

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
BUILDINGS DIVISION

BONIFACIO DRIVE

PORT AREA, MANILA

PROJECT TITLE:

STANDARD
DPWH TWO (2) UNITS
HEALTH FACILITY TENT

SUBMITTED:

JOSEPHINE P. ISTURIS
CHIEF, BUILDINGS DIVISION, BUREAU OF DESIGN

RECOMMENDING APPROVAL:

ARISTARCO M. DOROY
OFFICER-IN-CHARGE, BUREAU OF DESIGN

2/20-2020

APPROVED:

EMIL K. SADAIN, CESS I
UNDERSECRETARY
FOR UPDO OPERATIONS & TECHNICAL SERVICES, DPWH



P E R S P E C T I V E

T A B L E O F C O N T E N T S

ARCHITECTURAL	STRUCTURAL	PLUMBING	ELECTRICAL	MECHANICAL
A-1 PERSPECTIVE TABLE OF CONTENTS A-2 SITE DEVELOPMENT PLAN SITE DEVELOPMENT PLAN BED LAYOUT PLAN ROOF PLAN FRONT AND REAR SIDE ELEVATION TYPICAL LEFT AND RIGHT SIDE ELEVATION CROSS SECTION A-3 FLOOR PLAN ROOF PLAN FRONT AND REAR SIDE ELEVATION TYPICAL LEFT AND RIGHT SIDE ELEVATION LONGITUDINAL SECTION LAVATORY DETAILS HANDWASHING DETAILS	S-1 DESIGN CRITERIA FOUNDATION, ROOF FRAMING, ROOF PLAN CROSS SECTION DETAIL TRUSS DETAILS DETAIL CONNECTION OF TRUSS APEX DETAIL CONNECTION OF ROOF BEAM TO PERIMETER COLUMN S-2 DETAIL CONNECTION OF PERIMETER COL TO T-1HT-1HT-2 DETAIL CONNECTION OF CENTER COLUMN TO T-1HT-1HT-2 TYPICAL CONNECTION DETAIL OF TRUSS TYPICAL DETAIL OF SPICE FOR HSSP DETAIL OF PRECAST CONC. PEDESTAL & CONC. BASE TYPICAL WALL FOOTING DETAIL S-3 FOUNDATION PLAN COLUMNATION ROOF FRAMING PLAN ROOF PLAN BEAM, TIE BEAM, COLUMN, FOOTING DETAILS TYPICAL DETAIL CONNECTION OF SAGROD & PURLIN DETAIL CONNECTION OF TRUSS TO COLUMN	P-1 PLUMBING NOTES AND PLUMBING LEGEND FLOOR PLAN SEWER AND DRAINAGE LAYOUT WATER LINE LAYOUT ISOMETRIC DIAGRAM SEWER AND DRAINAGE LAYOUT WATER LINE LAYOUT ROOF PLAN DRAINAGE LAYOUT DETAIL OF CATCH BASIN P-2 PLUMBING NOTES PLUMBING LEGEND DETAIL OF SEPTIC VAULT SCHEDULE OF TOP / BOTTOM SLAB REINFORCEMENT	E-1 LIGHTING LAYOUT POWER LAYOUT E-2 GENERAL NOTES ELECTRICAL SYMBOLS SCHEDULE OF WIRES, CONDUITS, AND RODS SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM OPTION 2 (2 UNITS ISOLATION TENT) E-1 LIGHTING LAYOUT POWER LAYOUT E-2 GENERAL NOTES ELECTRICAL SYMBOLS SCHEDULE OF WIRES, CONDUITS, AND RODS SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM	M-1 GENERAL NOTES SCHEDULE OF EQUIPMENT AIR CONDITIONING AND VENTILATION PLAN MISCELLANEOUS DRAWING DETAIL

REPUBLIC OF THE PHILIPPINES
OFFICE OF THE MUNICIPAL
ENGINEER / BUILDING OFFICIAL

DISTRICT / CITY / MUNICIPALITY

LAND USE AND ZONING

LINE AND GRADE

ARCHITECTURAL

STRUCTURAL

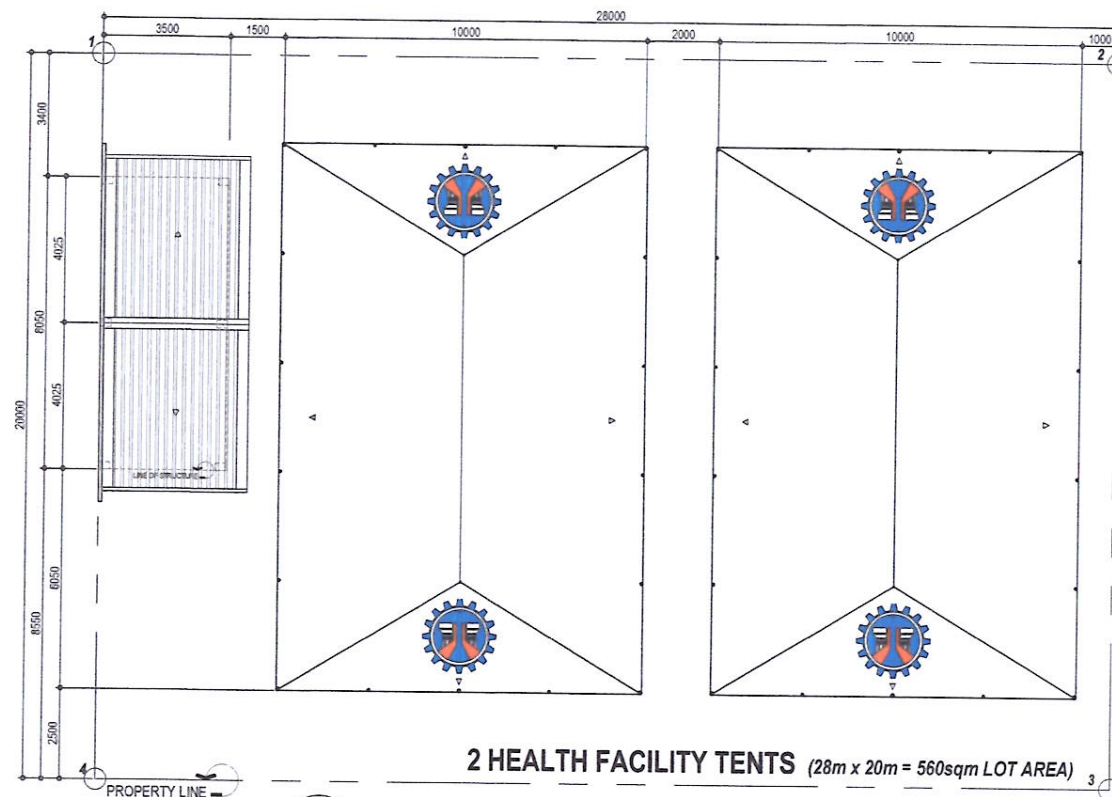
PLUMBING/SANITARY

ELECTRICAL

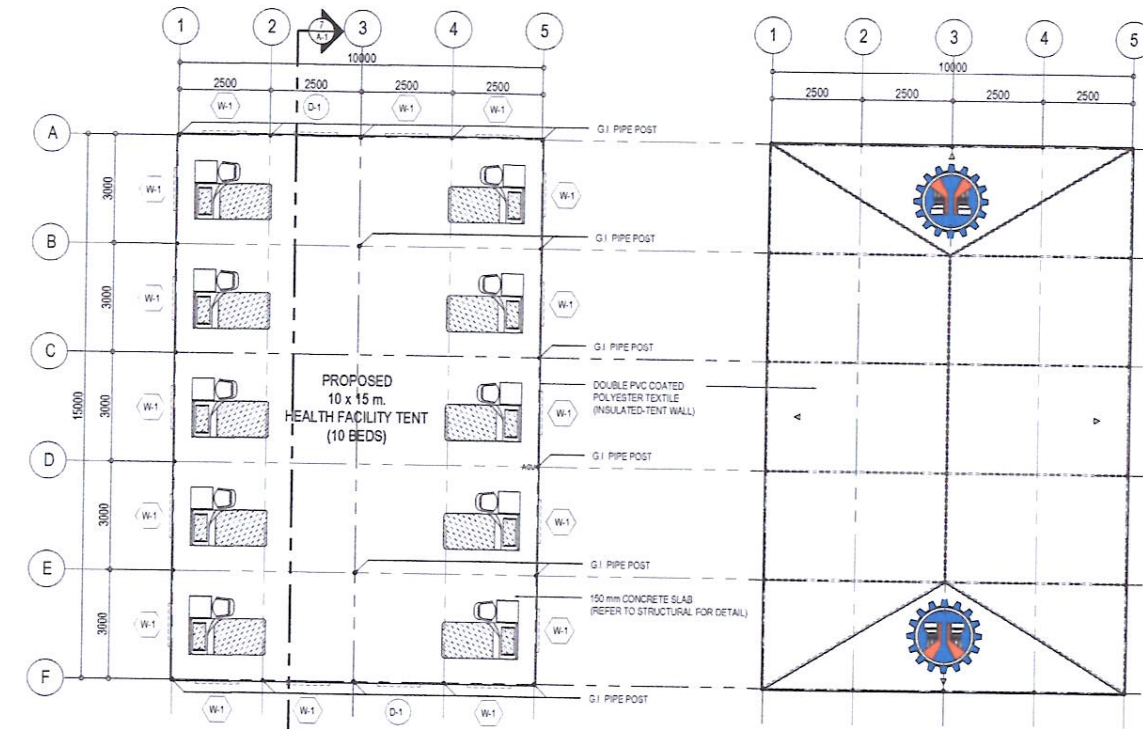
ELECTRONICS

MECHANICAL

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION	SHEET CONTENTS	ARCHITECTURAL CONCEPT	SUBMITTED	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	PERSPECTIVE TABLE OF CONTENTS	ARCHITECTURAL SECTION					
			CADD					
			CHECKED					
			FRANCIS G. SERRATO CIC - ARCHITECT IV	JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	ARISTARCO M. DOROY OFFICER-IN-CHARGE BUREAU OF DESIGN	EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS	BOD B	A-1 3 13

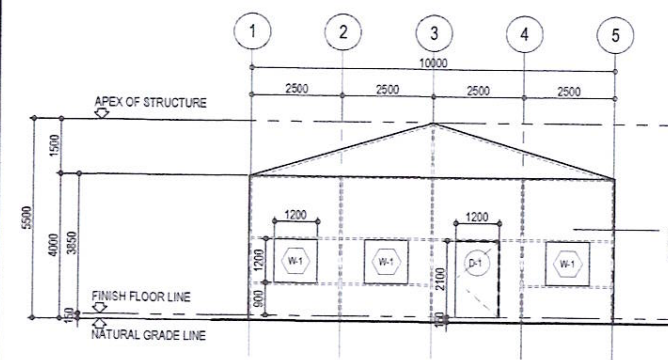


1 SITE DEVELOPMENT PLAN (VARIOUS SITE LOCATION)
A-2 SCALE 1:100 M.

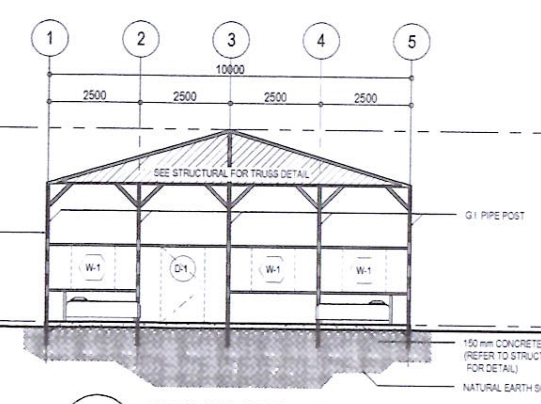


2 BED LAYOUT PLAN
A-2 SCALE 1:100 M.

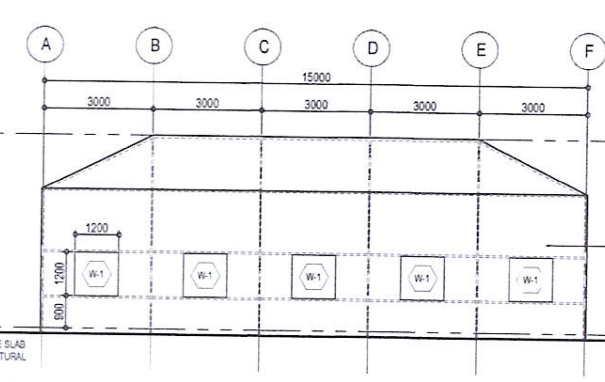
3 ROOF PLAN
A-2 SCALE 1:100 M.



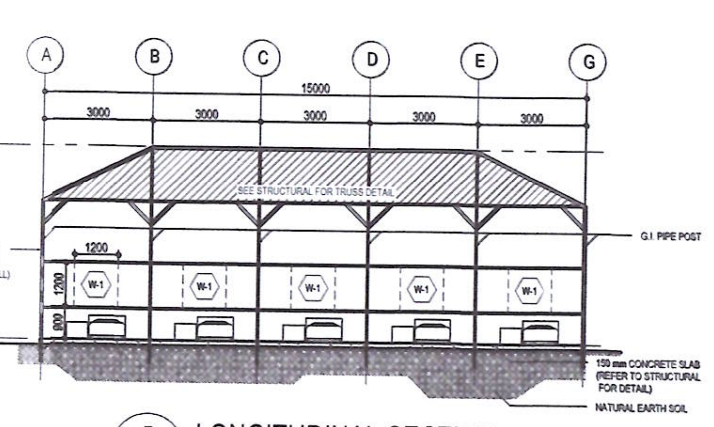
4 FRONT AND REAR ELEVATION
A-2 SCALE 1:100 M.



