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

PROJECT TITLE:

DPWH STANDARD
THREE (3) UNITS
HEALTH FACILITY TENT

SUBMITTED:

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

RECOMMENDING APPROVAL:

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OFFICER-IN-CHARGE, BUREAU OF DESIGN

7.30.2020

APPROVED:

EMIL K. SADAIN, CESO I
UNDERSECRETARY
FOR UPMO 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

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:
DPWH STANDARD
THREE (3) UNITS HEALTH FACILITY TENT

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PERSPECTIVE
TABLE OF CONTENTS

ARCHITECTURAL CONCEPT:
ARCHITECTURAL SECTION

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PROJECT I

CHECKED:
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OIC - ARCHITECT IV

SUBMITTED:
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CHIEF, BUILDINGS DIVISION
03/30/2020

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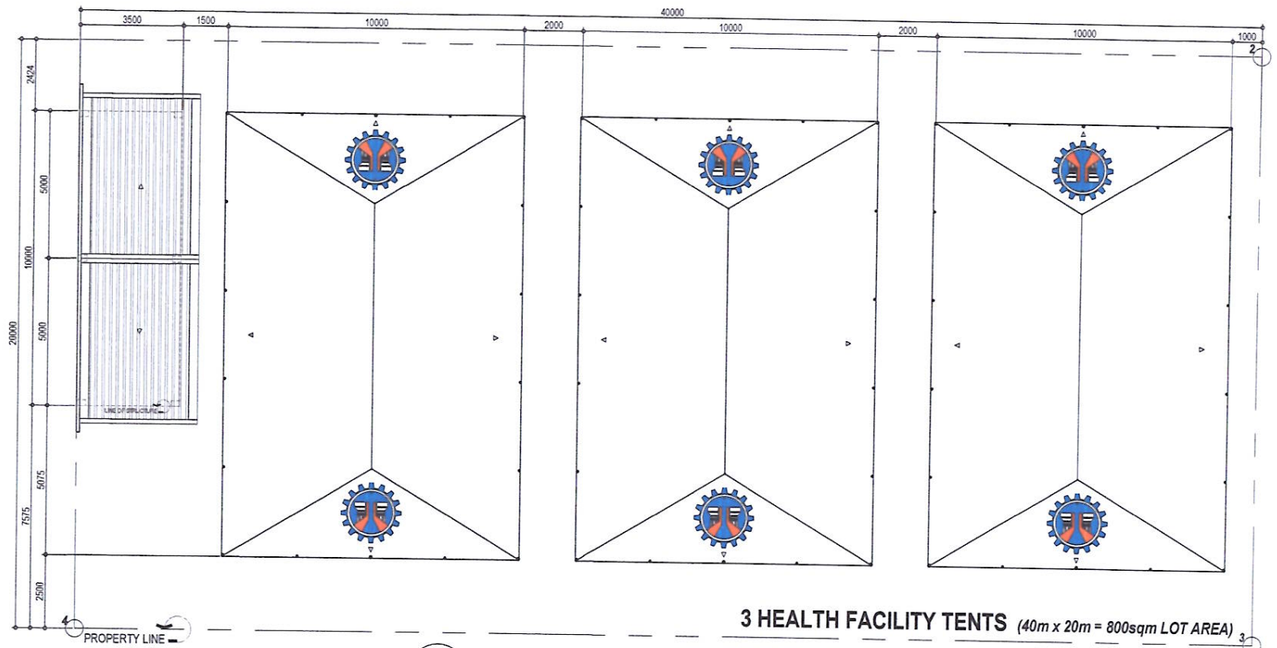
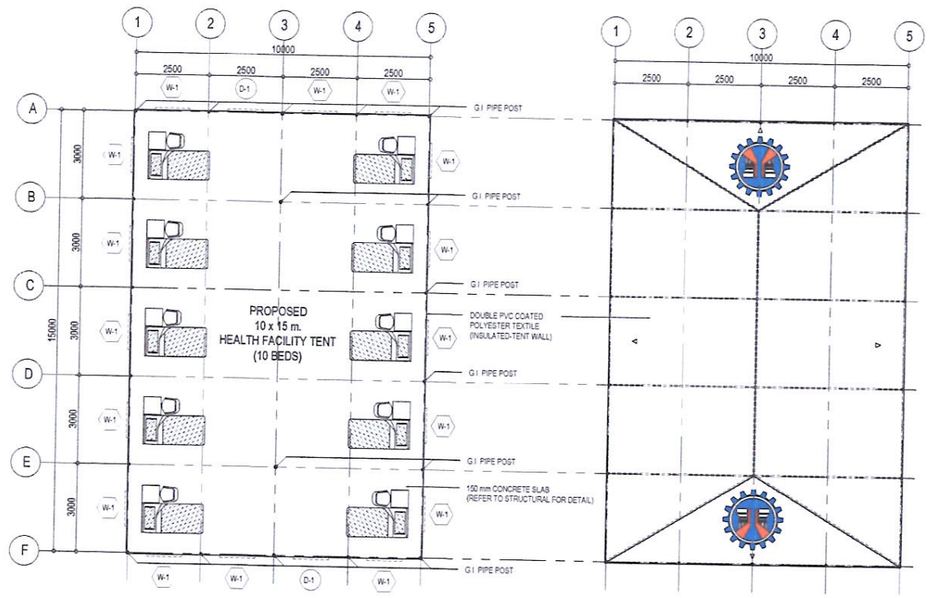
UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS

SET NO.: BOD B

SHEET NO.: A-1 3 | 13

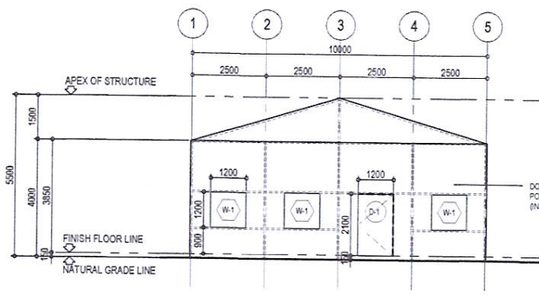


1 / A-2 SITE DEVELOPMENT PLAN *(VARIOUS SITE LOCATION)*
SCALE 1: 100 M.



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

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



4 / A-2 FRONT AND REAR ELEVATION
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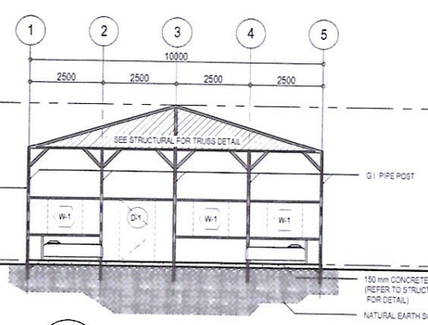

5 / A-2 CROSS SECTION
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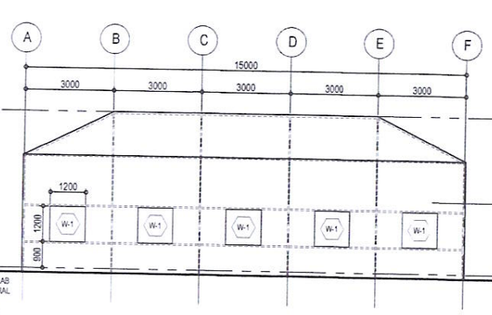
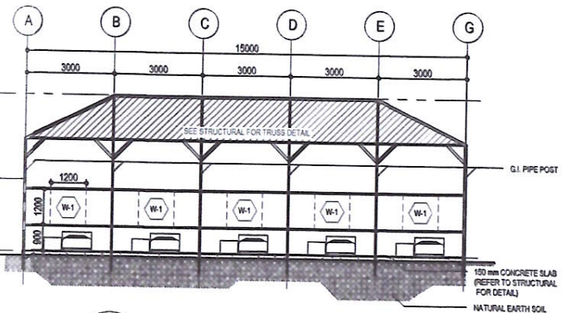


6 / A-2 TYPICAL LEFT AND RIGHT SIDE ELEVATION
SCALE 1: 100 M.



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

NOTE:
SEE STRUCTURAL DRAWINGS FOR
PIPE SIZES AND CONNECTION
DETAILS

REPUBLIC OF THE PHILIPPINES
DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
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BUILDINGS DIVISION
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PROJECT AND LOCATION:
DPWH STANDARD
THREE (3) 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
CHIEF, ARCHITECTURAL SECTION
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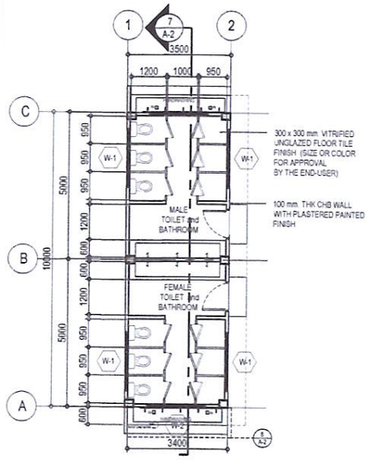
AND UPMO OPERATIONS

SET NO.: BOD B

SHEET NO.: A-2 3 13



1 / A-3 FLOOR PLAN
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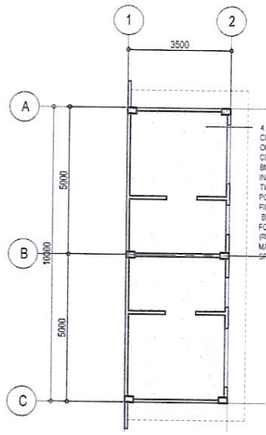

2 / A-3 REFLECTED CEILING PLAN
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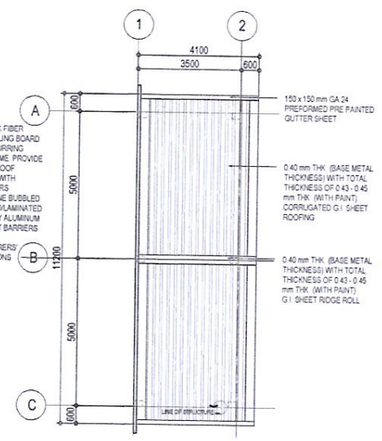

