REPUBLIC OF THE PHILIPPINES

**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**

**BUREAU OF DESIGN**

**BUILDINGS DIVISION**

BONIFACIO DRIVE PORT AREA, MANILA

PROJECT TITLE:

# DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SUBMITTED:

05/19/2020

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5/21.20

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# P E R S P E C T I V E

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ARCHITECTURAL

STRUCTURAL

PLUMBING/SANITARY

ELECTRICAL

ELECTRONICS

MECHANICAL

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PROJECT AND LOCATION:
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SHEET CONTENTS:
PERSPECTIVES
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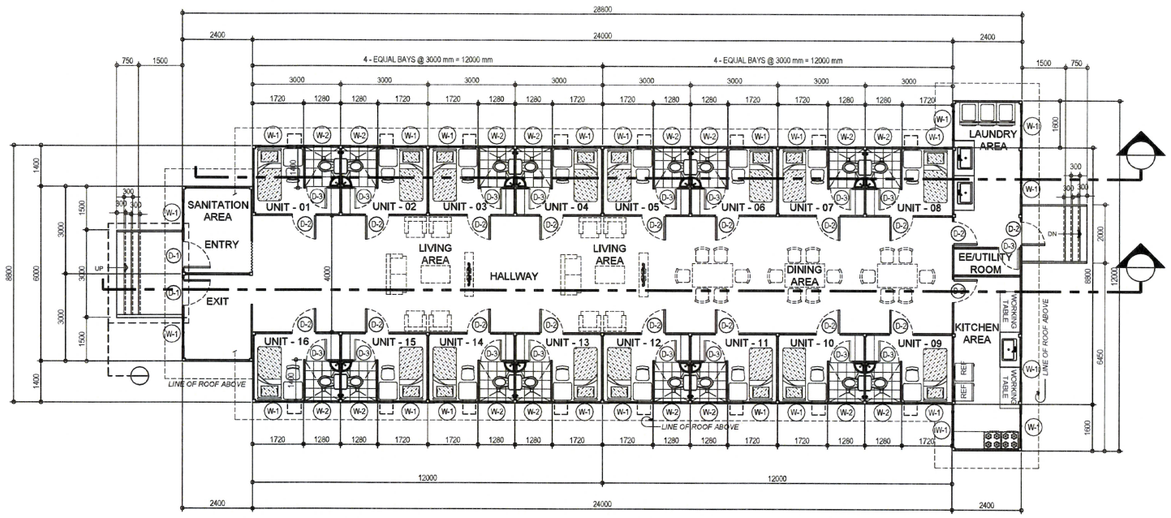
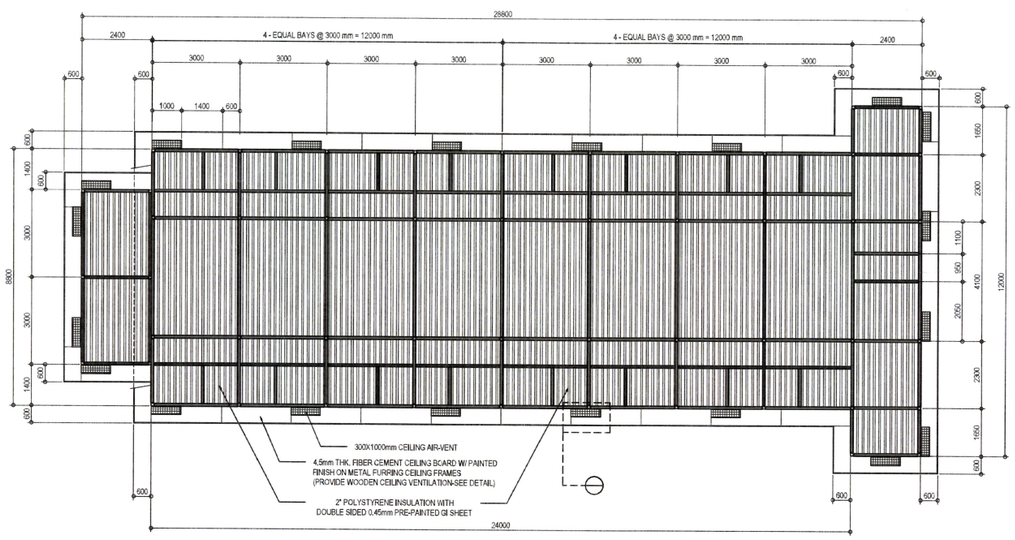
SET NO.: BOD B