5 CROSS SECTION
A-2 SCALE 1:100 M.



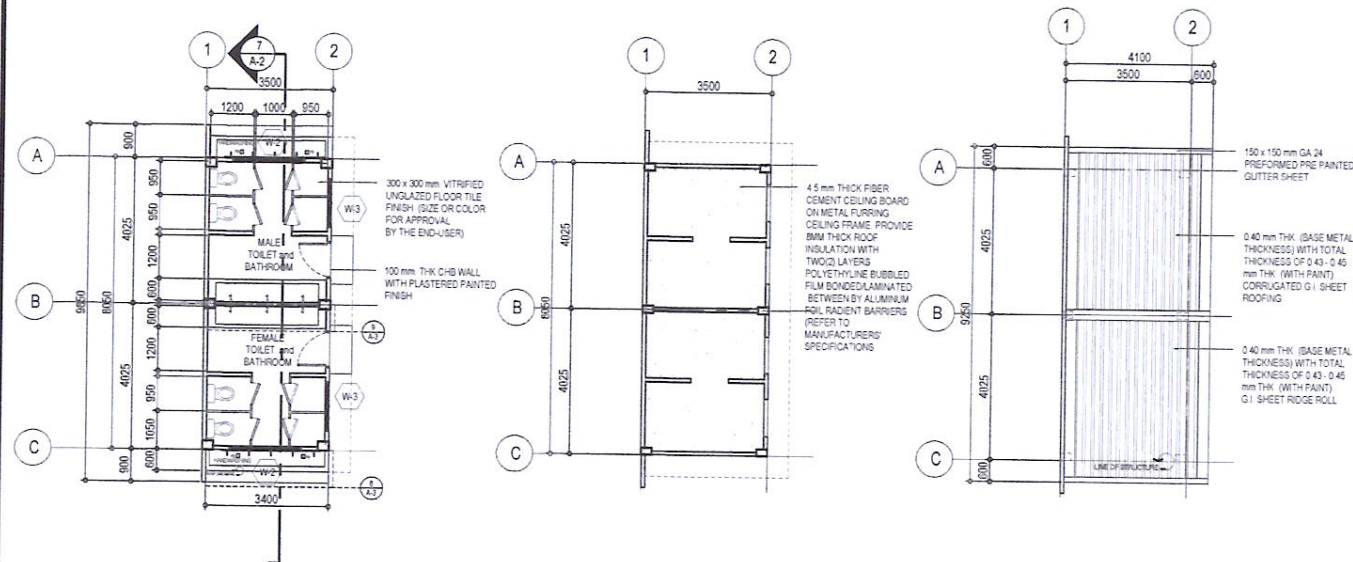
6 TYPICAL LEFT AND RIGHT SIDE ELEVATION
A-2 SCALE 1:100 M.



7 LONGITUDINAL SECTION
A-2 SCALE 1:100 M.

NOTE:
SEE STRUCTURAL DRAWINGS FOR
PIPE SIZES AND CONNECTION
DETAILS

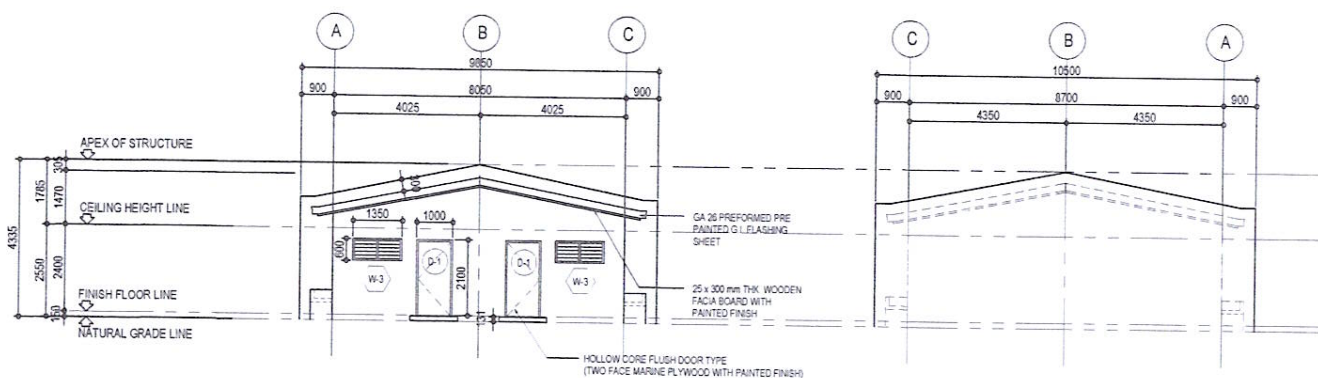
REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION: DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	SHEET CONTENTS: SITE DEVELOPMENT PLAN BED LAYOUT PLAN ROOF PLAN FRONT AND REAR SIDE ELEVATION TYPICAL LEFT AND RIGHT SIDE ELEVATION CROSS SECTION	ARCHITECTURAL CONCEPT ARCHITECTURAL SECTION CHECKED BY: JOSEPHINE P. ISTURIS OIC - ARCHITECT IV	SUBMITTED JOSEPHINE P. ISTURIS OIC - ARCHITECT IV	RECOMMENDING APPROVAL: ARISTARCO M. DORAY OFFICER-IN-CHARGE BUREAU OF DESIGN	APPROVED: EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS	SET NO.: BOD B SHEET NO.: A-2 3 13
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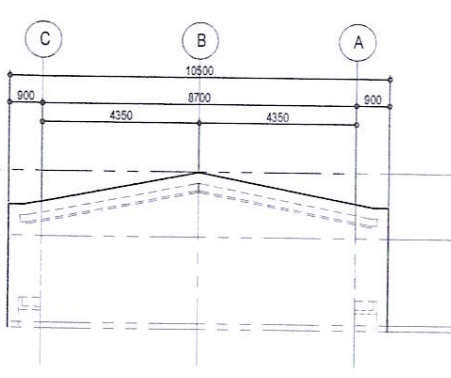
1 FLOOR PLAN
A-3 SCALE 1:100 M

2 REFLECTED CEILING PLAN
A-3 SCALE 1:100 M

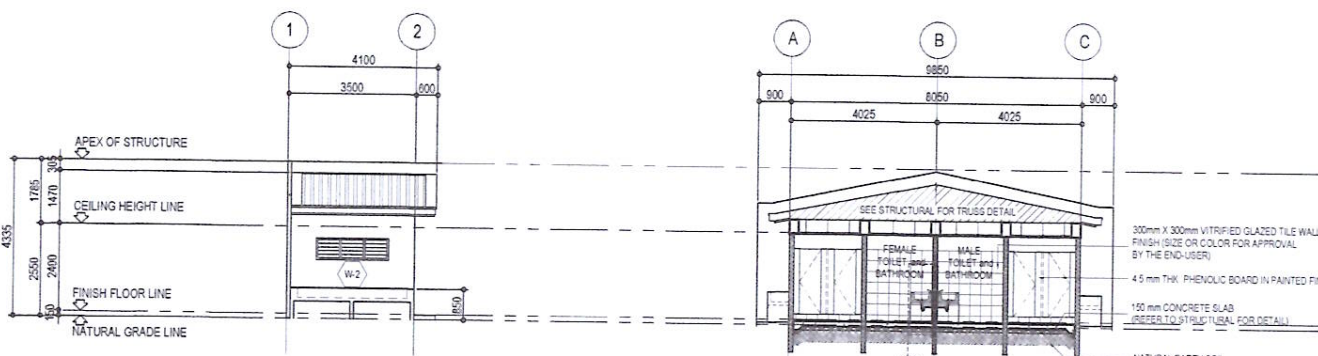
3 ROOF PLAN
A-3 SCALE 1:100 M



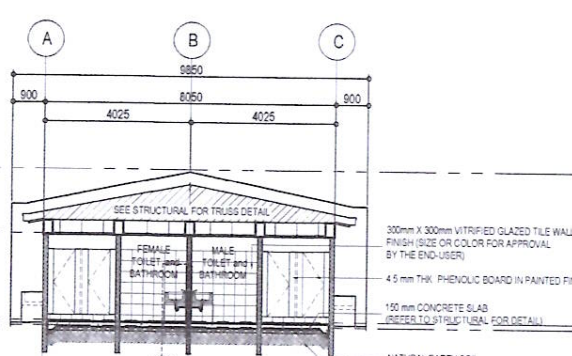
4 FRONT ELEVATION
A-3 SCALE 1:100 M



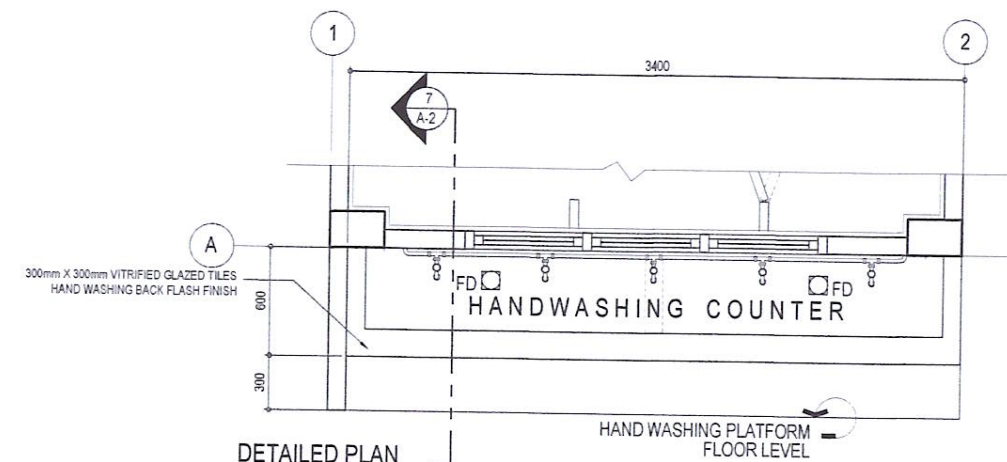
5 REAR ELEVATION
A-3 SCALE 1:100 M



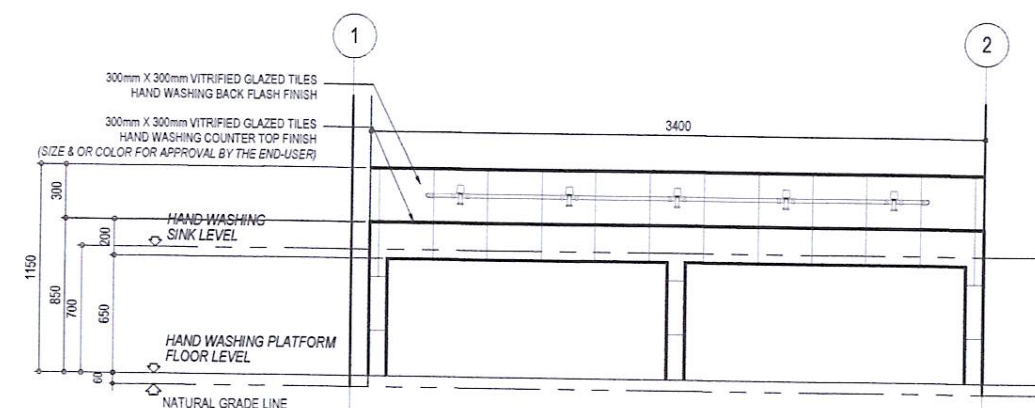
6 TYPICAL LEFT AND RIGHT SIDE ELEVATION
A-3 SCALE 1:100 M



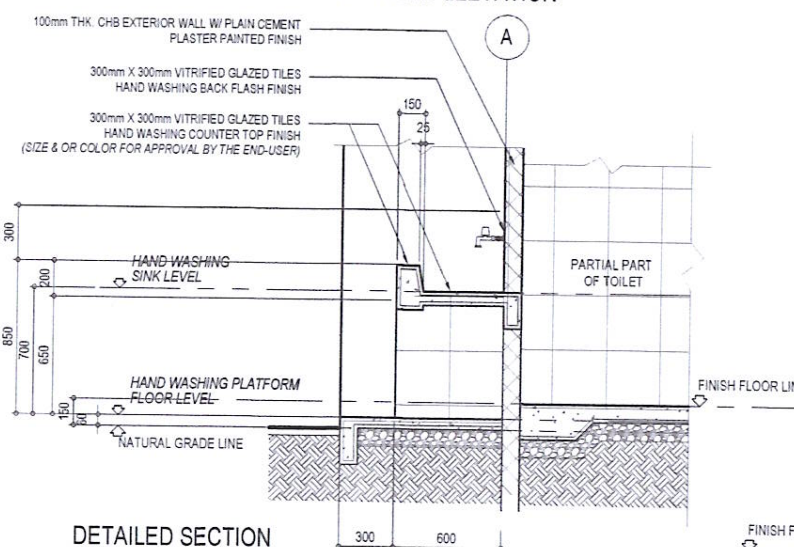
7 LONGITUDINAL SECTION
A-3 SCALE 1:100 M



DETAILED PLAN

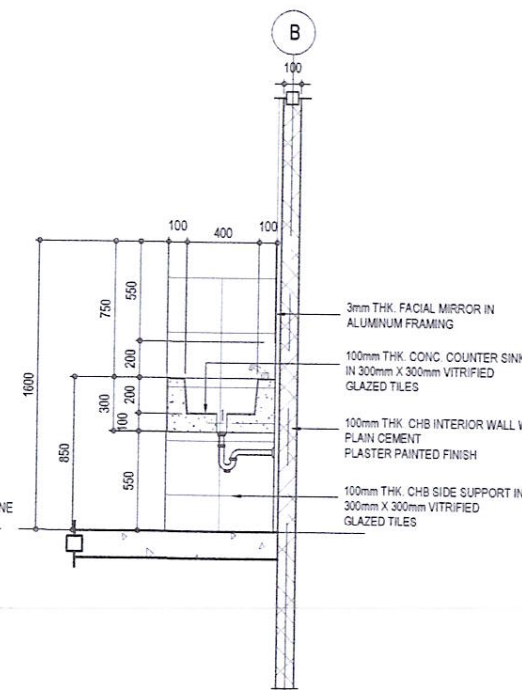


DETAILED ELEVATION



DETAILED SECTION

8 TYPICAL DETAIL OF HANDWASHING COUNTER
A-3 SCALE 1:20 M



9 LAVATORY DETAILS
A-2 SCALE 1:20 M

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION	SHEET CONTENTS	ARCHITECTURAL CONCEPT	SUBMITTED	RECOMMENDING APPROVAL	APPROVED	SET NO.	SHEET NO.
	DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	FLOOR PLAN ROOF PLAN FRONT AND REAR SIDE ELEVATION TYPICAL LEFT AND RIGHT SIDE ELEVATION LONGITUDINAL SECTION LAVATORY DETAILS HANDWASHING DETAILS	ARCHITECTURAL SECTION CADD: LARK MAVERICK E. DEVERAHEROSIE AL. (M. MAGAMIT) CHECKED: FRANCIS S. SERRANO OIC - ARCHITECT IV	JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	SEE COVER SHEET FOR SIGNATURE ARISTARCO M. DOROS OFFICER-IN-CHARGE BUREAU OF DESIGN	SEE COVER SHEET FOR SIGNATURE EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS	BOD B	A-3 3 13

DESIGN CRITERIA :

1.0 DEAD LOADS (DL) :

1.1 CONCRETE	24.00 kN/m ³
1.2 STEEL	77.00 kN/m ³
1.3 SOIL	16.00 kN/m ³
1.4 ROOFING & INSULATION	0.20 kPa
1.4 100MM THK. CHS WALL	2.10 kPa

2.0 LIVE LOADS (LL) :

2.1 ROOF	0.60 kPa
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3.0 WIND LOAD (WL)

THE WIND LOAD ON STRUCTURE AND BUILDING SHALL BE CALCULATED, BASED ON NATIONAL STRUCTURAL CODE OF THE PHILIPPINES, CONSIDERING BASIC WIND SPEED (3 SECOND GUST SPEED) EQUALS TO 94.44 M/SEC.