3 / A-3 ROOF PLAN
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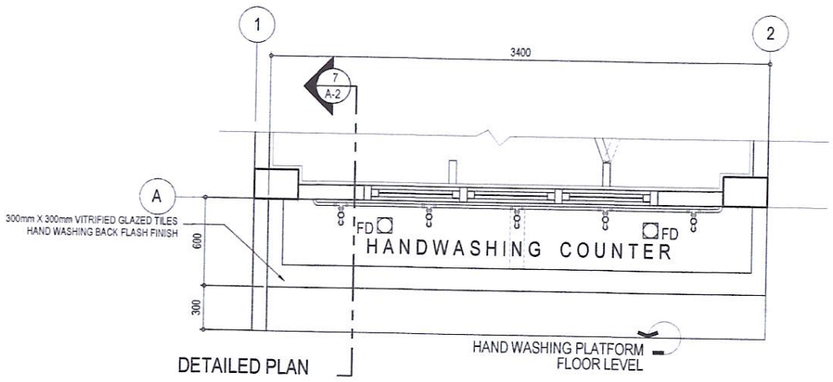
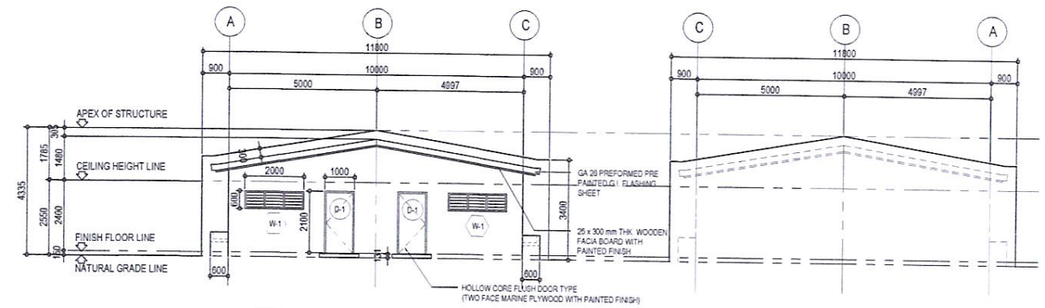
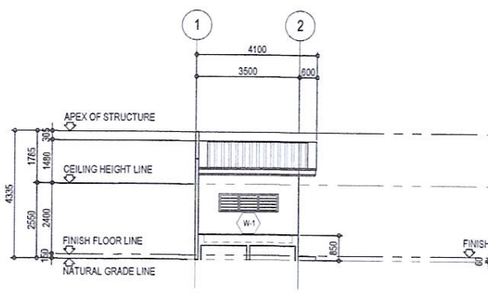




4 / A-3 FRONT ELEVATION
SCALE 1: 100 M.

4 / A-3 REAR ELEVATION
SCALE 1: 100 M.



6 / A-3 TYPICAL LEFT AND RIGHT SIDE ELEVATION
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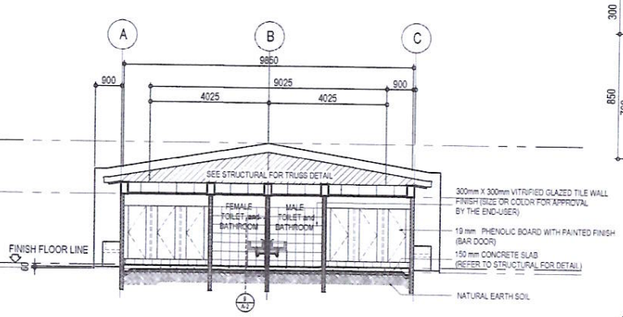
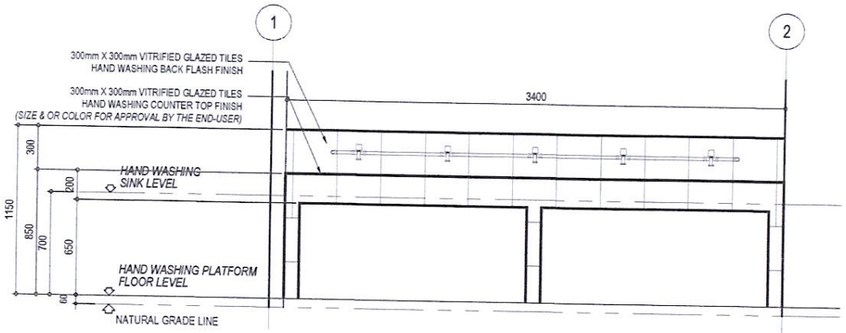
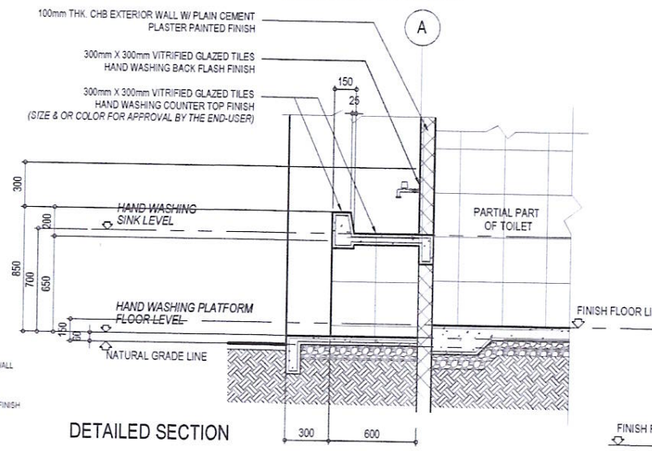


7 / A-3 LONGITUDINAL SECTION
SCALE 1: 100 M.

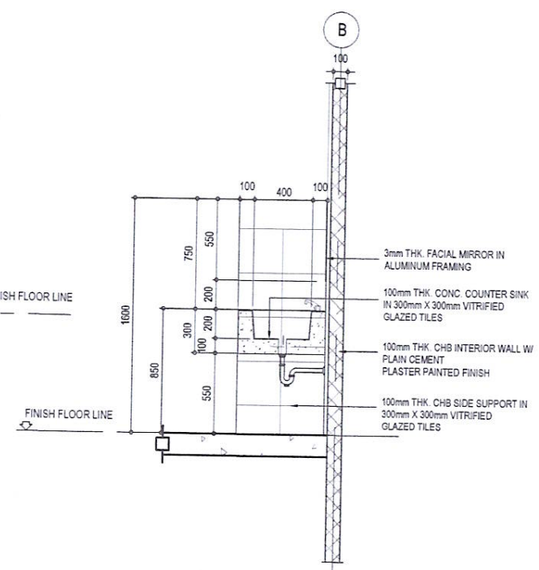


DETAILED ELEVATION



DETAILED SECTION

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



9 / A-2 LAVATORY DETAILS
SCALE 1: 20 M.

REPUBLIC OF THE PHILIPPINES
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PROJECT AND LOCATION:
STANDARD DPWH THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
FLOOR PLAN
ROOF PLAN
FRONT AND REAR SIDE ELEVATION
TYPICAL LEFT AND RIGHT SIDE ELEVATION
LONGITUDINAL SECTION
LAVATORY DETAILS
HANDWASHING DETAILS

ARCHITECTURAL CONCEPT
ARCHITECTURAL SECTION
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SET NO.: BOD B
SHEET NO.: 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. CHB WALL	2.10	kPa

2.0 LIVE LOADS (LL) :

2.1 ROOF	0.60	kPa

3.0 WND 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 = I
EXPOSURE CATEGORY = B
VELOCITY PRESSURE AT HEIGHT 'Z', qz = $0.613K_zK_{zt}K_dV^2$ $(N/^2)$; V in m/s

WHERE, V IN KM/HOUR
Kzt = TOPOGRAPHIC FACTOR = 1.00
K_z = EXPOSURE COEFFICIENTS = $2.01(z/z_g)^{2/a}$
z_g = GRADIENT HEIGHT = 457M AND a = 5
AND, QZ = 0.9683 X Z0.174 IN KN/M^2

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

IF LOCATION OF THE PROJECTIS 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
FOOTING, COLUMNS fc' = 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: fy = 276 MPa (40,0000 PSI)

4.3 STRUCTURAL STEEL :

FOR ALL STEEL PIPES, BASE PLATES, GUSSET PLATES & BRACING.
USE ASTM A36 STEEL Fy = 248 MPa (36,000 Psi)

4.4 WELDS :

USED E60XX ELECTRODES

4.5 BOLTS :

USED A307 THREADED & ANCHOR BOLTS
Fnt = 310 MPa (44,000 Psi) Fnv = 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.

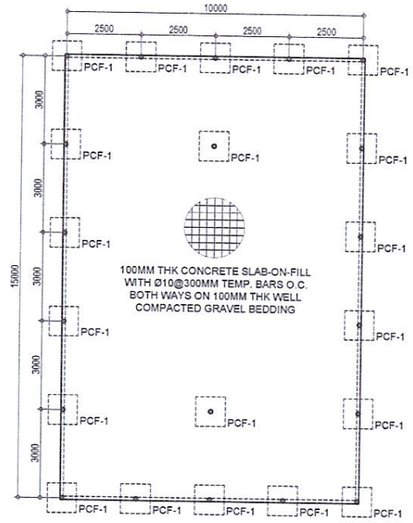
5.2 FOOTING SHALL REST AT LEAST 1M BELOW FINISH GRADE LINE.

5.3 FOOTING IS DESIGNED WITH AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY (SBC) OF 96kPa. 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.

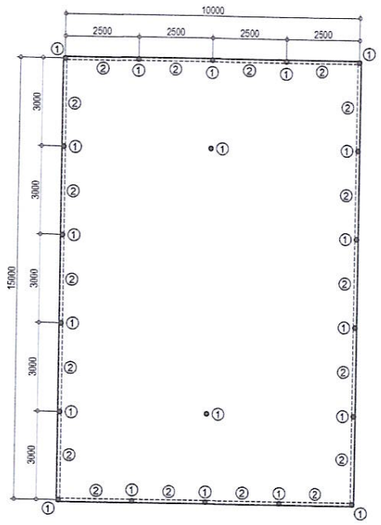
SECTION SCHEDULE				SPLICE*
DESIGNATION	OUTSIDE DIAMETER	THICKNESS	AISC DESIGNATION	DIMENSION OF CIRCULAR PLATE
①	5"	0.47"	HSSP5X0.5	ø250X10MM THK
②	3"	0.23"	HSSP3X0.25	ø200X10MM THK
③	2.5"	0.23"	HSSP2.5X0.23	ø200X10MM THK

NOTE ON SPLICING:

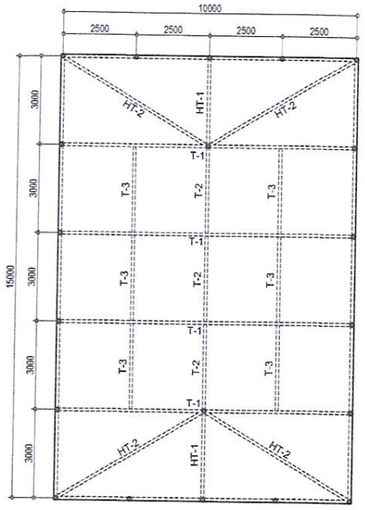
*SPLICE LOCATION SHALL ONLY BE AT THE MIDDLE HALF BETWEEN JOINTS.



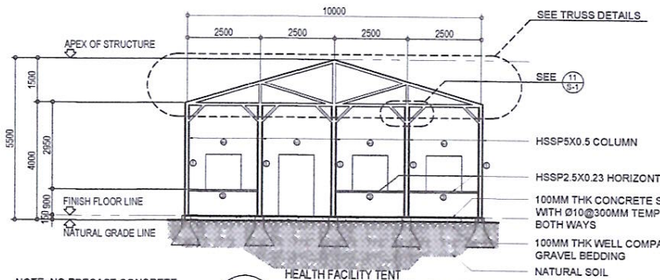
1 / S-1 HEALTH FACILITY TENT
FOUNDATION PLAN
SCALE 1:100 M.



