINAL BRACE

SWAY BRACING DETAIL
SCALE: NTS



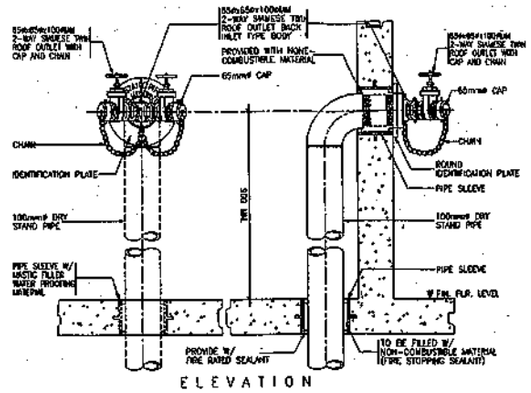
FLUSHING CONNECTION DETAIL
SCALE: NTS



SECTION

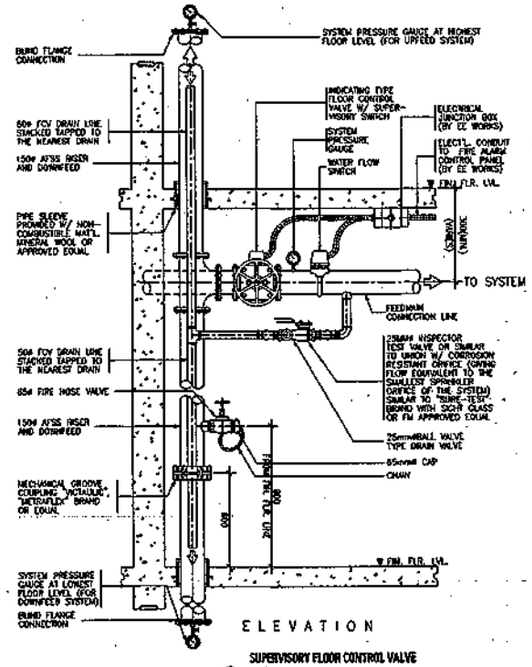
PLAN

WATER FLOW SWITCH DETAIL
SCALE: NTS



ELEVATION

SIAMESE TWIN ROOF OUTLET DETAIL
SCALE: NTS



ELEVATION

SUPERVISORY FLOOR CONTROL VALVE ASSEMBLY & VALVE HOSE DETAIL
SCALE: NTS

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE BUILDING OFFICIAL

REPUBLIC OF THE PHILIPPINES
UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES
CAGAYAN DE ORO CAMPUS
INFRASTRUCTURE PLANNING AND FACILITY DEVELOPMENT UNIT

PROFESSIONAL MECHANICAL ENGINEER
PRC NO. | PTR NO.
TIN | DATE
PTR | PLACE

PROJECT: PROPOSED 3-STOREY USTP-CDO CAMPUS RESIDENCES BUILDING PHASE 1
LOCATION: USTP-CDO CAMPUS, C.M. RECTO AVENUE, LAPASAN, CAGAYAN DE ORO CITY
OWNER: UNIVERSITY OF SCIENCE AND TECHNOLOGY OF SOUTHERN PHILIPPINES

RECOMMENDING APPROVAL: AR. FERDINAND A. DUMPA, DIRECTOR, IPPMD

RECOMMENDING APPROVAL: ATTY. ERWIN B. BUDIO, OIC - VP FOR ADMINISTRATION & LEGAL AFFAIRS

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

SHEET CONTENTS: SWAY BRACING DETAIL; FLUSHING CONNECTION DETAIL; WATER FLOW SWITCH DETAIL; SIAMESE TWIN ROOF OUTLET DETAIL; GENERAL VALVE AND HOSE DETAIL

DRAWN BY:
DATE RECEIVED:
FILE:

FP5