BASIC WIND SPEED, V	= 270 km/hour
OCCUPANCY CATEGORY	= 1
EXPOSURE CATEGORY	= B
VELOCITY PRESSURE AT HEIGHT 'Z', q_z	= $0.613K_zK_{zt}K_dV^2$ (N/m ²); V in m/s

WHERE, V IN KM/HOUR
 K_{zt} = TOPOGRAPHIC FACTOR = 1.00
 K_z = EXPOSURE COEFFICIENTS = $2.01(z/z_0)^{2/5}$
 z_0 = GRADIENT HEIGHT = 457M AND $\alpha = 5$
 AND, $QZ = 0.9683 \times 20.174$ IN KN/M²

THIS VELOCITY PRESSURE SHALL BE USED ALONG WITH FORCE COEFFICIENTS TO CALCULATE WIND LOAD ON SPECIFIC STRUCTURE.

IF LOCATION OF THE PROJECTS NOT APPLICABLE FOR THE GIVEN WIND SPEED ASSUMPTION, THE CONTRACTOR SHALL INFORM THE DESIGNER BEFORE CONSTRUCTION TO MAKE NECESSARY DESIGN REVISIONS.

4.0 MATERIALS

4.1 NORMAL WEIGHT CONCRETE :

CONCRETE USED IN THIS WORK SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH @ 28 DAYS AS FOLLOWS :

SLAB ON-GRADE, BEAM	$f_c' = 21$ MPa (3,000 PSI)
FOOTING, COLUMNS	$f_c' = 21$ MPa (3,000 PSI)

4.2 REINFORCING BARS :

UNLESS OTHERWISE SPECIFIED ON PLANS, REINFORCING BARS SHALL BE DEFORMED WITH A MINIMUM YIELD STRENGTH:
 ALL SIZES: $f_y = 276$ MPa (40,000 PSI)

4.3 STRUCTURAL STEEL :
 FOR ALL STEEL PIPES, BASE PLATES, GUSSET PLATES & BRACING.
 USE ASTM A36 STEEL $F_y = 248$ MPa (36,000 PSI)

4.4 WELDS :

USED E60XX ELECTRODES

4.5 BOLTS :

USED A307 THREADED & ANCHOR BOLTS
 $F_{nt} = 310$ MPa (44,000 Psi) $F_{nv} = 165$ MPa (23,000 Psi)

5.0 NOTES ON FOUNDATION

5.1 NO FOOTINGS SHALL REST ON FILL. PROVIDE 100MM THK PROPERLY WELL COMPACTED GRAVEL BED BEFORE CASTING.

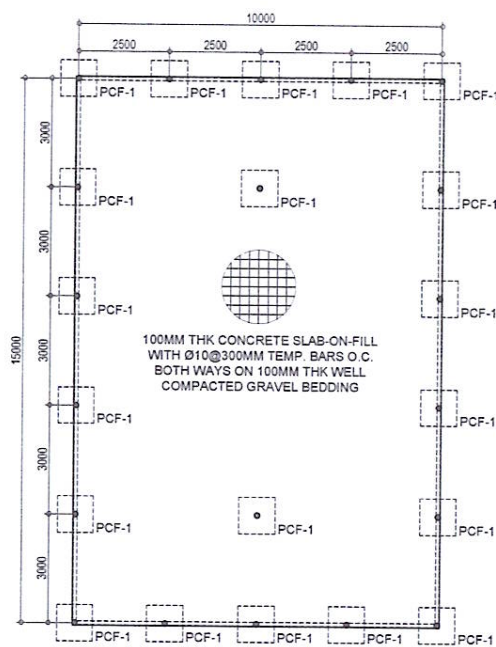
5.2 FOOTING SHALL REST AT LEAST 1M BELOW FINISH GRADE LINE.

5.3 FOOTING IS DESIGNED WITH AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY (SBC) OF 90kPa. IF LOCATION IS KNOWN OR FOUND OUT TO HAVE AN SBC OF LESS THAN THE ASSUMED, THE CONTRACTOR SHALL INFORM THE DESIGNER BEFORE CONSTRUCTION TO MAKE NECESSARY DESIGN REVISIONS.

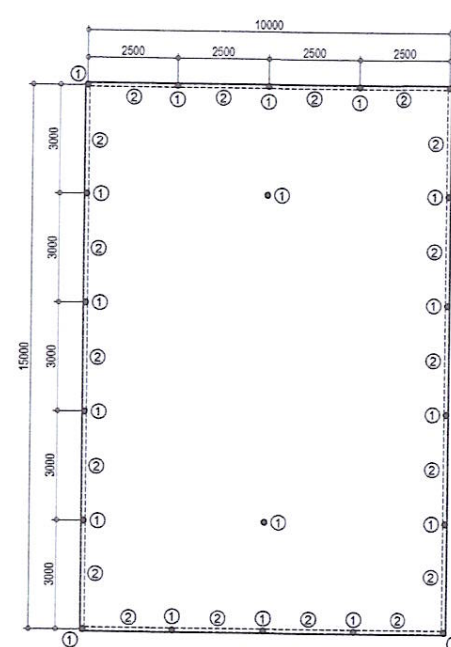
DESIGNATION	OUTSIDE DIAMETER	THICKNESS	AISC DESIGNATION	DIMENSION OF CIRCULAR PLATE
①	5"	0.47"	HSSP5X0.5	#250X10MM THK
②	3"	0.23"	HSSP3X0.25	#200X10MM THK
③	2.5"	0.23"	HSSP2.5X0.23	#200X10MM THK

NOTE ON SPlicing:

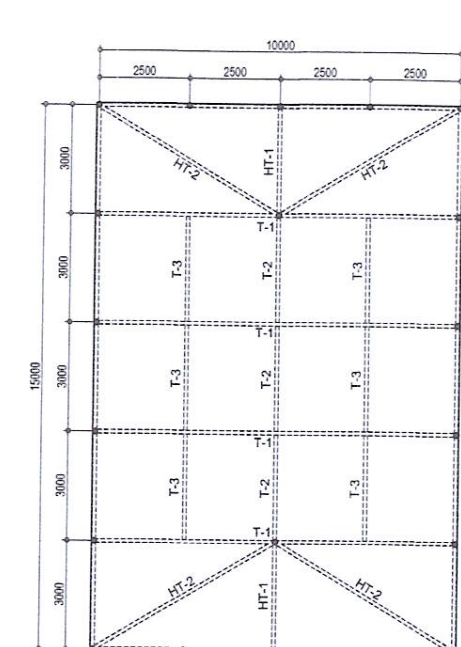
*SPlice LOCATION SHALL ONLY BE AT THE MIDDLE HALF BETWEEN JOINTS.



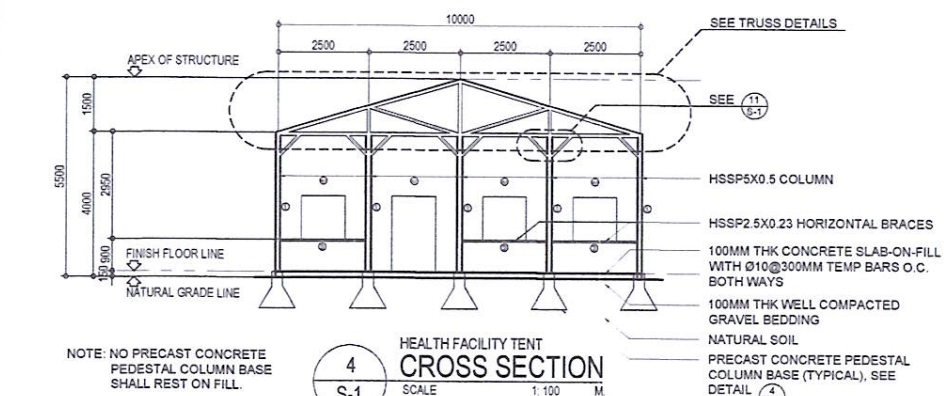
1 HEALTH FACILITY TENT
FOUNDATION PLAN
SCALE 1:100 M



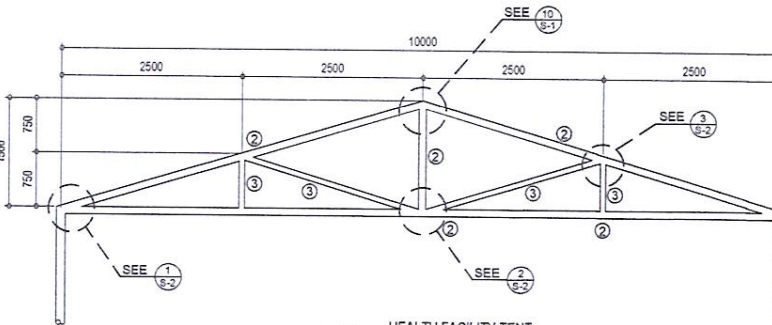
2 HEALTH FACILITY TENT
ROOF FRAMING PLAN
SCALE 1:100 M



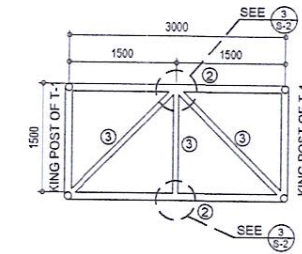
3 HEALTH FACILITY TENT
ROOF PLAN
SCALE 1:100 M



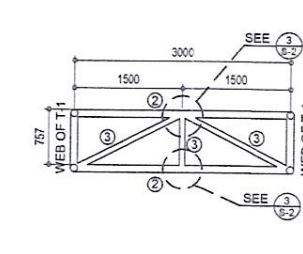
4 HEALTH FACILITY TENT
CROSS SECTION
SCALE 1:100 M



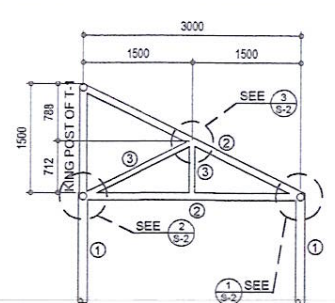
5 HEALTH FACILITY TENT
T-1 DETAIL
SCALE 1:50 M



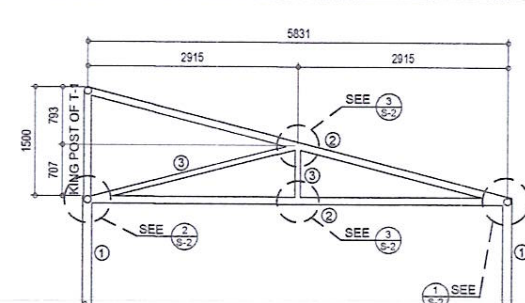
6 HEALTH FACILITY TENT
T-2 DETAIL
SCALE 1:50 M



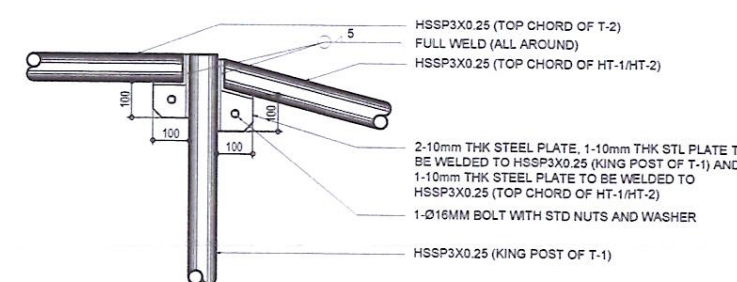
7 HEALTH FACILITY TENT
T-3 DETAIL
SCALE 1:50 M



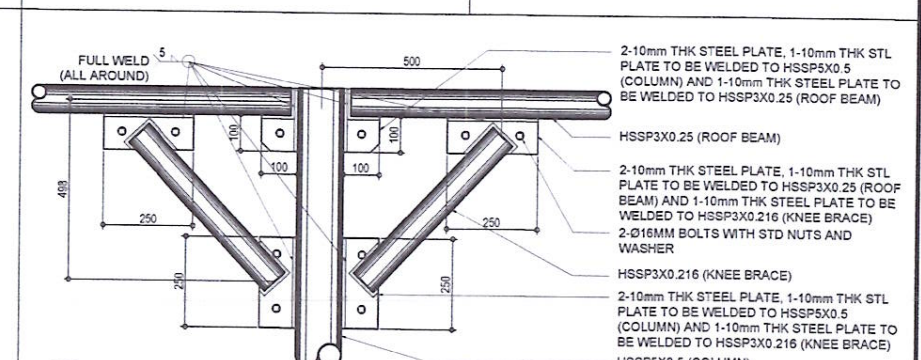
8 HEALTH FACILITY TENT
HT-1 DETAIL
SCALE 1:50 M