2 / S-1 HEALTH FACILITY TENT
ROOF FRAMING PLAN
SCALE 1:100 M.

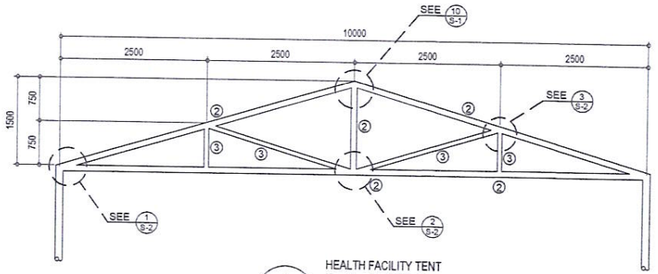


3 / S-1 HEALTH FACILITY TENT
ROOF PLAN
SCALE 1:100 M.

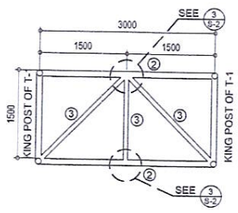


NOTE: NO PRECAST CONCRETE PEDESTAL COLUMN BASE SHALL REST ON FILL.

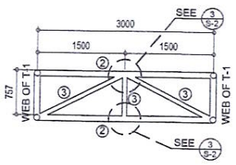
4 / S-1 HEALTH FACILITY TENT
CROSS SECTION
SCALE 1:100 M.



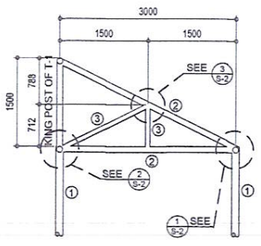
5 / S-1 HEALTH FACILITY TENT
T-1 DETAIL
SCALE 1:50 M.



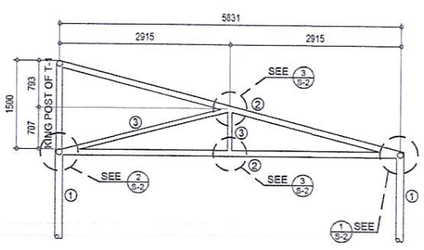
6 / S-1 HEALTH FACILITY TENT
T-2 DETAIL
SCALE 1:50 M.



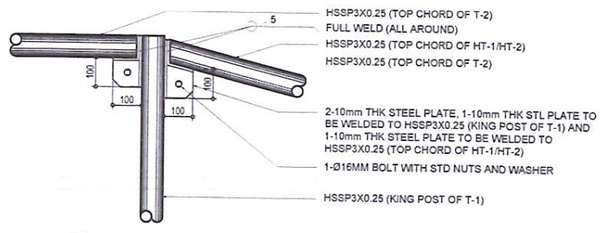
7 / S-1 HEALTH FACILITY TENT
T-3 DETAIL
SCALE 1:50 M.



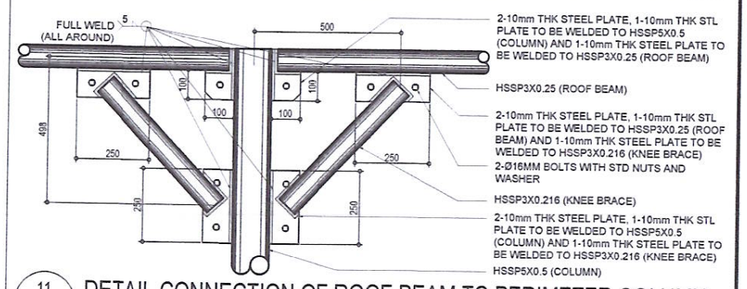
8 / S-1 HEALTH FACILITY TENT
HT-1 DETAIL
SCALE 1:50 M.



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



10 / S-1
DETAIL CONNECTION OF TRUSS APEX
SCALE 1:10 M.



11 / S-1
DETAIL CONNECTION OF ROOF BEAM TO PERIMETER COLUMN
SCALE 1:10 M.

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PROJECT AND LOCATION:
PROPOSED:
DPWH STANDARD THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
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

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CADD: **JASON FRANKLIN L. CARANDANG** ENGINEER II
CHECKED: **WILFREDO S. VALLO** ENGINEER III

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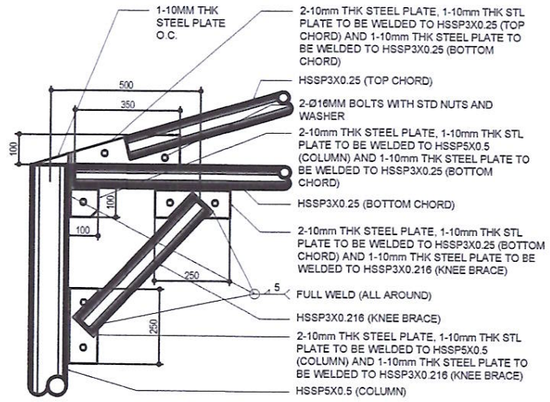
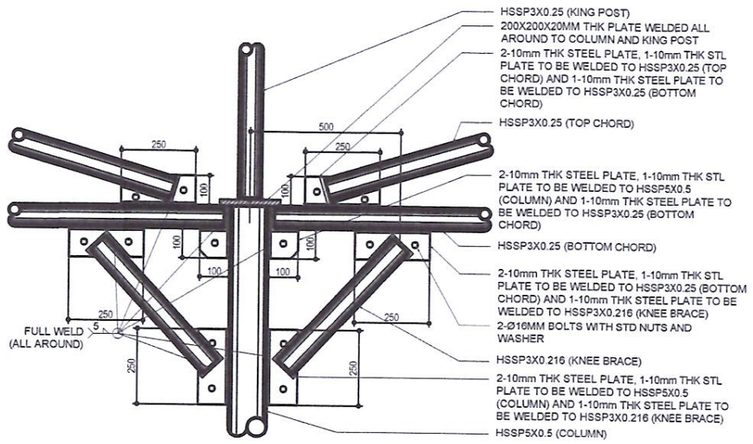
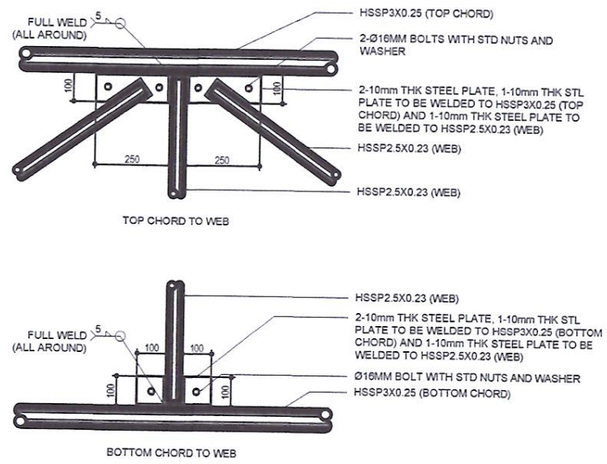


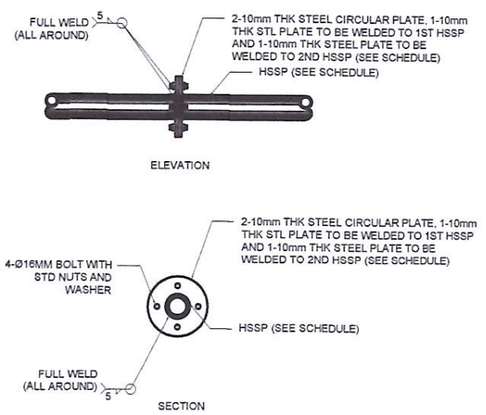
1 S-2 DETAIL CONNECTION OF PERIMETER COLUMN TO T-1/HT-1/HT-2
SCALE 1:10 M.



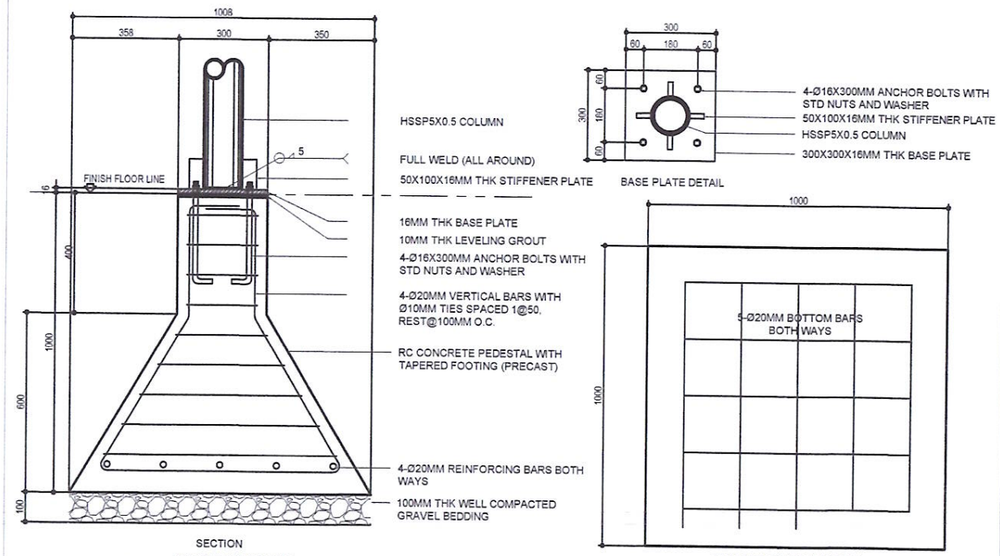
2 S-2 DETAIL CONNECTION OF MIDDLE COLUMN TO T-1/HT-1/HT-2
SCALE 1:10 M.



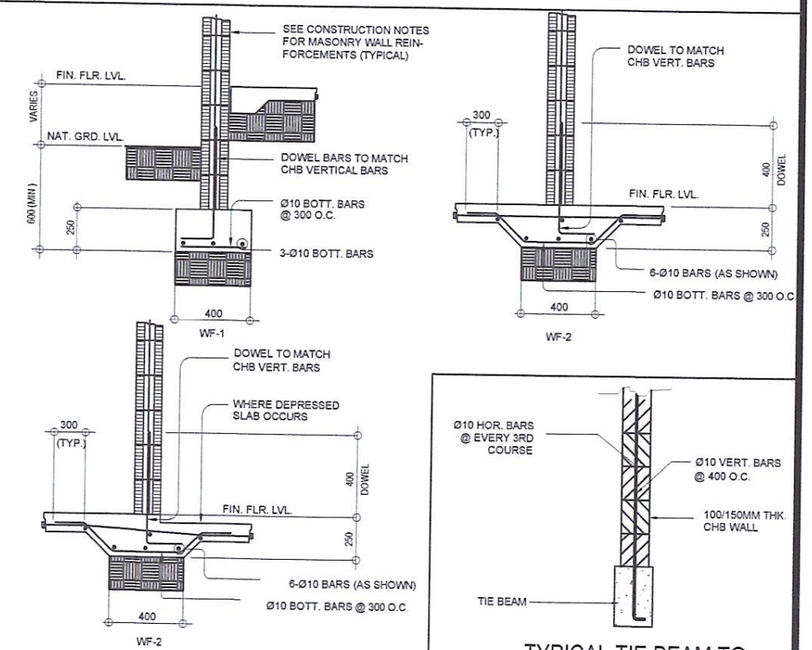
3 S-2 TYPICAL DETAIL CONNECTION OF TRUSS
SCALE 1:10 M.