SHEET NO.: A-1 4 | 19

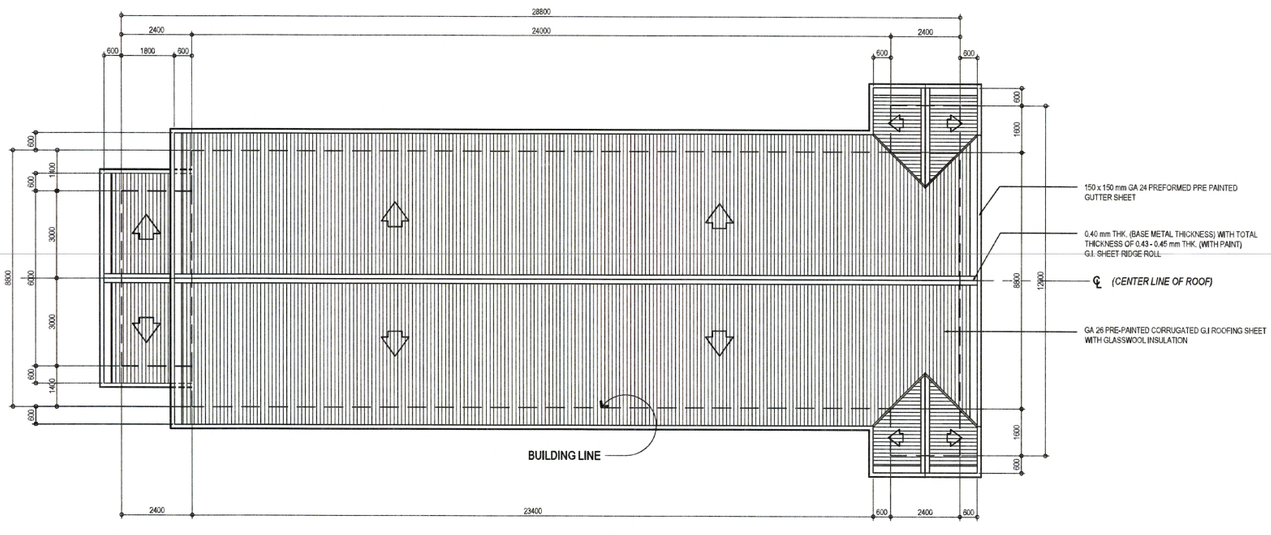



1 / A-2 FLOOR PLAN
SCALE 1: 100 M.

**NOTE:**
FOR METAL FURRING FRAMING (CEILING EAVES.)
PROVIDE 0.6mm THK.X10mm/X50mm/X5000mm METAL DOUBLE FURRING CHANNEL @ 400mm O.C. B.W. W/ 0.8mmTHK.X12mm/X38mm/X5000mm METAL CARRYING CHANNEL @ 1200mm O.C SHORTER SPAN




2 / A-2 REFLECTED CEILING PLAN
SCALE 1: 100 M.




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

## GENERAL NOTES/ SPECIFICATIONS:

### 40ft LUXURY TYPE CONTAINER

- FLATPACKED, MODULAR AND STACKABLE
- EASY TO ASSEMBLE, COMBINABLE AND EXTENDABLE

1. DIMENSIONS
   1.1. 12 m LENGTH x 2.4 m WIDTH X 2.7 m HEIGHT
2. WALLS
   2.1. 2" POLYSTYRENE INSULATION WITH DOUBLE SIDED 0.45mm PRE-PAINTED GI SHEET
3. CEILING
   3.1. 2" POLYSTYRENE INSULATION WITH DOUBLE SIDED 0.45mm PRE-PAINTED GI SHEET
4. ROOF
   4.1. GA 26 PRE-PAINTED CORRUGATED G.I ROOFING SHEET WITH GLASSWOOL INSULATION
5. DOORS:
   5.1. D-1: 900 x 2100 mm DOUBLE SIDED, OVEN BAKED GI SHEET WITH 50 mm POLYSTYRENE INSULATION W/ COMPLETE LOCKSET AND LOUVERS
   5.2. D-2: 800 x 2100 mm DOUBLE SIDED, OVEN BAKED GI SHEET WITH 50 mm POLYSTYRENE INSULATION W/ COMPLETE LOCKSET AND LOUVERS
   5.3. D-3: 700 x 2100 mm DOUBLE SIDED, OVEN BAKED GI SHEET WITH 50 mm POLYSTYRENE INSULATION W/ COMPLETE LOCKSET AND LOUVERS
6. FLOORING
   6.1. 1" MAGNESIUM BOARD WITH PVC TILES/PLANKS FINISH
7. WINDOWS
   7.1. W-1: 1000mm x 1200mm WITH 6mm THK. ORDINARY GLASS UPVC SLIDING WINDOW
   7.2. W-2: 600mm x 600mm WITH 6mm THK. ORDINARY GLASS UPVC AWNING WINDOW
8. STEEL FRAME
   8.1. HOLLOW STEEL SECTION WITH PAINTED FINISH
   (SEE STRUCTURAL DWG. FOR STEEL FRAME SIZES AND CONNECTIONS.)
9. STACKING
   9.1. CAN BE STACKED UP TO FLOOR HEIGHT
10. LIFTING
   10.1. CAN BE LIFTED USING CRANE OR CAN BE LIFTED MANUALLY WHEN DISMANTLED
11. ADDITIONAL SPECIFICATIONS
   11.1. TOILET AND BATH FIXTURES
   11.2. INTERIOR PARTITIONS