9 HEALTH FACILITY TENT
HT-2 DETAIL
SCALE 1:50 M



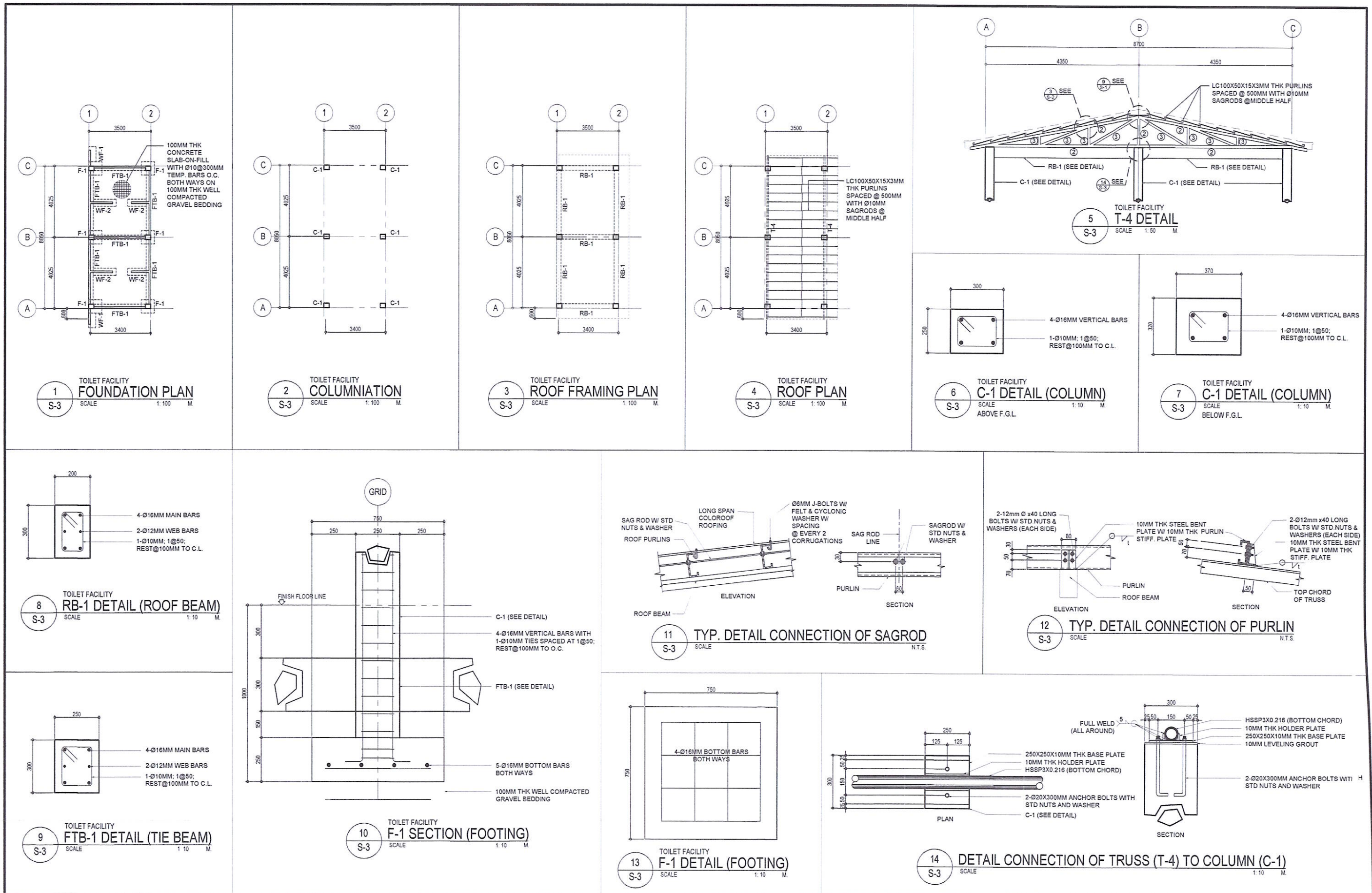
10 DETAIL CONNECTION OF TRUSS APEX
SCALE 1:10 M

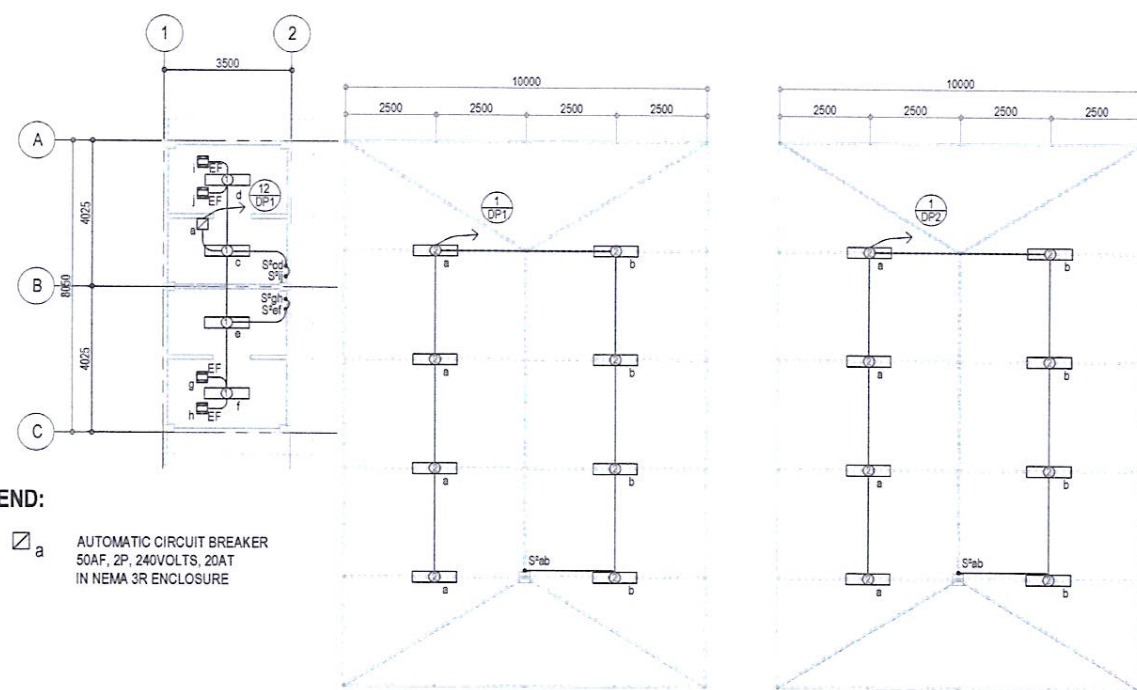


11 DETAIL CONNECTION OF ROOF BEAM TO PERIMETER COLUMN
SCALE 1:10 M

REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION:	SHEET CONTENTS:	STRUCTURAL CONCEPT:	SUBMITTED:	RECOMMENDING APPROVAL:	APPROVED:	SET NO.:	SHEET NO.:
	PROPOSED:	DESIGN CRITERIA	LUMINCCI D. TAN		SEE COVER SHEET FOR SIGNATURE	SEE COVER SHEET FOR SIGNATURE	BOD	S-1
	DPWH STANDARD	FOUNDATION, ROOF FRAMING, ROOF PLAN	CADD: JASON P. RAMILIN L. CARANDANG		ARISTARCO M. DOROS	EMIL K. SADAIN, CESO I		3
	TWO (2) UNITS HEALTH FACILITY TENT	CROSS SECTION DETAIL TRUSS DETAILS DETAIL CONNECTION OF TRUSS APEX DETAIL CONNECTION OF ROOF BEAM TO PERIMETER COLUMN	CHECKED: WILFREDO S. VALLO	JOSEPHINE P. ISTURIS	OFFICER-IN-CHARGE BUREAU OF DESIGN	UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS		13







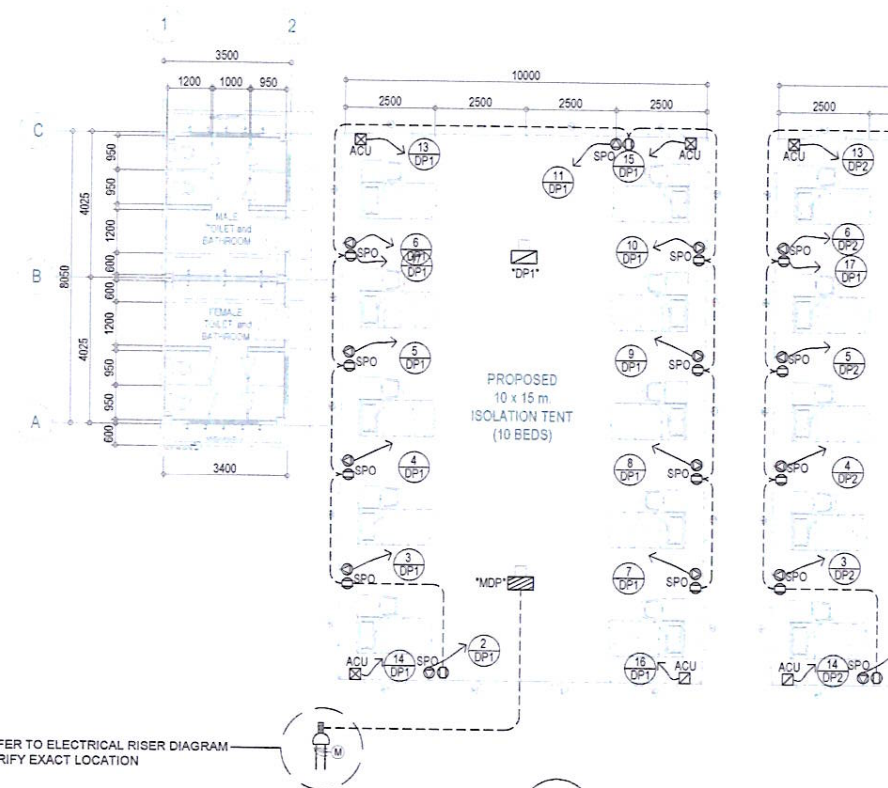
LEGEND:

 a
 AUTOMATIC CIRCUIT BREAKER
 50AF, 2P, 240VOLTS, 20AT
 IN NEMA 3R ENCLOSURE

NOTE:

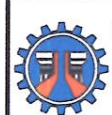
ALL LIGHTING OUTLETS, DUPLEX CONVENIENCE
 OUTLETS AND SPECIAL PURPOSE OUTLETS
 LOCATION ARE APPROXIMATE AND EXACT
 LOCATION SHALL BE VERIFIED ON SITE BY THE
 ELECTRICAL ENGINEER IN CHARGE OF THE
 ELECTRICAL INSTALLATION.

1 LIGHTING LAYOUT
 E-1 SCALE 1:100 M



REFER TO ELECTRICAL RISER DIAGRAM
 VERIFY EXACT LOCATION

2 POWER LAYOUT
 E-1 SCALE 1:100 M



REPUBLIC OF THE PHILIPPINES
 DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
 BUILDINGS DIVISION
 BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
 PROPOSED
 DPWH STANDARD
 TWO (2) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
 LIGHTING LAYOUT
 POWER LAYOUT

DESIGNED BY
 MARU BRYAN T. ZAPLAN
 ENGINEER II
 CADD
 MARU BRYAN T. ZAPLAN
 ENGINEER II
 CHECKED
 ERIBERTO B. SISON
 ENGINEER IV

SUBMITTED:
 JOSEPHINE P. ISTURIS
 CHIEF, BUILDINGS DIVISION

RECOMMENDING APPROVAL
 SEE COVER SHEET FOR SIGNATURE
 ARISTARCO M. DOROY
 OFFICER-IN-CHARGE
 BUREAU OF DESIGN

APPROVED:
 SEE COVER SHEET
 EMIL K. SA
 UNDERSECRETARY FOR
 AND UPMO

GENERAL NOTES:

- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISION OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND WITH THE REQUIREMENTS OF THE LOCAL POWER COMPANY.
- THE TYPE OF SERVICE POWER SUPPLY TO BE USED SHALL BE SINGLE-PHASE, 2-WIRE, 230V, 60 HERTZ, A.C.
- THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF SERVICE ENTRANCE FOR CONNECTION TO THE POWER COMPANY SERVICE POINT.
- UNLESS OTHERWISE SPECIFIED, THE MINIMUM SIZES OF WIRE AND GALVANIZED RIGID STEEL CONDUIT TO BE USED SHALL BE 3.5mm² THHN AND 15mm NOMINAL DIAMETER, RESPECTIVELY. LIKEWISE ALL ELECTRICAL WIRES SHALL BE COLOR-CODED.
- ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5 mm² IN SIZE.
- WHEREVER REQUIRED AND NECESSARY, PULL OR JUNCTION BOXES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATION, ALTHOUGH SUCH BOXES ARE NOT SHOWN ON THE PLAN NOR MENTIONED IN THE SPECIFICATIONS.
- ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE.
- ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR LOCATION AND PURPOSE.
- STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATIONS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LEVEL, UNLESS NOTED IN THE PLAN.
 - WALL SWITCHES @ 1300mm
 - WALL CONVENIENCE OUTLETS @ 300 mm
- ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE DIRECT AND IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

ELECTRICAL SYMBOLS

- 1-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, SURFACED CEILING MOUNTED
- 2-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, MOUNTED ON CEILING STEEL FRAME WITH APPROVED TYPE OF FITTINGS
- 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (15AMP, 250VOLTS)
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (25AMP, 250VOLTS) EF DENOTES EXHAUST FAN OUTLET
- SPECIAL PURPOSE OUTLET, GROUNDING TYPE (30AMP, 250VOLTS)
- AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 50AT IN NEMA 1 ENCLOSURE
- DISTRIBUTION PANEL
- DISTRIBUTION PANEL
- GENERATING SET, PORTABLE TYPE
- SERVICE KWHR METER
- MANUAL TRANSFER SWITCH
- UNDERGROUND OR UNDERFLOOR CONDUIT RUN
- CONCEALED OR EMBEDDED CONDUIT RUN
- CIRCUIT HOMERUN
- ⏏ GROUNDING SYSTEM

SCHEDULE OF WIRE, CONDUIT, AND ROD:

SERVICE WIRE AND CONDUIT:

- Y1 2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC.
- Y2 2 - 200mm² THHN + 1 - 30mm² THHN (G) IN 80mm Ø RSC.

GROUNDING WIRE AND CONDUIT:

- GW1 1 - 22 mm² THHN IN 25mm Ø PVC
- GW2 1 - 30 mm² THHN IN 25mm Ø PVC.