4 S-2 TYPICAL DETAIL OF SPLICE FOR HSSP
SCALE 1:10 M.



5 S-2 DETAIL OF PRECAST CONCRETE PEDESTAL AND CONCRETE BASE (PCF-1)
SCALE 1:10 M.



6 S-2 TYPICAL WALL FOOTING DETAIL
SCALE N.T.S.

7 S-2 TYPICAL TIE BEAM TO CHB CONNECTION DETAIL
SCALE N.T.S.

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

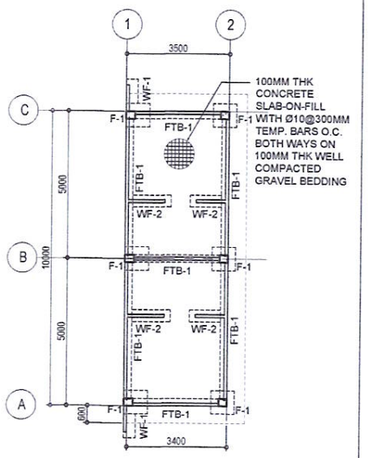
PROJECT AND LOCATION:
PROPOSED:
DPWH STANDARD
THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
DETAIL CONNECTION OF PERIMETER COL TO T-1/HT-1/HT-2
DETAIL CONNECTION OF CENTER COLUMN TO T-1/HT-1/HT-2
TYPICAL CONNECTION DETAIL OF TRUSS
TYPICAL DETAIL OF SPLICE FOR HSSP
DETAIL OF PRECAST CONC. PEDESTAL & CONC. BASE
TYPICAL WALL FOOTING DETAIL

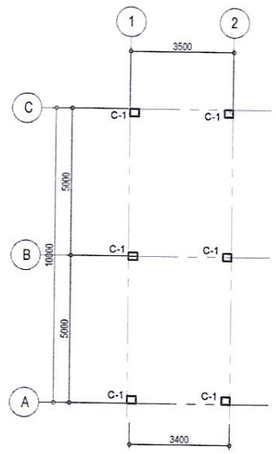
STRUCTURAL CONCEPT: LUVINCCI D. TAN ENGINEER II
CADD: JASON FRANKLIN L. CARANDANG ENGINEER II
CHECKED: WILFREDO S. VALLO ENGINEER III

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

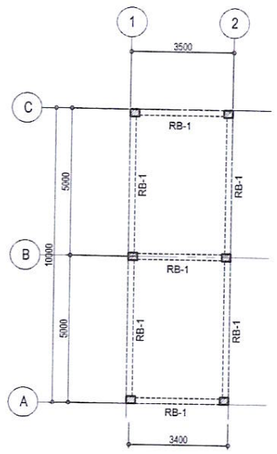
SET NO.: BOD B
SHEET NO.: S-2 3 13



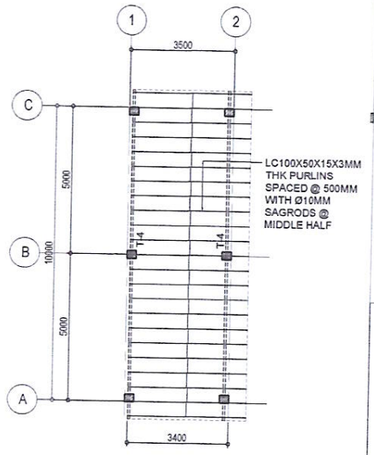
1 / S-3 TOILET FACILITY
FOUNDATION PLAN
SCALE 1:100 M.



2 / S-3 TOILET FACILITY
COLUMNIATION
SCALE 1:100 M.



3 / S-3 TOILET FACILITY
ROOF FRAMING PLAN
SCALE 1:100 M.



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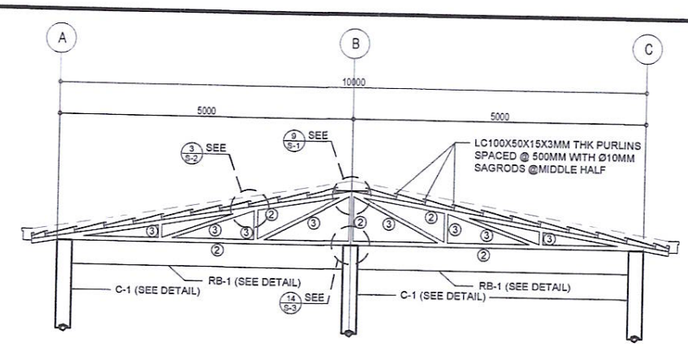
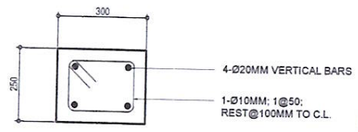
ROOF PLAN
SCALE 1:100 M.



5 / S-3 TOILET FACILITY
T-4 DETAIL
SCALE 1:50 M.



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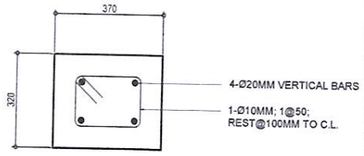
C-1 DETAIL (COLUMN)
SCALE 1:10 M.
ABOVE F.G.L.



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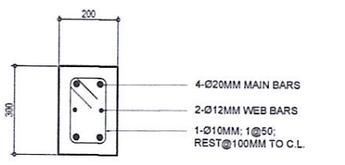
C-1 DETAIL (COLUMN)
SCALE 1:10 M.
BELOW F.G.L.



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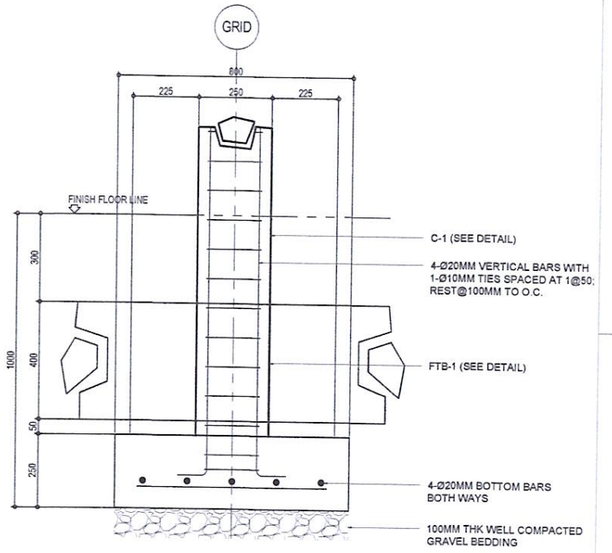
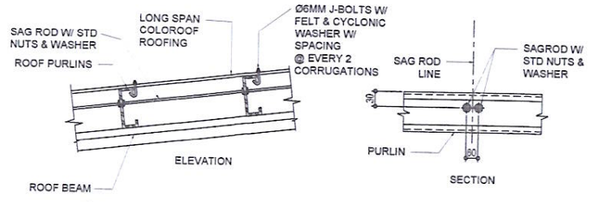
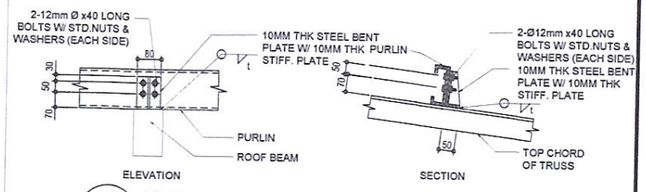
RB-1 DETAIL (ROOF BEAM)
SCALE 1:10 M.



10 / S-3 TOILET FACILITY
F-1 SECTION (FOOTING)
SCALE 1:10 M.



11 / S-3 TYP. DETAIL CONNECTION OF SAGROD
SCALE N.T.S.



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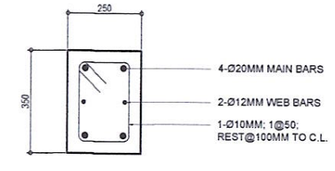
SCALE N.T.S.



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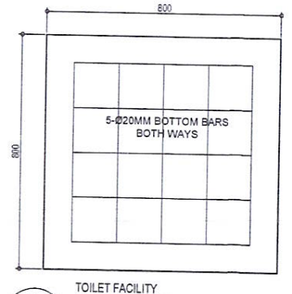
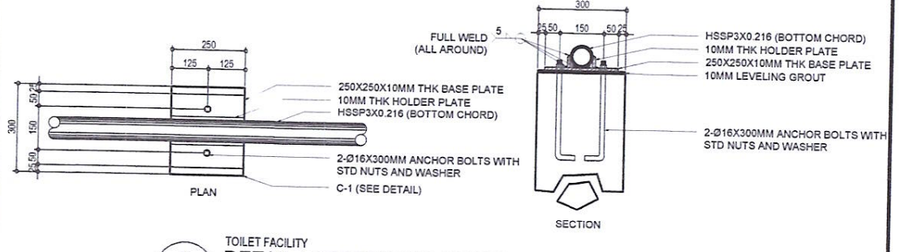
FTB-1 DETAIL (TIE BEAM)
SCALE 1:10 M.



13 / S-3 TOILET FACILITY
F-1 DETAIL (FOOTING)
SCALE 1:10 M.



14 / S-3 TOILET FACILITY
DETAIL CONNECTION OF TRUSS (T-4) TO COLUMN (C-1)
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:
PROPOSED:
DPWH STANDARD THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
FOUNDATION PLAN
COLUMNIATION
ROOF FRAMING PLAN
ROOF PLAN
BEAM, TIE BEAM, COLUMN, FOOTING DETAILS
TYP. DETAIL CONNECTION OF SAGROD & PURLIN
DETAIL CONNECTION OF TRUSS TO COLUMN

STRUCTURAL CONCEPT: **LUMINCCI D. TAN** ENGINEER II
CADD: **JASON FRANKLIN L. CARANDANG** ENGINEER II
CHECKED: **WILFREDO S. VALLO** ENGINEER III

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.: BOD / B
SHEET NO.: S-3 / 3 | 13

PLUMBING NOTES:

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, 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.

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 THROUGH 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 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.

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.

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)
PVCDP	POLYVINYL CHLORIDE DRAINAGE PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564)
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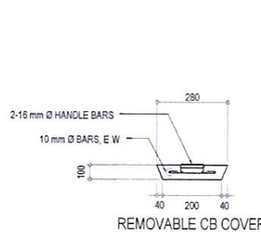
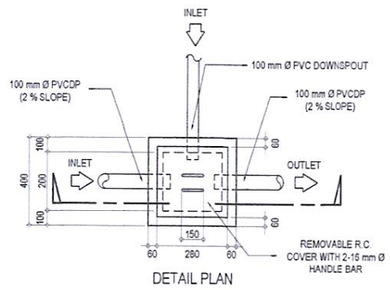
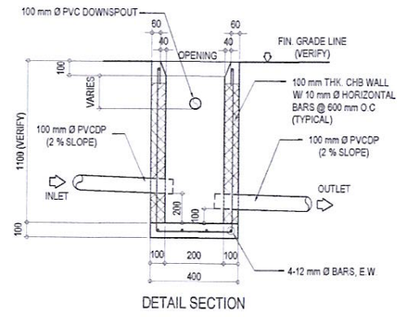
SD	SHOWER DRAIN
SH	SHOWER HEAD
WC	WATER CLOSET



REMOVABLE CB COVER

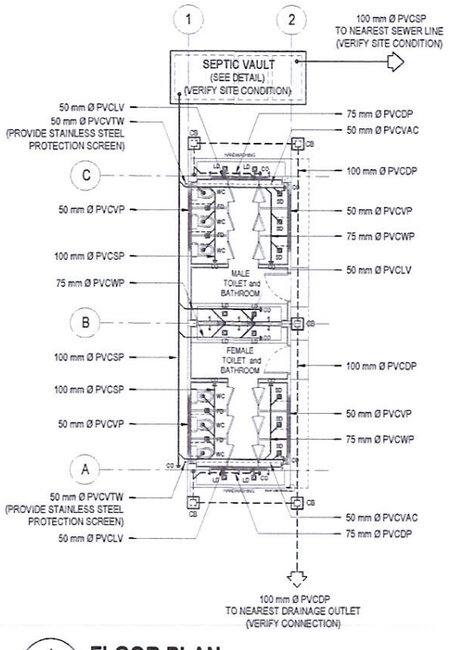


DETAIL PLAN

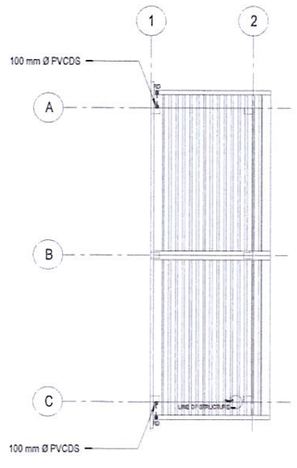


DETAIL SECTION

6 P-1 **DETAIL OF CATCH BASIN**
SCALE NTS.



1 P-1 **FLOOR PLAN** (SEWER AND DRAINAGE LAYOUT)
SCALE 1: 100 M.



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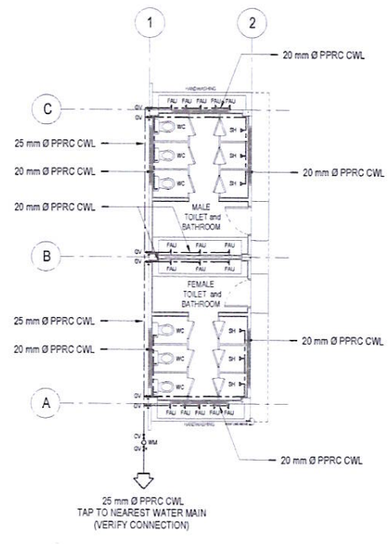

3 P-1 **FLOOR PLAN** (WATER LINE LAYOUT)
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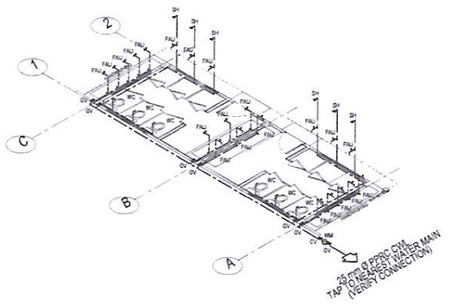
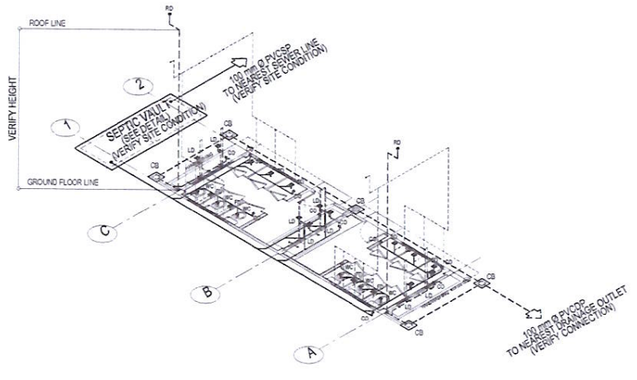


5 P-1 **ISOMETRIC DIAGRAM** (WATER LINE LAYOUT)
SCALE NTS.



4 P-1 **ISOMETRIC DIAGRAM** (SEWER AND DRAINAGE LAYOUT)
SCALE NTS.

REPUBLIC OF THE PHILIPPINES
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BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
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DPWH STANDARD THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
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

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. 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.: BOD B

SHEET NO.: P-1 2 13

PLUMBING NOTES:

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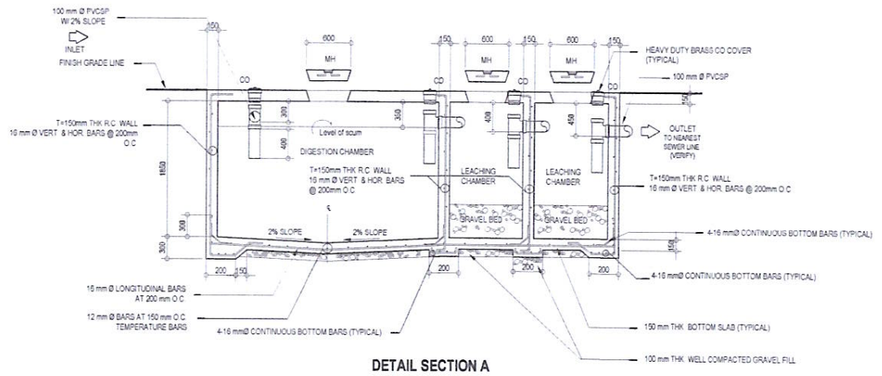
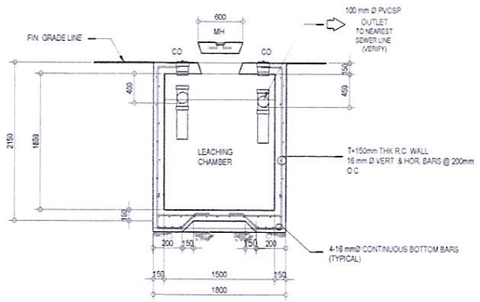
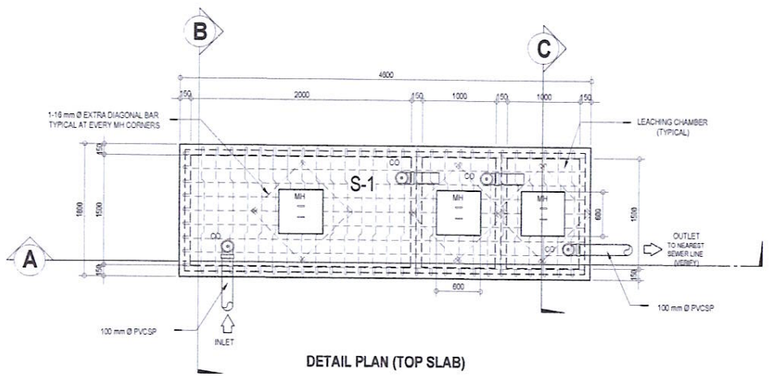


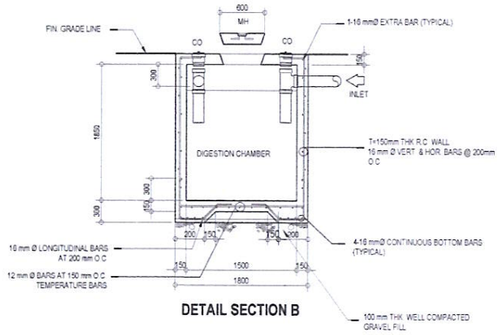
DETAIL SECTION A



DETAIL SECTION C



DETAIL PLAN (TOP SLAB)



DETAIL SECTION B

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 @ L/4 FROM FACE OF SUPPORT AND 12mmØ BARS @ 180mmO.C ADDITIONAL TOP BARS CUT-OFF@ L/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 THREE (3) 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** O/C - ARCHITECT IV

SUBMITTED:
JOSEPHINE P. ISTURIS
CHIEF, BUILDINGS DIVISION

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

SET NO: BOD B

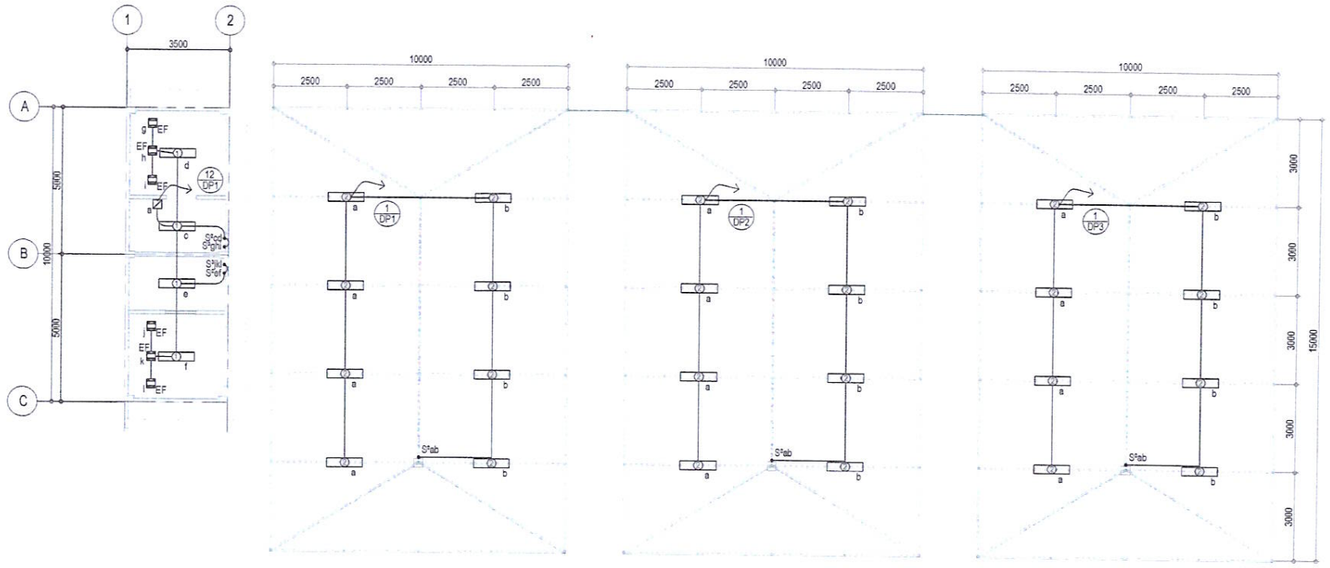
SHEET NO: P-2 (2 | 13)