GROUNDING ROD:

- GR1 20mmØ x 2400mm LENGTH COPPERCLAD GROUNDING
- GR2 25mmØ x 3000mm LENGTH COPPERCLAD GROUNDING

OPTION 1: SINGLE-PHASE

SCHEDULE OF LOADS AND COMPUTATIONS:

DISTRIBUTION PANELBOARD "DP1"							
CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING			SIZE OF HOMERUN (WIRES IN CONDUIT)
				AF	P	AT	
1	LIGHTING OUTLETS	500	230	50	2	20	2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
2	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
3	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
4	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
5	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
6	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
7	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
8	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
9	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
10	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
11	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
12	LIGHTING OUTLETS	1500	230	50	2	20	2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 20mm Ø C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 20mm Ø C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 20mm Ø C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 20mm Ø C
17	CONVENIENCE OUTLET	1500	230	50	2	20	2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø C
18	SPARE	1500	230	50	2	20	_____
TOTAL CONNECTED LOADS		51160	MAIN ACB 225AF, 3P, 240V, 200 AT, 25kAIC				
$I_L @ 70\% D.F. = \left(\frac{51160}{230} \right) (0.70) + (0.25)(23) = 161.45 \text{ AMPERES}$							
USE 2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC (161.45A / 205A)							

DISTRIBUTION PANELBOARD "DP2"							
CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING			SIZE OF HOMERUN (WIRES IN CONDUIT)
				AF	P	AT	
1	LIGHTING OUTLETS	500	230	50	2	20	2 - 3.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
2	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
3	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
4	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
5	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
6	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
7	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
8	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
9	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
10	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
11	SPECIAL PURPOSE OUTLETS	2500	230	50	2	30	2 - 5.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
12	SPARE	1500	230	50	2	20	-----
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm ² THHN + 1 - 5.5mm ² THHN (G) IN 20mm Ø C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm ² THHN + 1 - 5.5mm ² THHN (G) IN 20mm Ø C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm ² THHN + 1 - 5.5mm ² THHN (G) IN 20mm Ø C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm ² THHN + 1 - 5.5mm ² THHN (G) IN 20mm Ø C
17	CONVENIENCE OUTLET	1800	230	50	2	20	2 - 3.5mm ² THHN + 1 - 3.5mm ² THHN (G) IN 15mm Ø C
18	SPARE	1500	230	50	2	20	-----
TOTAL CONNECTED LOADS		51160	MAIN ACB 225AF, 3P, 240V, 200 AT, 25kAIC				
$I_L @ 70\% D.F. = \left(\frac{51160}{230} \right) (0.70) + (0.25)(23) = 161.45 \text{ AMPERES}$							
USE 2 - 80mm ² THHN + 1 - 22mm ² THHN (G) IN 50mm Ø RSC (161.45A / 205A)							

MAIN DISTRIBUTION PANELBOARD "MDP"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING			SIZE OF HOMERUN (WIRES IN CONDUIT)
				AF	P	AT	
1	"DP1"	51160	230	225	2	200	2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC
2	"DP2"	51160	230	225	2	200	2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC
3	SPARE	4500	230	100	2	40	
TOTAL CONNECTED LOADS		106820	MAIN ACB 400AF, 2P, 240V, 350AT, 42kAIC				
$I_L @ 70\% D.F. = \left(\frac{106820}{230} \right) (0.70) + (0.25)(23) = 330.85 \text{ AMPERES}$							
USE 2 - 200mm² THHN + 1 - 30mm² THHN (G) IN 80mm Ø RSC (330.85A / 355A)							

REQUIRED CAPACITY OF TRANSFORMER BANK:

TOTAL VA = 106820

$$I = \frac{VA}{230} = \frac{106820}{230}$$

I = 464.43 AMPS

$$KVA = \frac{EI(D.F.)}{1000 (DIV.F.)}$$

@ DIVERSITY FACTOR = 1.10
DEMAND FACTOR = 85%

$$KVA = \frac{(230)(464.43)(0.85)}{1000 (1.10)}$$

= 82.54 KVA

USE: ONE(1)- 100 KVA, 34.5KV/230V, 1Ø, 60Hz., A.C.
OISC, POLE MOUNTED DISTRIBUTION TRANSFORMERS

REQUIRED CAPACITY OF GENERATING SET:(PROVISION)

$$I = \frac{VA}{230} = \frac{106820}{230}$$

I = 464.43 AMPS

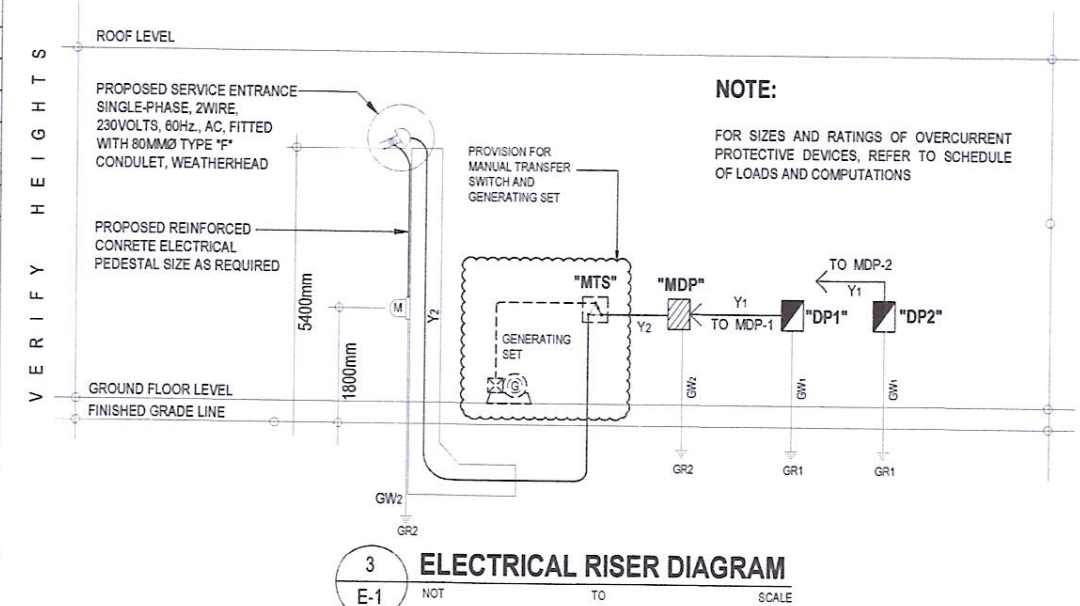
$$KVA = \frac{EI}{1000} @ DIV. FACTOR = 1.10$$

DEMAND FACTOR = 90%

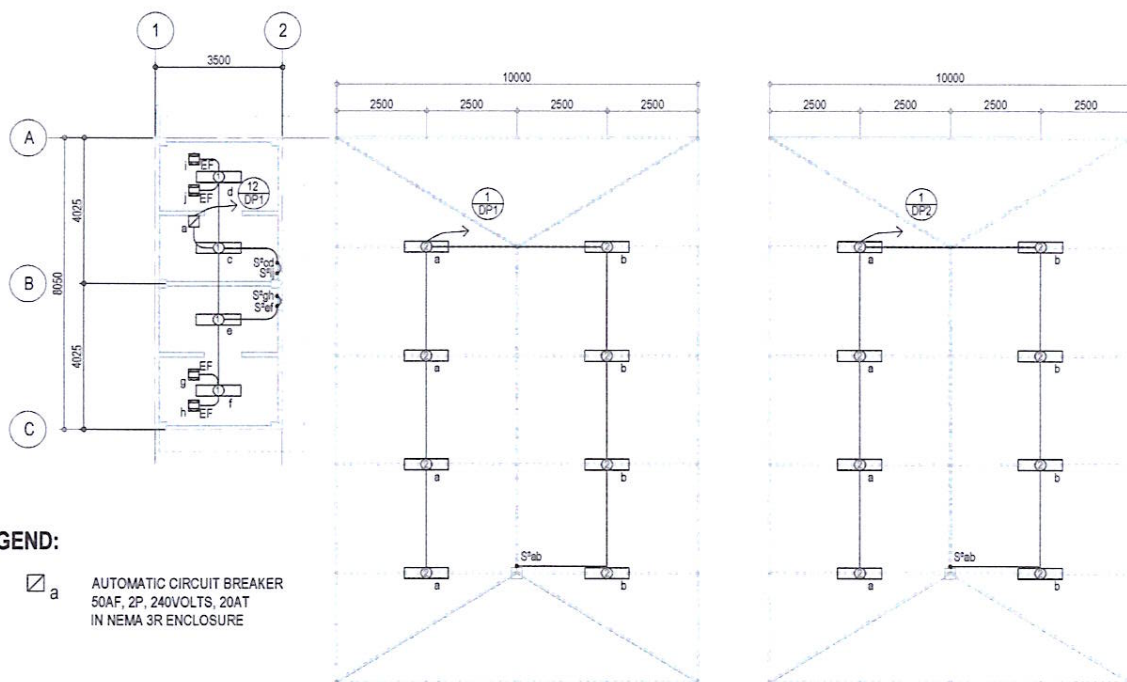
$$KVA = \frac{(230)(464.43)(0.90)}{1000 (1.10)}$$

= 87.40 kVA

USE: ONE(1)- 100 KVA, 230V, 1Ø, 80% P.F., 1800 RPM, 60Hz., A.C.
PAD MOUNTED DIESEL ENGINE GENERATING SET



 BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION: DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	SHEET CONTENTS: GENERAL NOTES ELECTRICAL SYMBOLS SCHEDULE OF WIRES, CONDUITS, AND RODS SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM	DESIGNED BY: MARU BRYAN T. ZAPLAN ENGINEER II CADD: MARU BRYAN T. ZAPLAN ENGINEER II CHECKED: ERIBERTO B. SISON ENGINEER IV	SUBMITTED: JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	RECOMMENDING APPROVAL: ARISTARCO M. DOROY OFFICER-IN-CHARGE BUREAU OF DESIGN	APPROVED: EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS	SET NO.: B	SHEET NO.: 2 13



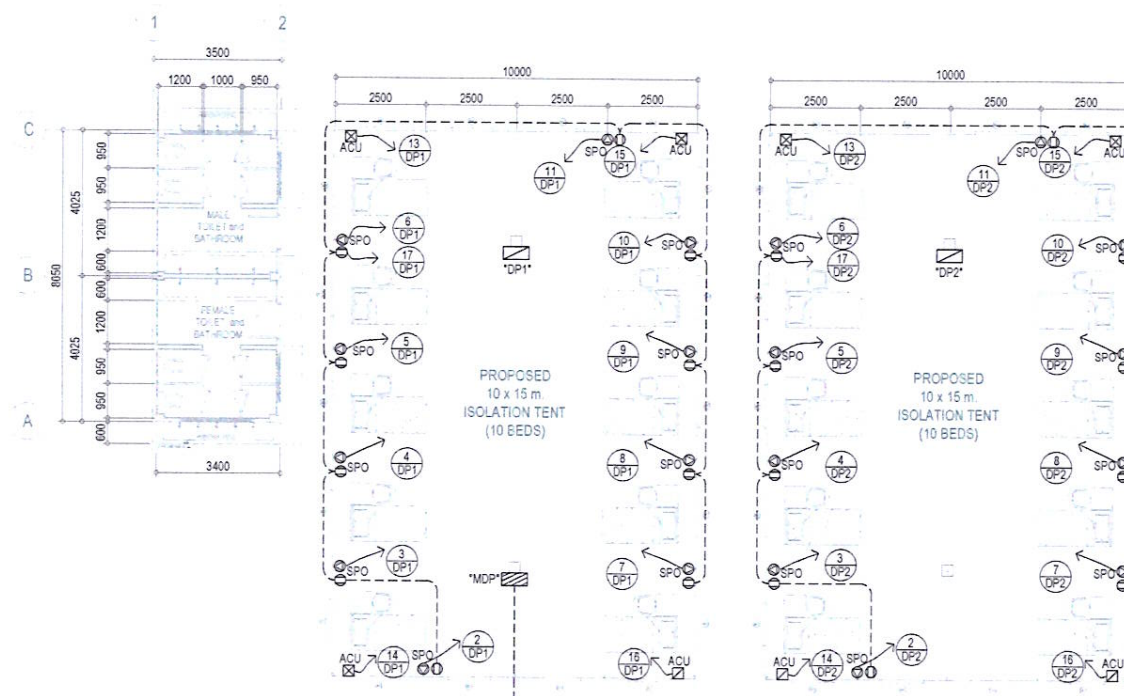
LEGEND:

 **a** AUTOMATIC CIRCUIT BREAKER
50AF, 2P, 240VOLTS, 20AT
IN NEMA 3R ENCLOSURE

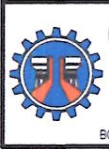
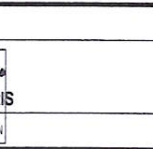
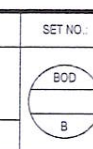
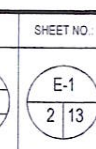
NOTE:

ALL LIGHTING OUTLETS, DUPLEX CONVENIENCE OUTLETS AND SPECIAL PURPOSE OUTLETS LOCATION ARE APPROXIMATE AND EXACT LOCATION SHALL BE VERIFIED ON SITE BY THE ELECTRICAL ENGINEER IN CHARGE OF THE ELECTRICAL INSTALLATION.

1 LIGHTING LAYOUT
E-1 SCALE 1:100 M



2 POWER LAYOUT
E-1 SCALE 1:100 M

 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION: PROPOSED: DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	SHEET CONTENTS: LIGHTING LAYOUT POWER LAYOUT	DESIGNED BY: MARU BRYAN T. ZAPLAN ENGINEER II CADD: MARU BRYAN T. ZAPLAN ENGINEER II CHECKED: ERIBERTO B. SIDSON ENGINEER IV	SUBMITTED:  JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	RECOMMENDING APPROVAL: SEE COVER SHEET FOR SIGNATURE ARISTARCO M. DOROY OFFICER-IN-CHARGE BUREAU OF DESIGN	APPROVED: SEE COVER SHEET FOR SIGNATURE EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS	SET NO.:  B SHEET NO.:  2 13
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GENERAL NOTES:

- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH THE PROVISION OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, EXISTING APPLICABLE ORDINANCES, RULES AND REGULATIONS OF THE LOCAL GOVERNMENT AND WITH THE REQUIREMENTS OF THE LOCAL POWER COMPANY.
- THE TYPE OF SERVICE POWER SUPPLY TO BE USED SHALL BE THREE-PHASE, 3-WIRE, 230V, 60 HERTZ, A.C.
- THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF SERVICE ENTRANCE FOR CONNECTION TO THE POWER COMPANY SERVICE POINT.
- UNLESS OTHERWISE SPECIFIED, THE MINIMUM SIZES OF WIRE AND GALVANIZED RIGID STEEL CONDUIT TO BE USED SHALL BE 3.5mm² THHN AND 15mm NOMINAL DIAMETER, RESPECTIVELY. LIKEWISE ALL ELECTRICAL WIRES SHALL BE COLOR-CODED.
- ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5 mm² IN SIZE.
- WHEREVER REQUIRED AND NECESSARY, PULL OR JUNCTION BOXES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATION, ALTHOUGH SUCH BOXES ARE NOT SHOWN ON THE PLAN NOR MENTIONED IN THE SPECIFICATIONS.
- ALL NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT SHALL BE PROPERLY GROUNDED IN ACCORDANCE WITH THE PROVISIONS OF THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE.
- ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR LOCATION AND PURPOSE.
- STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATIONS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LEVEL UNLESS NOTED IN THE PLAN.
 - WALL SWITCHES @ 1300mm
 - WALL CONVENIENCE OUTLETS @ 300 mm
- ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE DIRECT AND IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

ELECTRICAL SYMBOLS

- 1-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, SURFACED CEILING MOUNTED
 2-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, MOUNTED ON CEILING STEEL FRAME WITH APPROVED TYPE OF FITTINGS
 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (15AMPS, 250VOLTS)
 DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (15AMPS, 250VOLTS) or DENOTES EXHAUST FAN OUTLET
 SPECIAL PURPOSE OUTLET, GROUNDING TYPE (15AMPS, 250VOLTS)
 AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 50AT IN NEMA 1 ENCLOSURE
 DISTRIBUTION PANEL
 DISTRIBUTION PANEL
 GENERATING SET, PORTABLE TYPE
 SERVICE KWHR METER
 MANUAL TRANSFER SWITCH
 UNDERGROUND OR UNDERFLOOR CONDUIT RUN
 CONCEALED OR EMBEDDED CONDUIT RUN
 CIRCUIT HOMERUN
 GROUNDING SYSTEM

SCHEDULE OF WIRE, CONDUIT, AND ROD:

SERVICE WIRE AND CONDUIT:

- Y1 3 - 50mm² THHN + 1 - 14mm² THHN (G) in 50mm Ø RSC.
 Y2 3 - 80mm² THHN + 1 - 22mm² THHN (G) in 50mm Ø RSC.

GROUNDING WIRE AND CONDUIT:

- GW1 1 - 14 mm² THHN in 25mm Ø PVC
 GW2 1 - 22 mm² THHN in 25mm Ø PVC.

GROUNDING ROD:

- GR1 20mmØ x 2400mm LENGTH COPPERCLAD GROUNDING
 GR2 25mmØ x 3000mm LENGTH COPPERCLAD GROUNDING

SCHEDULE OF LOADS AND COMPUTATIONS:

OPTION 2: THREE-PHASE

DISTRIBUTION PANELBOARD "DP1"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE			VOLTS	BRANCH BREAKER RATING			SIZES OF HOMERUN (WIRES AND CONDUIT)
			AB	BC	CA		AF	P	AT	
1	LIGHTING OUTLETS	500	500			230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
2	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
3	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
4	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
5	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
6	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
7	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
8	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
9	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
10	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
11	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
12	LIGHTING OUTLETS	1500		1500		230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	5290			230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	5290			230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
17	CONVENIENCE OUTLET	1500			1500	230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
18	SPARE	1500		1500		230	50	2	20	
TOTAL CONNECTED LOADS		51160	16580	15790	15790	MAIN ACB 225AF, 150AT, 3P, 240 V, 25kAIC				
$I_L @ 70\% D.F. = 1.732 \left[\left(\frac{16580}{230} \right) (0.7) + (0.25) (23) \right] = 107.90 \text{ AMPS}$										
USE 3 - 50 mm ² THHN + 1 - 14 mm ² THHN (G) in 50mm Ø RSC (107.90A / 150A)										

DISTRIBUTION PANELBOARD "DP2"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE			VOLTS	BRANCH BREAKER RATING			SIZES OF HOMERUN (WIRES AND CONDUIT)
			AB	BC	CA		AF	P	AT	
1	LIGHTING OUTLETS	500		500		230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
2	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
3	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
4	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
5	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
6	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
7	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
8	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
9	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
10	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
11	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
12	SPARE	1500	1500			230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	5290			230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	2 - 8.0 mm ² THHN + 1 - 5.5mm ² THHN(G) in 20mmØ C
17	CONVENIENCE OUTLET	1500			1500	230	50	2	20	2 - 3.5 mm ² THHN + 1 - 3.5mm ² THHN(G) in 15mmØ C
18	SPARE	1500	1500			230	50	2	20	
TOTAL CONNECTED LOADS		51160	15790	16580	16790	MAIN ACB 225AF, 150AT, 3P, 240 V, 25kAIC				
$I_L @ 70\% D.F. = 1.732 \left[\left(\frac{16580}{230} \right) (0.7) + (0.25) (23) \right] = 107.90 \text{ AMPS}$										
						USE 3 - 50 mm ² THHN + 1 - 14 mm ² THHN (G) in 50mm Ø RSC (107.90A / 150A)				

MAIN DISTRIBUTION PANELBOARD: "MDP"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE			VOLTS	BRANCH BREAKER RATING			SIZES OF HOMERUN (WIRES AND CONDUIT)
			AB	BC	CA		AF	P	AT	
1	"DP1"	51160	18580	15790	16790	230	100	3	150	3 - 50mm ² THHN + 1 - 14 mm ² THHN (G) in 50mm Ø C.
2	"DP2"	51160	15790	18580	16790	230	100	3	150	3 - 50mm ² THHN + 1 - 14 mm ² THHN (G) in 50mm Ø C.
3	SPARE	4500	1500	1500	1500	230	100	3	40	
TOTAL CONNECTED LOADS		106820	35870	35870	35800	MAIN ACB 225AF, 3P, 240V, 225kAIC				
$I_L @ 70\% D.F. = 1.732 \left(\frac{35870}{230} \right) (0.70) + (0.25) (23) = 199.05 \text{ AMPS}$										
USE 3 - 80 mm ² THHN + 1 - 22 mm ² THHN (G) in 50 mm Ø RSC. (199.05A / 205A)										

REQUIRED CAPACITY OF TRANSFORMER BANK:

TOTAL VA = 35870

$$I = \frac{\sqrt{3} (VA)}{230} = \frac{\sqrt{3} (35870)}{230}$$

I = 270.12 AMPS

$$KVA = \frac{\sqrt{3} E I (D.F.)}{1000 (DIV.F.)}$$

@ DIVERSITY FACTOR = 1.10
DEMAND FACTOR = 85%

$$KVA = \frac{\sqrt{3} (230) (270.12) (0.85)}{1000 (1.10)}$$

= 83.15 KVA

USE: ONE(1) - 100 KVA, 34.5KV/230V, 3Ø, 60Hz., A.C.
OISC, POLE MOUNTED DISTRIBUTION TRANSFORMERS

REQUIRED CAPACITY OF GENERATING SET:

$$I = \frac{\sqrt{3} (VA)}{230} = \frac{\sqrt{3} (35870)}{230}$$

$$I = 270.12 \text{ AMPS}$$

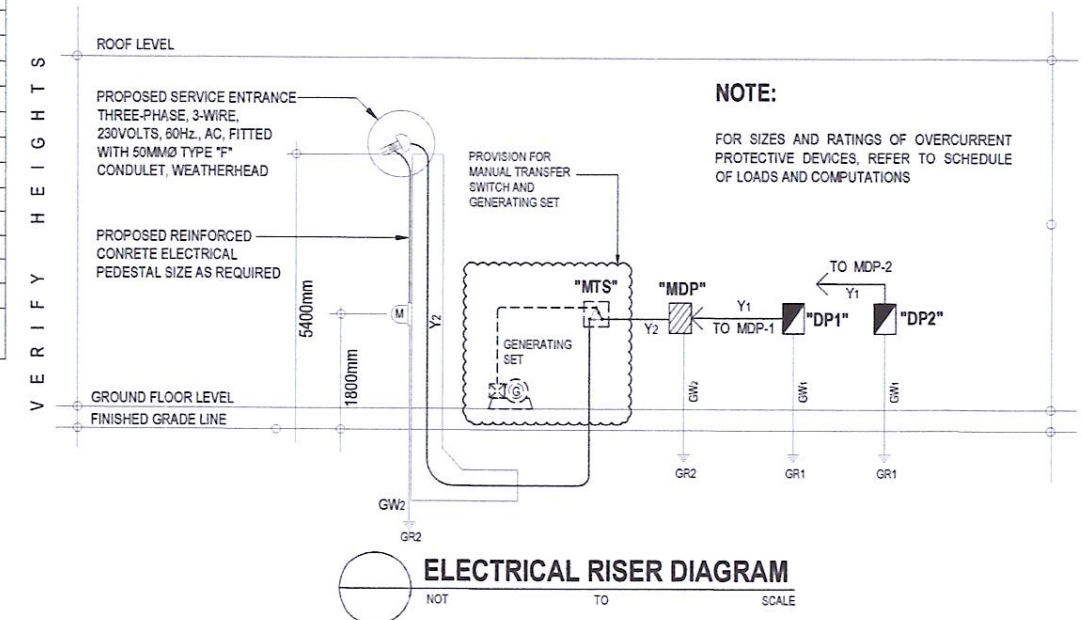
$$KVA = \frac{\sqrt{3} E I}{1000}$$

@ DIV. FACTOR = 1.10
DEMAND FACTOR = 90%

$$KVA = \frac{\sqrt{3} (230) (270.12) (0.90)}{1000 (1.10)}$$

= 88.04 KVA

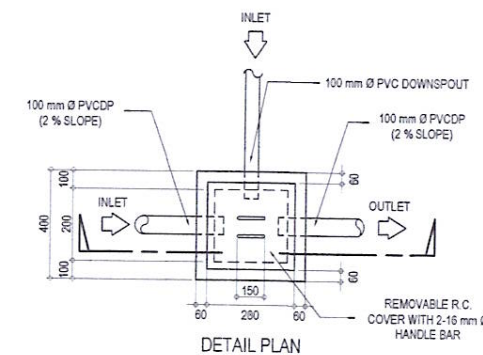
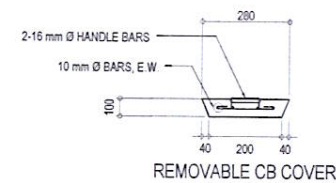
USE: ONE(1) - 100 KVA, 230V, 3Ø, 60%, P.F., 1800 RPM, 60Hz., A.C.
PAD MOUNTED DIESEL ENGINE GENERATING SET



REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION:	SHEET CONTENTS:	DESIGNED BY:	SUBMITTED:	RECOMMENDING APPROVAL:	APPROVED:	SET NO.:	SHEET NO.:
	PROPOSED:	GENERAL NOTES ELECTRICAL SYMBOLS SCHEDULE OF WIRES, CONDUITS, AND RODS SCHEDULE OF LOADS AND COMPUTATIONS ELECTRICAL RISER DIAGRAM	CADD:					
	DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT		MARU BRYAN T. ZAPLAN ENGINEER II					
			CHECKED: ERIBERTO B. SIDSON ENGINEER IV	JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	ARISTARCO M. DOROS OFFICER-IN-CHARGE BUREAU OF DESIGN	EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS		

1. GRADES OF HORIZONTAL PIPING
RUN ALL HORIZONTAL PIPINGS IN PERFECT ALIGNMENT AND AT A FORM GRADE OF NOT LESS THAN TWO PERCENT (2%)
2. CHANGE IN DIRECTION
ALL CHANGE IN DIRECTION SHALL BE MADE BY APPROPRIATE USE OF FORTY FIVE DEGREES (45°) WYES, LONGSWEEP QUARTER BEND, SIX- EIGHT OR SIXTEENTH BENDS (WHEN THE CHANGE OF FLOW IS FROM HORIZONTAL TO VERTICAL, 18 BEND COMBINATION MAYBE USED ON VERTICAL STACKS AND SHORT QUARTER BENDS MAYBE USED ON WASTE LINE. TEE AND CROSSES MAYBE USED IN VENT PIPES
3. PROHIBITED FITTINGS
NO DOUBLE HUB OR TEE BRANCH SHALL BE USED ON HORIZONTAL WASTE LINES. THE DRILLINGS AND TAPPINGS OF HOUSE DRAIN, WASTE OR VENT PIPES AND USE OF SADDLE HUB AND BEND ARE PROHIBITED.
4. SLEEVES
PROVIDE PIPE SLEEVES AT WALLS, COLUMNS OR SLABS ONE SIZE BIGGER THAN THE ACTUAL SIZE PASSING THRUH THE WALLS, COLUMNS OR UNDER SLAB TO PROTECT PIPE FROM BREAKAGE
5. PIPE CLEAN-OUTS
PIPE CLEAN-OUTS ARE REQUIRED UNDER THE FOLLOWING CONDITIONS
 - a. EVERY CHANGE IN HORIZONTAL DIRECTIONS EXCEEDING TWENTY-TWO (22) AND ONE-HALF DEGREES (22 1/2°)
 - b. ONE AND ONE-HALF METERS (1.50 m) INSIDE THE PROPERTY LINE BEFORE THE HOUSE DRAINAGE CONNECTION.
 - c. EVERY FIFTY METERS (150.0 m) IN HORIZONTAL RUN OF PIPES.
 - d. AT THE END OF ANY HORIZONTAL PIPE LINES
6. THE DIGESTION CHAMBER OF SEPTIC VAULT MUST BE WATERPROOFED.
7. NOT LESS THAN 300 mm OF AIR SPACE MUST BE LEFT BETWEEN THE TOP OF THE SEWAGE AND THE UNDER PART OF THE VAULT ROOF SLAB.
8. NO SEPTIC VAULT MUST BE CONSTRUCTED UNDER THE BUILDING.
9. ALL PLUMBING WORKS SHALL BE DONE BY A LICENSED MASTER PLUMBER AND A LICENSED PLUMBING CONTRACTOR

CO	CLEAN CUT
FD	FLOOR DRAIN
FAU	FAUCET
GV	GATE VALVE
LD	LAVATORY DRAIN
MH	MANHOLE
PPRC CWL	POLYPROPYLENE RANDOM COPOLYMER COLD WATER LINE TYPE 3, PN 20 (EN ISO 15874 / JOINTED BY FUSION WELDING)
PVCDP	POLYVINYL CHLORIDE DRAINAGE PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCDS	POLYVINYL CHLORIDE DOWNSPOUT (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCSP	POLYVINYL CHLORIDE SOIL PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
PVCVP	POLYVINYL CHLORIDE VENT PIPE (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
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SD	SHOWER DRAIN
SH	SHOWER HEAD
WC	WATER CLOSET