LEGEND:

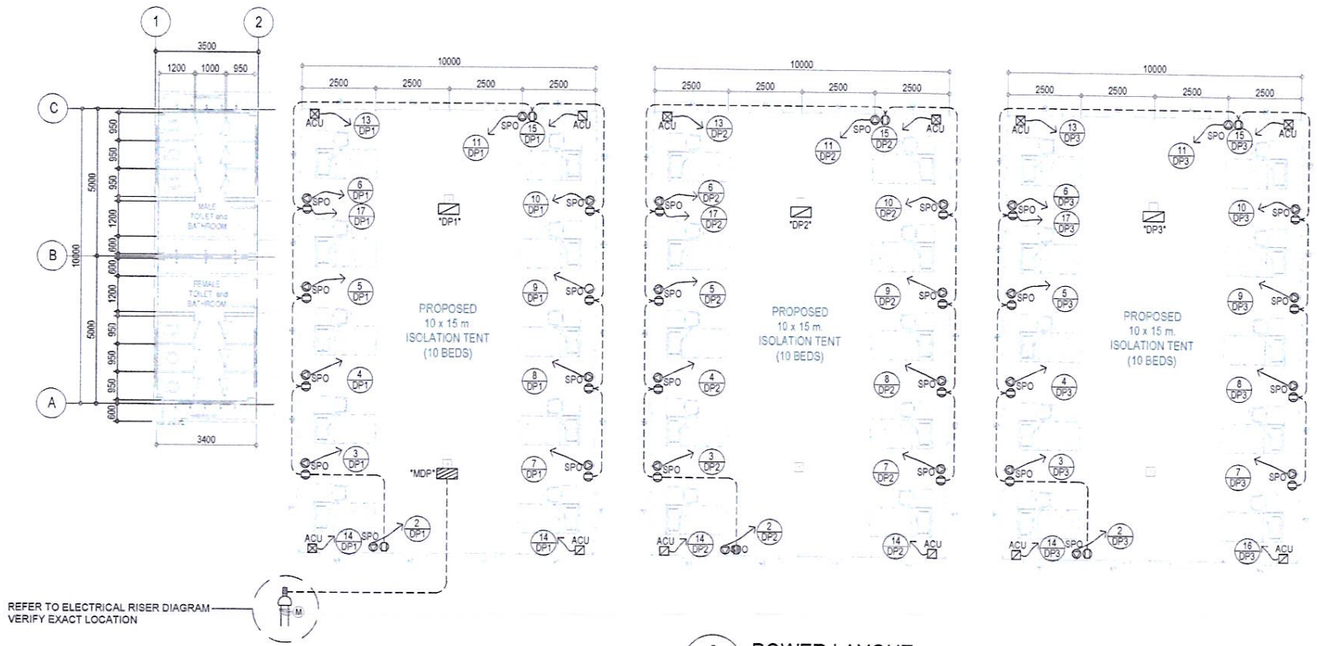
$\boxtimes_a$ AUTOMATIC CIRCUIT BREAKER
50AF, 2P, 240VOLTS, 20AT
IN NEMA 3R ENCLOSURE

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/E-1 LIGHTING LAYOUT
SCALE 1:100 M



2/E-1 POWER LAYOUT
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 THREE (3) 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. SIOSON** 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. BOD B	SHEET NO.: E-1 2 13

GENERAL NOTES:

1. 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.
2. THE TYPE OF SERVICE POWER SUPPLY TO BE USED SHALL BE THREE-PHASE, 3-WIRE, 230V, 60 HERTZ, A.C.
3. THE CONTRACTOR SHALL VERIFY AND ORIENT THE ACTUAL LOCATION OF SERVICE ENTRANCE FOR CONNECTION TO THE POWER COMPANY SERVICE POINT.
4. 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.
5. ALL LIGHTING CIRCUIT HOMERUNS AND CONVENIENCE OUTLETS SHALL BE WIRED WITH NOT LESS THAN 3.5 mm² IN SIZE.
6. 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.
7. 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.
8. ALL MATERIALS TO BE USED SHALL BE BRAND NEW AND OF THE APPROVED TYPE FOR LOCATION AND PURPOSE.
9. STANDARD TYPE OF ACCESSORIES, SPLICING DEVICES, TERMINATIONS AND OTHER APPURTENANCES FOR THE ENTIRE ELECTRICAL INSTALLATION SHALL BE USED.
10. ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LEVEL UNLESS NOTED IN THE PLAN.
    a) WALL SWITCHES @ 1300mm
    b) WALL CONVENIENCE OUTLETS @ 300 mm
11. 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
- S — 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- S³ — 3 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS) EF DENOTES EXHAUST FAN OUTLET
- SPO — SPECIAL PURPOSE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS)
- AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 40AT IN NEMA 1 ENCLOSURE
- "DP" — DISTRIBUTION PANEL
- "MDP" — DISTRIBUTION PANEL
- G — GENERATING SET, PORTABLE TYPE
- M — 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 - 150mm² THHN + 1 - 30mm² THHN (G) in 80mm Ø RSC.

GROUNDING WIRE AND CONDUIT:

GW1 — 1 - 14 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 2: THREE-PHASE

SCHEDULE OF LOADS AN COMPUTATIONS:

MAIN DISTRIBUTION PANELBOARD: "MDP"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE AB	BC	CA	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZES OF HOMERUN (WIRES AND CONDUIT)
1	"DP1"	51160	18580	15790	16790	230	225	3	150	3 - 50mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø C.
2	"DP2"	51160	15790	18580	16790	230	225	3	150	3 - 50mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø C.
3	"DP3"	51160	16790	15790	18580	230	225	3	150	3 - 50mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø C.
4	SPARE	4500	1500	1500	1500	230	100	3	40	———
TOTAL CONNECTED LOADS		157980	52660	52660	52660	MAIN ACB: 400AF, 3P, 240V, 300 AT, 18kAIC				

I_L @ 70% D.F. = $1.732\left[\left(\frac{52660}{230}\right)(0.70) + (0.25)(23)\right]$ = 287.55 AMPS. USE 3 - 150 mm² THHN + 1 - 30 mm² THHN (G) in 80 mm Ø RSC. (287.55A / 295A)

DISTRIBUTION PANELBOARD "DP1"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE AB	BC	CA	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZES OF HOMERUN (WIRES AND CONDUIT)
1	LIGHTING OUTLETS	500	500			230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
2	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
3	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
4	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
5	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
6	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
7	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
8	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
9	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
10	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
11	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
12	SPARE	1500		1500		230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290			5290	230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	5290			230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290			5290	230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
17	CONVENIENCE OUTLET	1500	1500			230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
18	SPARE	1500		1500		230	50	2	20	———
TOTAL CONNECTED LOADS		51160	18580	15790	16790	MAIN ACB: 225AF, 150AT, 3P, 240 V, 25kAIC				

I_L @ 70% D.F. = $1.732\left[\left(\frac{18580}{230}\right)(0.7) + (0.25)(23)\right]$ = 107.90 AMPS. USE : 3 - 50 mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø RSC. (107.90A / 150A)

DISTRIBUTION PANELBOARD "DP2"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE AB	BC	CA	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZES OF HOMERUN (WIRES AND CONDUIT)
1	LIGHTING OUTLETS	500		500		230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
2	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
3	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
4	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
5	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
6	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
7	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
8	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
9	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
10	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
11	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
12	SPARE	1500	1500			230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290		5290		230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290			5290	230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
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17	CONVENIENCE OUTLET	1500			1500	230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
18	SPARE	1500	1500			230	50	2	20	———
TOTAL CONNECTED LOADS		51160	15790	18580	16790	MAIN ACB: 225AF, 150AT, 3P, 240 V, 25kAIC				

I_L @ 70% D.F. = $1.732\left[\left(\frac{18580}{230}\right)(0.7) + (0.25)(23)\right]$ = 107.90 AMPS. USE : 3 - 50 mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø RSC. (107.90A / 150A)

DISTRIBUTION PANELBOARD "DP3"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT	VA PER PHASE AB	BC	CA	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZES OF HOMERUN (WIRES AND CONDUIT)
1	LIGHTING OUTLETS	500			500	230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
2	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
3	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
4	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
5	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
6	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
7	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
8	SPECIAL PURPOSE OUTLETS	2500	2500			230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
9	SPECIAL PURPOSE OUTLETS	2500		2500		230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
10	SPECIAL PURPOSE OUTLETS	2500			2500	230	50	2	30	2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
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12	SPARE	1500		1500		230	50	2	20	2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C.
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290			5290	230	50	2	50	3 - 8.0 mm² THHN + 1 - 5.5mm² THHN(G) in 20mmØ C.
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18	SPARE	1500		1500		230	50	2	20	———
TOTAL CONNECTED LOADS		51160	16790	15790	18580	MAIN ACB: 225AF, 150AT, 3P, 240 V, 25kAIC				

I_L @ 70% D.F. = $1.732\left[\left(\frac{18580}{230}\right)(0.7) + (0.25)(23)\right]$ = 107.90 AMPS. USE : 3 - 50 mm² THHN + 1 - 14 mm² THHN (G) in 50mm Ø RSC. (107.90A / 150A)

REQUIRED CAPACITY OF TRANSFORMER BANK :

TOTAL VA = 52660

$I = \frac{\sqrt{3}\,(VA)}{230} = \frac{\sqrt{3}\,(52660)}{230}$

I = 396.56 AMPS

KVA = $\frac{\sqrt{3}\,E\,I\,(D.F)}{1000\,(DIV.F.)}$ @ DIVERSITY FACTOR = 1.10, DEMAND FACTOR = 85%

KVA = $\frac{\sqrt{3}\,(230)\,(396.56)\,(0.85)}{1000\,(1.10)}$ = 122.07 kVA

USE: ONE(1)- 150 kVA, 34.5KV/230V, 3Ø, 60Hz., A.C. OISC, POLE MOUNTED DISTRIBUTION TRANSFORMERS

REQUIRED CAPACITY OF GENERATING SET:(PROVISION)

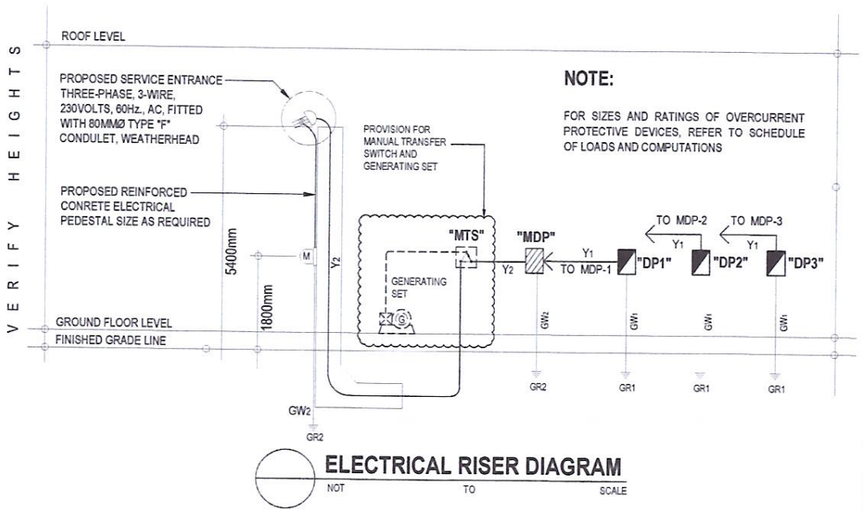
$I = \frac{\sqrt{3}\,(VA)}{230} = \frac{\sqrt{3}\,(52660)}{230}$