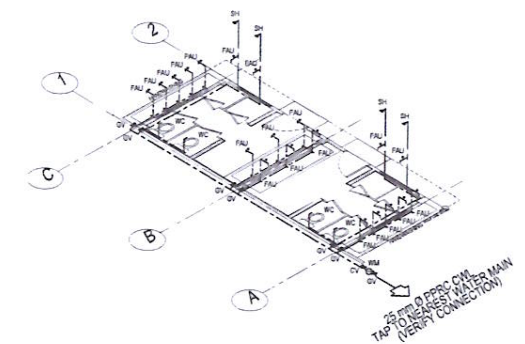
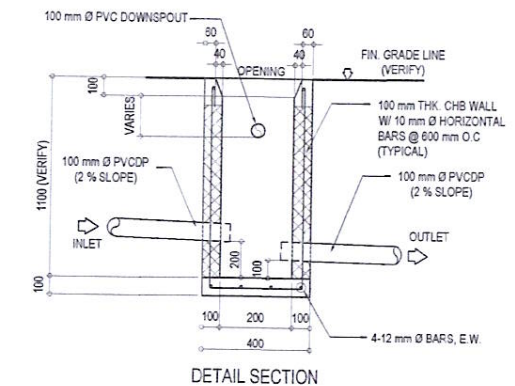


6
P-1

DETAIL OF CATCH BASIN

SCALE

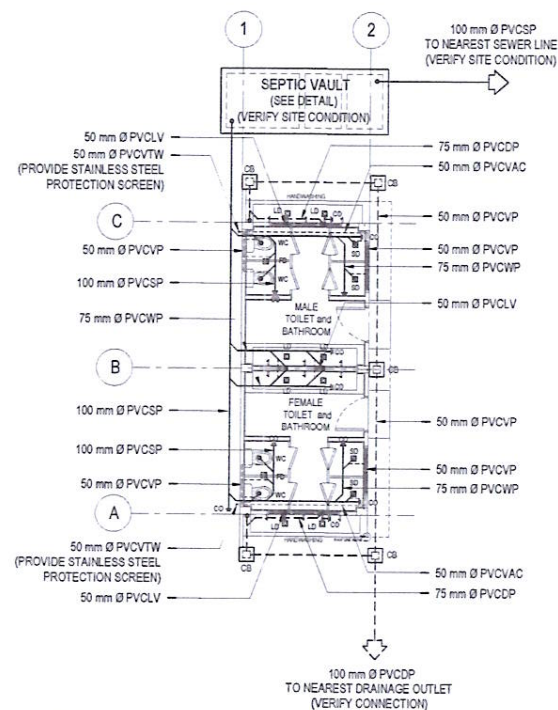
NTS



5
P-1

ISOMETRIC DIAGRAM (WATER LINE LAYOUT)

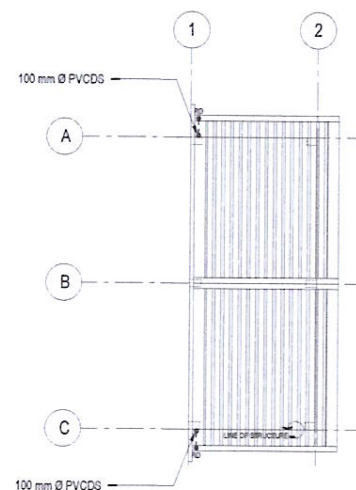
SCALE _____ NTS



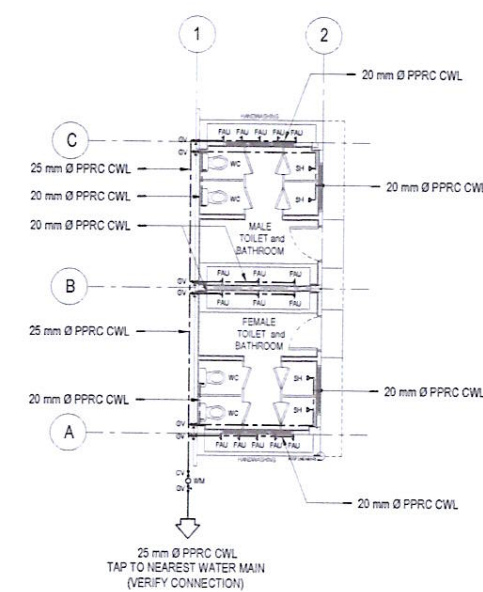
1
P-1

FLOOR PLAN (SEWER AND DRAINAGE LAYOUT)

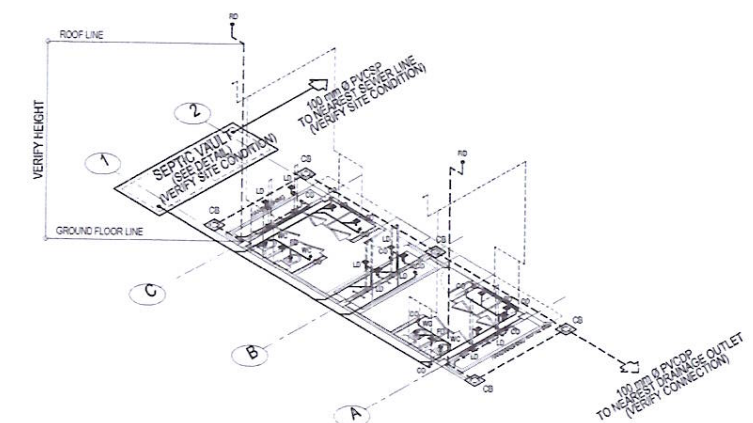
SCALE 1:100 M.



2 ROOF PLAN (DRAINAGE LAYOUT)
P-1 SCALE 1:100 M.



3 FLOOR PLAN (WATER LINE LAYOUT)



4
P-1

ISOMETRIC DIAGRAM (SEWER AND DRAINAGE LAYOUT)

SCALE _____ NTS

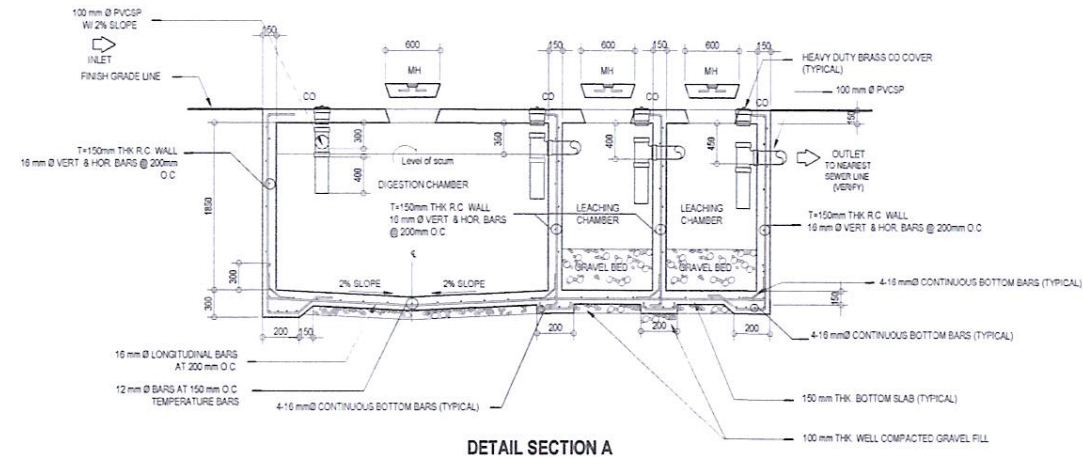
 REPUBLIC OF THE PHILIPPINES DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS BUREAU OF DESIGN BUILDINGS DIVISION BONIFACIO DRIVE PORT AREA, MANILA	PROJECT AND LOCATION	SHEET CONTENTS	DESIGNED BY: REUBEN C. RAMOS ENGINEER II	SUBMITTED:	RECOMMENDING APPROVAL:	APPROVED:	SET NO.:	SHEET NO.
	PROPOSED:	PLUMBING NOTES AND PLUMBING LEGEND FLOOR PLAN SEWER AND DRAINAGE LAYOUT WATER LINE LAYOUT ISOMETRIC DIAGRAM SEWER AND DRAINAGE LAYOUT WATER LINE LAYOUT ROOF PLAN DRAINAGE LAYOUT DETAIL OF CATCH BASIN	CADD: REUBEN C. RAMOS ENGINEER II	 JOSEPHINE P. ISTURIS CHIEF, BUILDINGS DIVISION	SEE COVER SHEET FOR SIGNATURE ARISTARCO M. DOROY OFFICER-IN-CHARGE BUREAU OF DESIGN	SEE COVER SHEET FOR SIGNATURE EMIL K. SADAIN, CESO I UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS.		
	DPWH STANDARD TWO (2) UNITS HEALTH FACILITY TENT	CHECKED: FRANCIS G. SERRANO C/O - ARCHITECT IV						

PLUMBING NOTES:

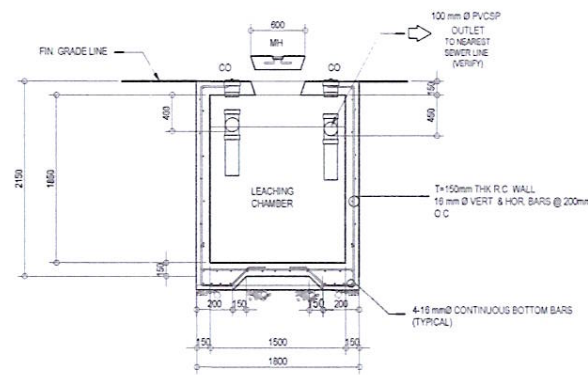
- GRADES OF HORIZONTAL PIPING
RUN ALL HORIZONTAL PIPINGS IN PERFECT ALIGNMENT AND AT A FORM GRADE OF NOT LESS THAN TWO PERCENT (2%).
- CHANGE IN DIRECTION
ALL CHANGE IN DIRECTION SHALL BE MADE BY APPROPRIATE USE OF FORTY FIVE DEGREES (45°) WYES, LONGSWEEP QUARTER BEND, SIX-EIGHT OR SIXTEENTH BENDS. WHEN THE CHANGE OF FLOW IS FROM HORIZONTAL TO VERTICAL, 1/8 BEND COMBINATION MAYBE USED ON VERTICAL STACKS AND SHORT QUARTER BENDS MAYBE USED ON WASTE LINE. TEE AND CROSSES MAYBE USED IN VENT PIPES.
- PROHIBITED FITTINGS
NO DOUBLE HUB OR TEE BRANCH SHALL BE USED ON HORIZONTAL WASTE LINES. THE DRILLINGS AND TAPPINGS OF HOUSE DRAIN, WASTE OR VENT PIPES AND USE OF SADDLE HUB AND BEND ARE PROHIBITED.
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- PIPE CLEAN-OUTS
PIPE CLEAN-OUTS ARE REQUIRED UNDER THE FOLLOWING CONDITIONS:
a. EVERY CHANGE IN HORIZONTAL DIRECTIONS EXCEEDING TWENTY-TWO AND ONE-HALF DEGREES (22 1/2°)
b. ONE AND ONE-HALF METERS (1.50 m) INSIDE THE PROPERTY LINE BEFORE THE HOUSE DRAINAGE CONNECTION.
c. EVERY FIFTEEN METERS (15.00 m) IN HORIZONTAL RUN OF PIPES.
d. AT THE END OF ANY HORIZONTAL PIPE LINES.
- THE DIGESTION CHAMBER OF SEPTIC VAULT MUST BE WATERPROOFED.
- NOT LESS THAN 300 mm OF AIR SPACE MUST BE LEFT BETWEEN THE TOP OF THE SEWAGE AND THE UNDER PART OF THE VAULT ROOF SLAB.
- NO SEPTIC VAULT MUST BE CONSTRUCTED UNDER THE BUILDING.
- ALL PLUMBING WORKS SHALL BE DONE BY A LICENSED MASTER PLUMBER AND A LICENSED PLUMBING CONTRACTOR.

PLUMBING LEGEND:

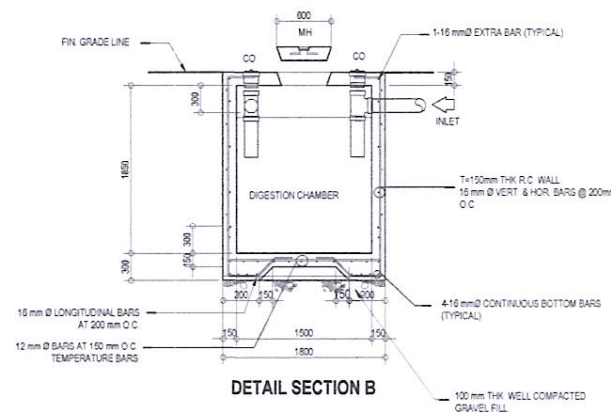
CO	CLEAN OUT
FD	FLOOR DRAIN
FAU	FAUCET
GV	GATE VALVE
LD	LAVATORY DRAIN
MH	MANHOLE
PPRC CWL	POLYPROPYLENE RANDOM COPOLYMER COLD WATER LINE, TYPE 3, PN 20 (EN ISO 15874 / JOINTED BY FUSION WELDING)
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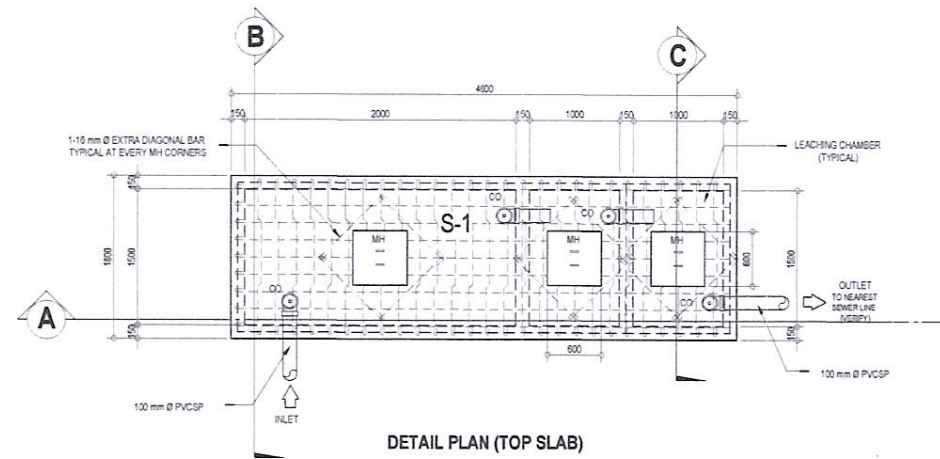
DETAIL SECTION A



DETAIL SECTION C



DETAIL SECTION B



DETAIL PLAN (TOP SLAB)