I = 396.56 AMPS

KVA = $\frac{\sqrt{3}\,E\,I}{1000}$ @ DIV. FACTOR = 1.10, DEMAND FACTOR = 90%

KVA = $\frac{\sqrt{3}\,(230)\,(396.56)\,(0.90)}{1000\,(1.10)}$ = 129.25 kVA

USE: ONE(1) - 150 kVA, 230V, 3Ø, 80% P.F., 1800 RPM, 60Hz., A.C. PAD MOUNTED DIESEL ENGINE GENERATING SET



ELECTRICAL RISER DIAGRAM

NOT TO SCALE

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 THREE (3) 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. SIOSON** 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.: BOD B

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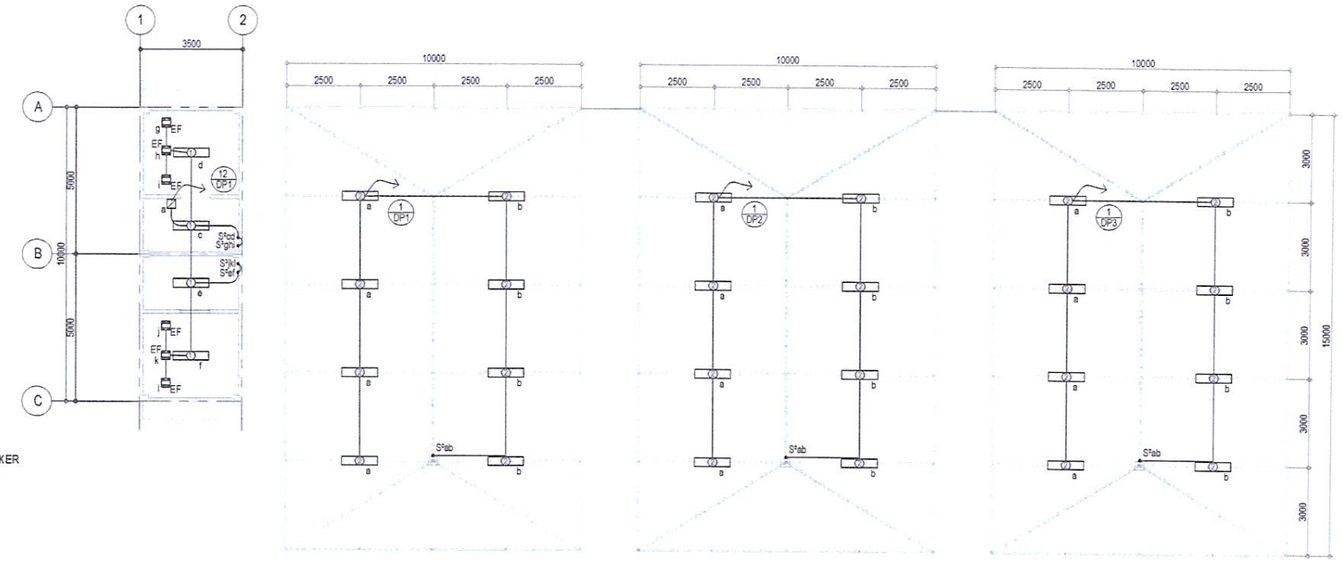

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50AF, 2P, 240VOLTS, 20AT
IN NEMA 3R ENCLOSURE

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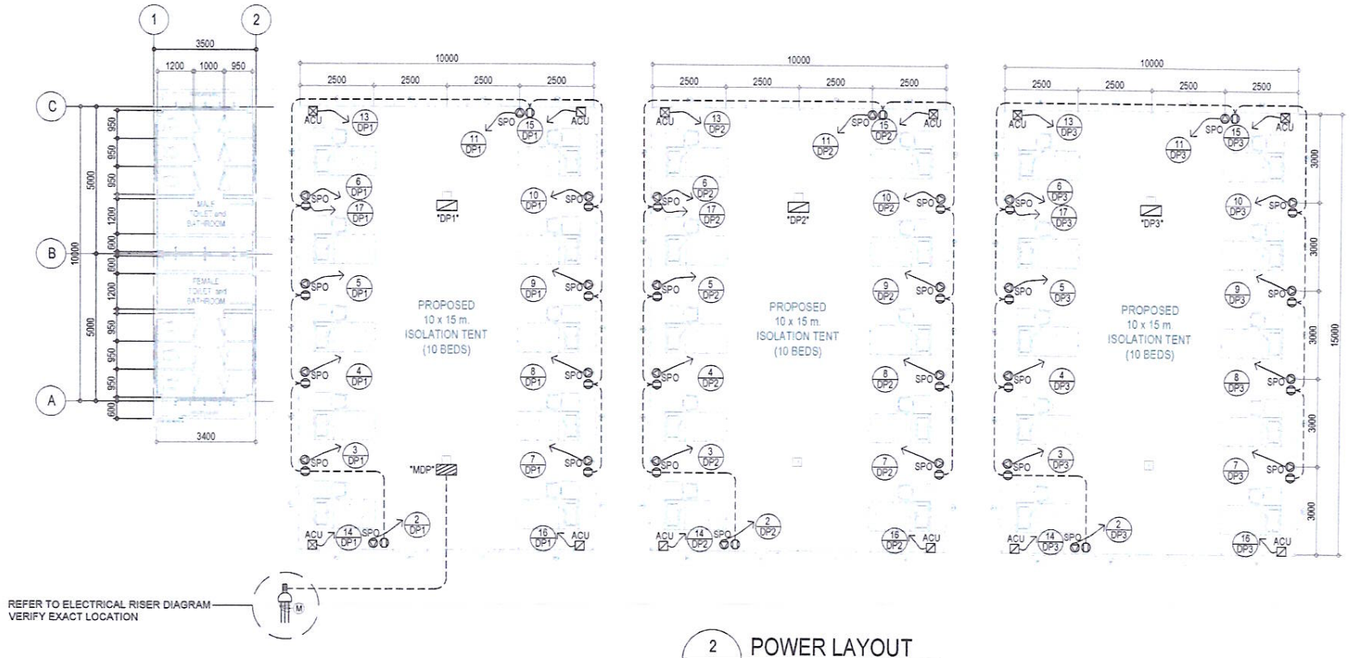

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OPTION 1: SINGLE-PHASE

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    a) WALL SWITCHES @ 1300mm
    b) WALL CONVENIENCE OUTLETS @ 300 mm
11. ALL ELECTRICAL WORKS SHALL BE DONE UNDER THE DIRECT AND IMMEDIATE SUPERVISION OF A DULY REGISTERED ELECTRICAL ENGINEER.

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- 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
- S^2 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- S^3 3 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS) EF DENOTES EXHAUST FAN OUTLET
- SPO SPECIAL PURPOSE OUTLET, GROUNDING TYPE (30AMPS. 250VOLTS)
- AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 50AT IN NEMA 1 ENCLOSURE
- "DP" DISTRIBUTION PANEL
- "MDP" DISTRIBUTION PANEL
- (G) GENERATING SET, PORTABLE TYPE
- (M) 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 - 125mm² THHN + 1 - 30mm² THHN (G) in 65mm Ø RSC.

GROUNDING WIRE AND CONDUIT:

GW1 1 - 22 mm² THHN in 40mm 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

SCHEDULE OF LOADS AN COMPUTATIONS:

DISTRIBUTION PANELBOARD "DP1"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZE OF HOMERUN (WIRES IN CONDUIT)
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 - 5.5mm² 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 15mm Ø C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm Ø C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm Ø C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm 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 = $\left(\frac{48960}{230}\right)(0.70) + (0.25)(23) = 161.45$ AMPERES

USE : 2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC (161.45A / 205A)

DISTRIBUTION PANELBOARD "DP2" (TYPICAL TO "DP3")

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZE OF HOMERUN (WIRES IN CONDUIT)
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	SPARE	1500	230	50	2	20	———
13	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm Ø C
14	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm Ø C
15	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm Ø C
16	4HP SPLIT TYPE AIR-CONDITIONING UNIT	5290	230	50	2	50	2 - 8.0mm² THHN + 1 - 5.5mm² THHN (G) IN 15mm 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 = $\left(\frac{51160}{230}\right)(0.70) + (0.25)(23) = 161.45$ AMPERES

USE : 2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC (161.45A / 205A)

DISTRIBUTION PANELBOARD "DP1"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH BREAKER RATING AF	P	AT	SIZE OF HOMERUN (WIRES IN CONDUIT)
1	"DP1"	51160	230	50	2	200	2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC
2	"DP2"	51160	230	50	2	200	2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC
3	"DP3"	51160	230	50	2	200	2 - 80mm² THHN + 1 - 22mm² THHN (G) IN 50mm Ø RSC
4	SPARE	4500	230	50	2	40	———
TOTAL CONNECTED LOADS		157980	MAIN ACB: 600AF, 2P, 240V, 500 AT, 25kAIC				

I_L @ 70% D.F. = $\left(\frac{157980}{230}\right)(0.70) + (0.25)(23) = 486.56$ AMPERES

USE : 2 SETS OF 2 - 125mm² THHN + 1 - 30mm² THHN (G) IN 65mm Ø RSC (486.56A / 530A)

REQUIRED CAPACITY OF TRANSFORMER BANK :

TOTAL VA = 157980

$I = \frac{(VA)}{230} = \frac{(157980)}{230}$

I = 686.87 AMPS

KVA = $\frac{E\,I\,(D.F)}{1000\ (DIV.F.)}$ @ DIVERSITY FACTOR = 1.10, DEMAND FACTOR = 85%

KVA = $\frac{(230)(686.87)(0.85)}{1000\ (1.10)}$ = 122.08 kVA

USE: ONE(1) - 150 kVA, 34.5KV/230V, 1Ø, 60Hz., A.C.
OISC, POLE MOUNTED DISTRIBUTION TRANSFORMERS

REQUIRED CAPACITY OF GENERATING SET:(PROVISION)