SCHEDULE OF TOP/BOTTOM SLAB REINFORCEMENT

MARK	THICKNESS	TOP SLAB	
		PARALLEL TO SHORT SPAN	PARALLEL TO LONG SPAN
S - 1	125-TOPPING	12 mm Ø BARS @ 250 mm O. C. BENT-UP 2 OUT OF 3 @ 1/4 FROM FACE OF SUPPORT AND 12mm Ø BARS @ 180mm O. C. ADDITIONAL TOP BARS CUT-OFF @ 1/4 OF SUPPORT.	12 mm Ø BARS @ 200 mm O. C. TEMPERATURE BARS
MARK	THICKNESS	BOTTOM SLAB	
		SHORT DIRECTION	PARALLEL TO LONG SPAN
SEE DETAIL SECTION A	150-TOPPING +WP	16 mm Ø BARS @ 200 mm O. C. BOTTOM BARS	16 mm Ø BARS @ 200 mm O. C. BOTTOM BARS

1

P-2

DETAIL OF SEPTIC VAULT (with REINFORCING BARS)

SCALE

NTS



REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
BUREAU OF DESIGN
BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
PROPOSED:
**DPWH STANDARD
TWO (2) UNITS HEALTH FACILITY TENT**

SHEET CONTENTS:
PLUMBING NOTES
PLUMBING LEGEND
DETAIL OF SEPTIC VAULT
SCHEDULE OF TOP / BOTTOM SLAB REINFORCEMENT

DESIGNED BY:
REUBEN C. RAMOS
ENGINEER II
CADD:
REUBEN C. RAMOS
ENGINEER II
CHECKED:
FRANCIS G. SERRANO
OIC - ARCHITECT IV

SUBMITTED:
JOSEPHINE P. ISTURIS
CHIEF, BUILDINGS DIVISION

RECOMMENDING APPROVAL:
SEE COVER SHEET FOR SIGNATURE
ARISTARCO M. DOROS
OFFICER-IN-CHARGE
BUREAU OF DESIGN

APPROVED:
SEE COVER SHEET FOR SIGNATURE
EMIL K. SADAIN, CESO I
UNDERSECRETARY FOR TECHNICAL SERVICES
AND UPMD OPERATIONS

SET NO.:
SHEET NO.:
BOD
B
P-2
2 13

1. CONTRACTOR IS ADVISED TO VISIT AND SURVEY THE PLACE OF INSTALLATION. HE SHALL BE RESPONSIBLE TO COORDINATE CLOSELY HIS WORK WITH ALL OTHER TRADES AND ALL INSTALLATION WORKS SHALL BE DONE IN A NEAT AND WORK-LIKE MANNER.
2. ALL NECESSARY GOVERNMENT PERMITS SHALL BE SECURED AND FOR ACCOUNT OF THE CONTRACTOR AND HE SHALL PROVIDE AS-BUILT PLANS TO THE OWNER AFTER THE COMPLETION OF HIS WORKS
3. ALL AIR CONDITIONING UNITS AND VENTILATING UNITS TO BE SUPPLIED SHALL BE NEW AND APPROVED PRODUCTS OF REPUTABLE MANUFACTURERS. ALL INSTALLATION EQUIPMENT SHALL BE MANUFACTURED BY "TOSHIBA", "HITACHI" OR APPROVED EQUAL.
4. ALL VENTILATING FAN SHALL BE MANUFACTURED BY "KDK", "NATIONAL" OR APPROVED EQUAL.
5. REFRIGERANT SUCTION LINES SHALL BE INSULATED WITH 25 mm THICK PREMOULDED ELASTOMERIC RUBBER INSULATION AS MANUFACTURED BY "ARMAFLEX", "AEROFLEX OR APPROVED EQUAL.
6. INDIVIDUAL WEATHER PROOF TYPE CIRCUIT BREAKER SHALL BE PROVIDED FOR ALL CONDENSING UNITS.
7. ALL EXPOSED DRAIN LINES TO THE CEILING SHALL BE PROVIDED WITH INSULATION TYPICAL TO REFRIGERANT PIPING. (REFER TO PIPE INSULATION DETAIL)
8. ALL REFRIGERANT SUCTION LINES EXPOSED INDOORS AND/OR EXPOSED TO WEATHER SHOULD BE PROVIDED WITH GAUGE #24 ALUMINUM CLADDING. (SUBMIT SHOP DRAWING PRIOR TO INSTALLATION)
9. ALL ACCU'S AND FCU'S SHALL BE PROVIDED WITH ANGULAR BAR SUPPORTS. (SUBMIT SHOP DRAWING PRIOR TO INSTALLATION)

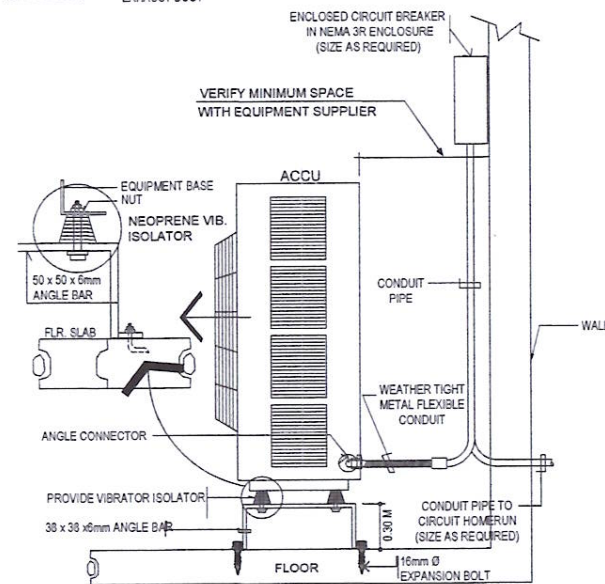
 FAN COIL UNIT FLOOR STANDING TYPE
(FCU - FS)

 AIR COOLED CONDENSING UNIT
(ACCU)

 EXHAUST FAN
(EF)

 REFRIGERANT LINE

 EXHAUST DUCT



AIR COOLED CONDENSING UNIT (ACCU)
DRAWING DETAIL

SCALE _____ NT _____

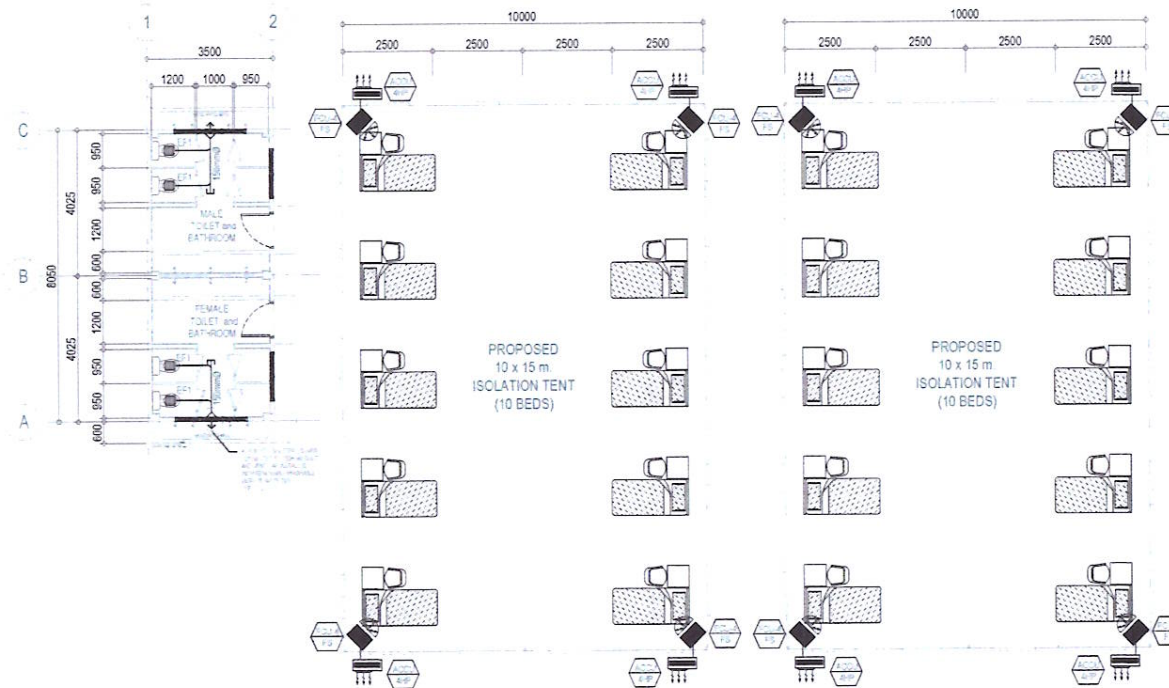
SPLIT AIR CONDITIONER (FLOOR STANDING TYPE)

INDOOR UNIT											
DESIGNATION	QTY	COOLING CAPACITY		TYPE	AIR FLOW RATE m ³ /hr	WATTS	VOLTS	ELECTRICAL DATA		DIMENSION (H x W x D)	
		BTU/hr	HP					PHASE	HERTZ		RATED CURRENT (A)
FCU-4 (F)	8	36,000	4.0	FLOOR STANDING	1520	4500	220	SINGLE	60	24.0	1080 x 600 x 350

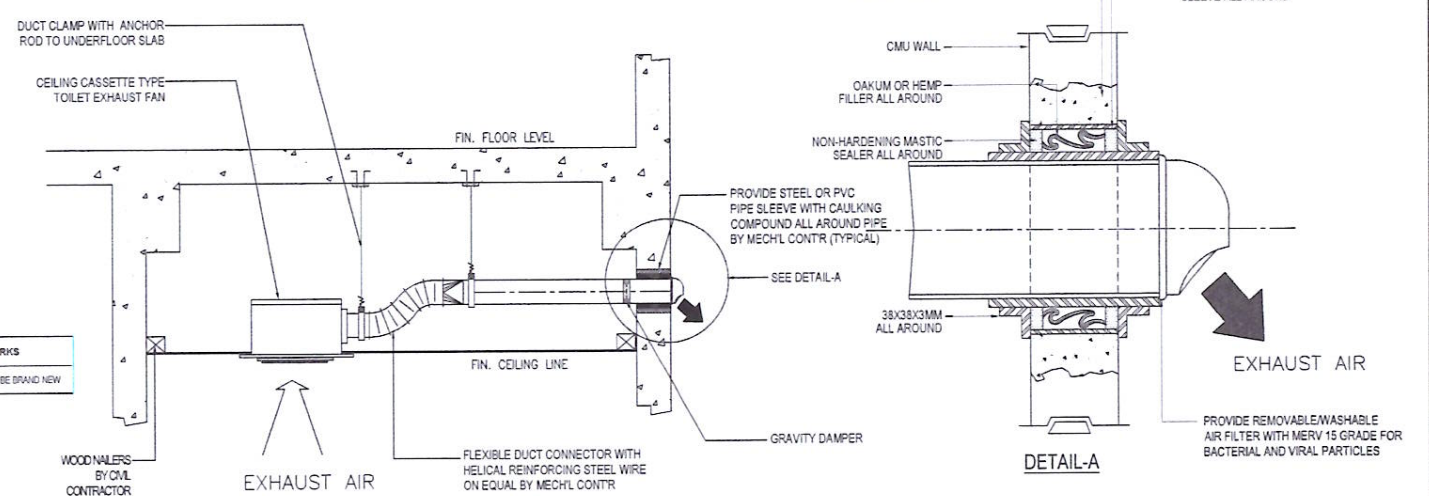
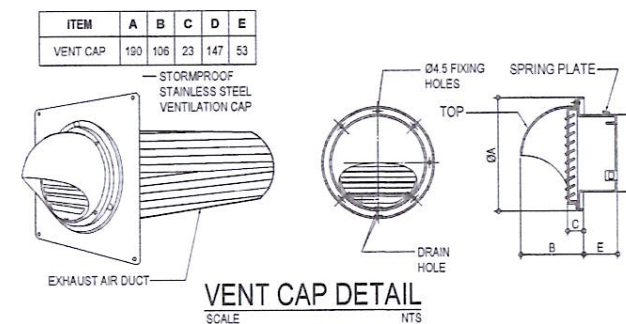
OUTDOOR UNIT								REMARKS
DESIGNATION	QTY	DIMENSION (H x W x D)	REFRIGERANT	WEIGHT kg	PIPE SIZE (MM)		MAX PIPE LENGTH (M)	ALL UNITS SHALL BE BRAND-NEW & COMPLETE ELECTRONIC REMOTE-CONTROL WITH REMOTE-ACCESSORIES READY FOR SERVICE.
					LIQ	GA		
ACCU - OP	8	596 x 590 x 370	410 A	72	15.0	15.0	50	NOTE: ALL PAN-COL UNITS SHALL BE PROVIDED WITH BLENDED REFRIGERANT

EXHAUST FAN

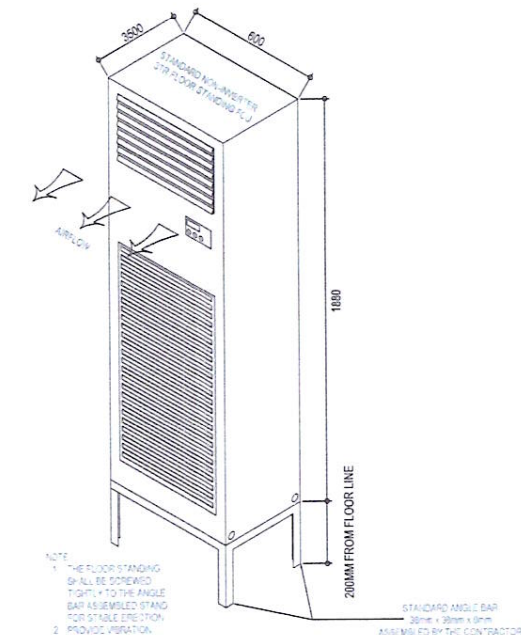
DESIGNATION	QTY	CAPACITY		TYPE	STATIC PRESSURE	RPM	WATTS	MOTOR RATING			LOCATION	REMARKS
		CMH	CFM					VOLTS	PHASE	HERTZ		
EF-1	4	170	100	CEILING CASSETTE	3.80mm H ₂ O	170	19	220	SINGLE	60	MALE AND FEMALE TOILET	ALL UNITS SHALL BE BRAND NEW



1 AIR CONDITIONING AND VENTILATION LAYOUT
M-1 SCALE 1:100M



TYPICAL CASSETTE TYPE EXHAUST FAN DETAIL



FLOOR STANDING FCU DRAWING DETAIL
SCALE _____ NTS