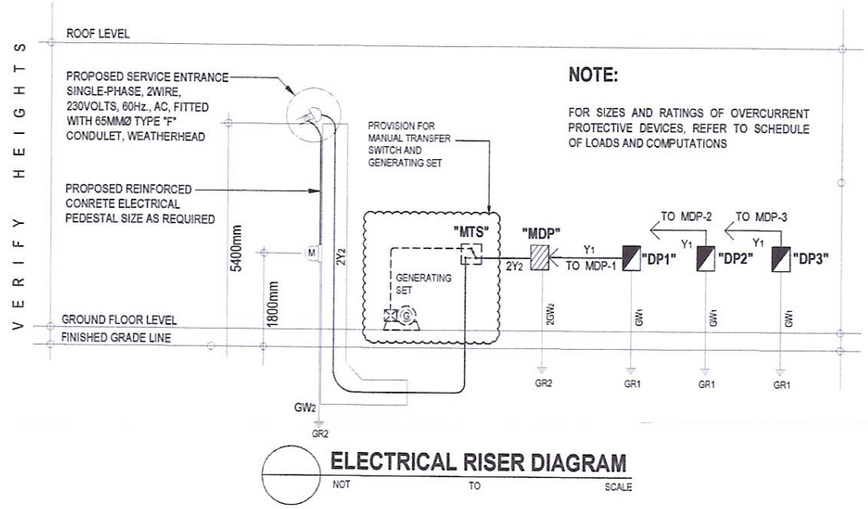
$I = \frac{(VA)}{230} = \frac{(157980)}{230}$

I = 686.87 AMPS

KVA = $\frac{E\,I}{1000}$ @ DIV. FACTOR = 1.10, DEMAND FACTOR = 90%

KVA = $\frac{(230)(686.87)(0.90)}{1000\ (1.10)}$ = 129.26 kVA

USE: ONE(1) - 150 kVA, 230V, 3Ø, 80% P.F., 1800 RPM, 60Hz., A.C.
PAD MOUNTED DIESEL ENGINE GENERATING SET



ELECTRICAL RISER DIAGRAM
NOT TO SCALE

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 THREE (3) 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. SIOSON 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.: BOD B SHEET NO.: E-2 2 13

GENERAL NOTES:

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 AIR CONDITIONING 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)

SCHEDULE OF EQUIPMENT

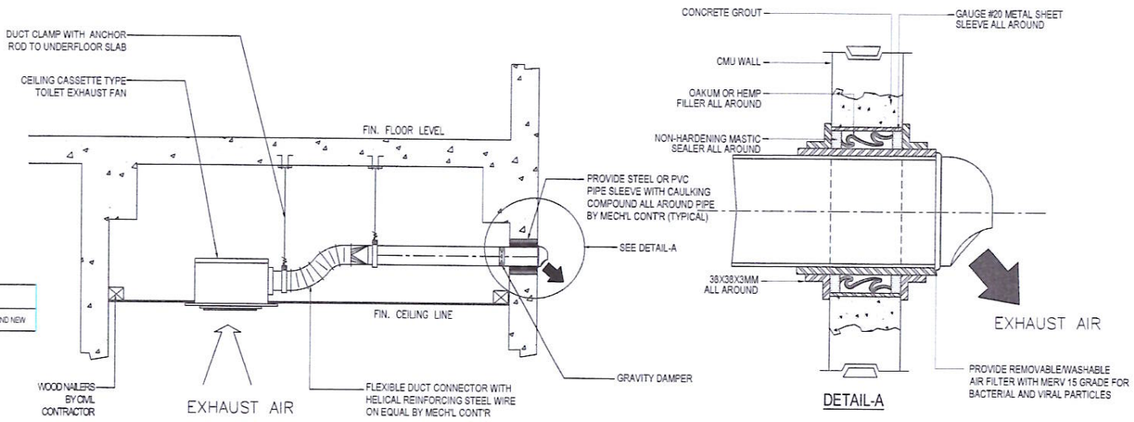
SPLIT AIR CONDITIONER (FLOOR STANDING TYPE)

INDOOR UNIT												
DESIGNATION	QTY.	COOLING CAPACITY		TYPE	AIR FLOW RATE m^3/hr	ELECTRICAL DATA					DIMENTION (H x W x D)
		BTU/HR	HP			WATTS	VOLTS	PHASE	HERTZ	RATED CURRENT (A)	
FCU-4.0 (FS)	12	36,000	4.0	FLOOR STANDING	1020	4500	220	SINGLE	60	24.0	1680 x 600 x 350

OUTDOOR UNIT							REMARKS
DESIGNATION	QTY.	DIMENTION (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 STANDARD ACCESSORIES, READY FOR SERVICE.
					LIQUID	GAS		
ACCU - 4HP	12	999 x 990 x 370	410 A	72	9.5 Ø	15.9 Ø	50	NOTE : ALL FAN COIL UNITS (FCU'S) SHALL BE PROVIDED WITH EVAPORATOR DRAIN PIPE

EXHAUST FAN

DESIGNATION	QTY.	CAPACITY		TYPE	STATIC PRESSURE	RPM	WATTS	MOTOR RATING			LOCATION	REMARKS
		CMH	CFM					VOLTS	PHASE	HERTZ		
EF-1	6	170	100	CEILING CASSETTE	3.80mm H_2O	170	19	220	SINGLE	60	MALE AND FEMALE TOILET	ALL UNITS SHALL BE BRAND NEW

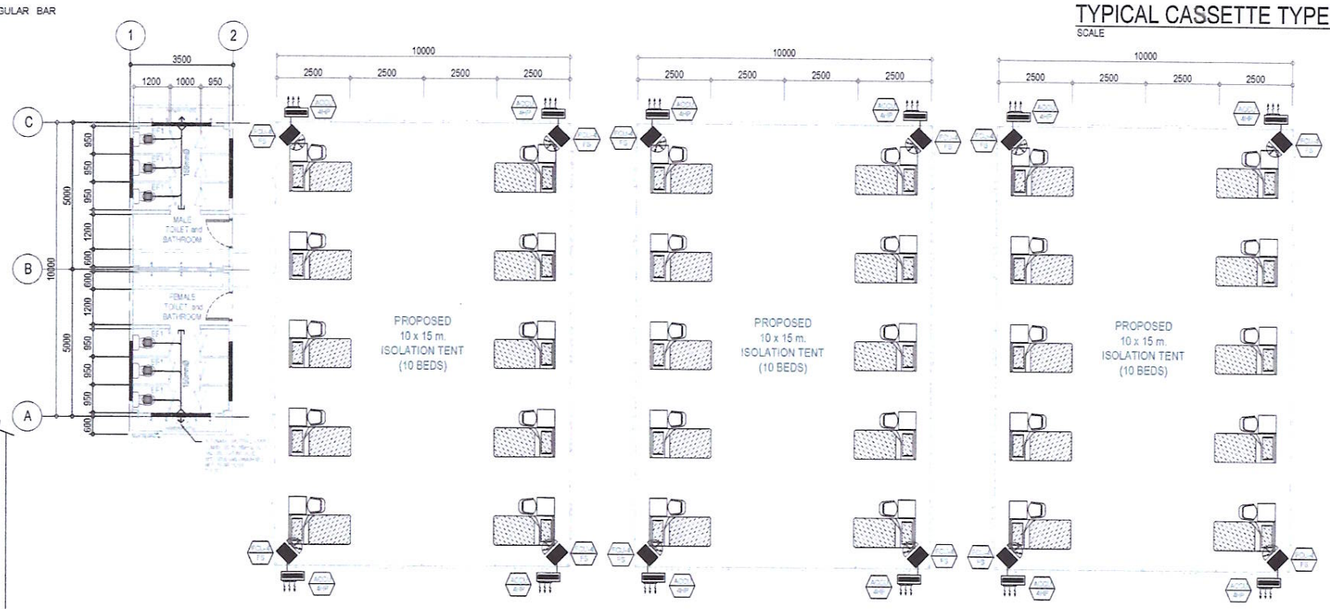


TYPICAL CASSETTE TYPE EXHAUST FAN DETAIL

SCALE NTS

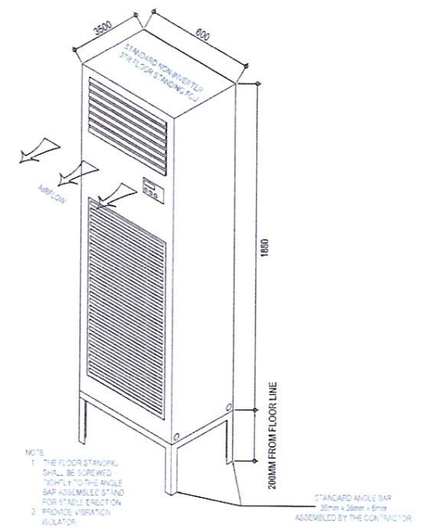
LEGENDS & SYMBOLS :

- FAN COIL UNIT FLOOR STANDING TYPE (FCU - FS)
- AIR COOLED CONDENSING UNIT (ACCU)
- EXHAUST FAN (EF)
- REFRIGERANT LINE
- EXHAUST DUCT



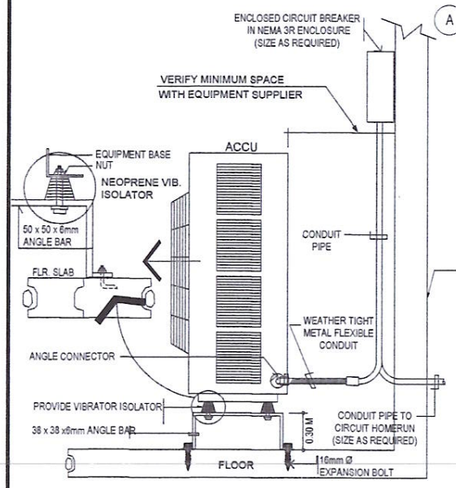
1 / M - 1 AIR CONDITIONING AND VENTILATION LAYOUT

SCALE 1 100M



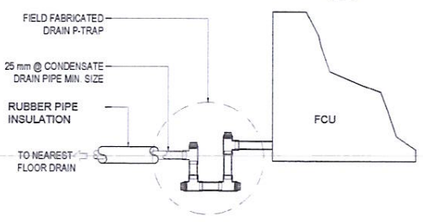
FLOOR STANDING FCU DRAWING DETAIL

SCALE NTS



AIR COOLED CONDENSING UNIT (ACCU) DRAWING DETAIL

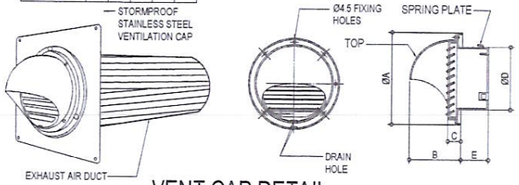
SCALE NTS



DRAIN CONNECTION DETAIL

SCALE NTS

ITEM	A	B	C	D	E
VENT CAP	190	106	23	147	53



VENT CAP DETAIL

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 THREE (3) UNITS HEALTH FACILITY TENT

SHEET CONTENTS:
GENERAL NOTES
LEGENDS
AIR CONDITIONING AND VENTILATION PLAN
MISCELLANEOUS DRAWING DETAIL

DESIGNED BY: **BENJAMIN R GALMAK** ENGINEER I
CADD: **BENJAMIN R GALMAK** ENGINEER I
CHECKED: **CORNELIO T. EVANGELISTA JR. 4** ENGINEER III

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.: BOD B

SHEET NO.: M - 1 of 13