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SHEET CONTENTS:
FLOOR PLAN
REFLECTED CEILING PLAN
ROOF PLAN

DESIGNED BY:
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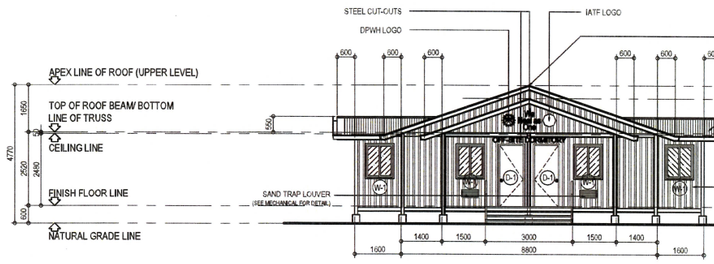
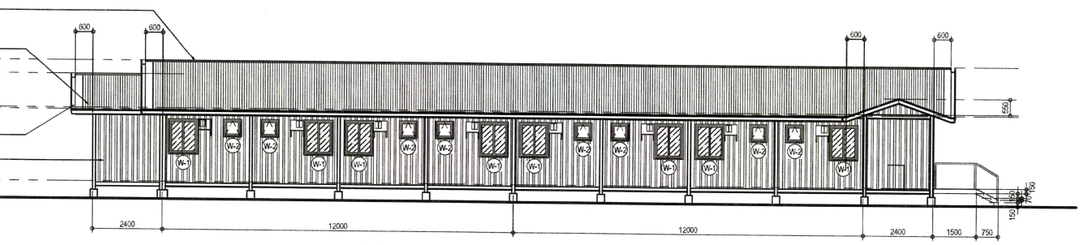
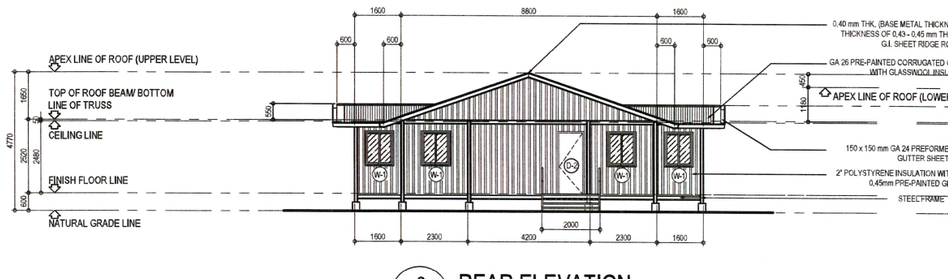
SET NO.: BOD / B
SHEET NO.: A-2 / 4 | 19



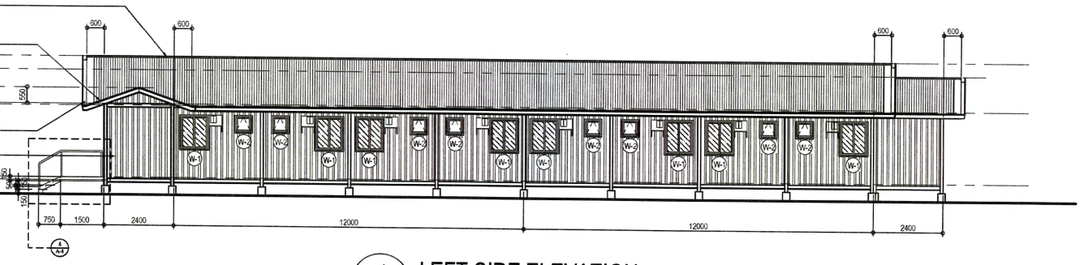

1 / A-3 **FRONT ELEVATION**
SCALE 1: 100 M.



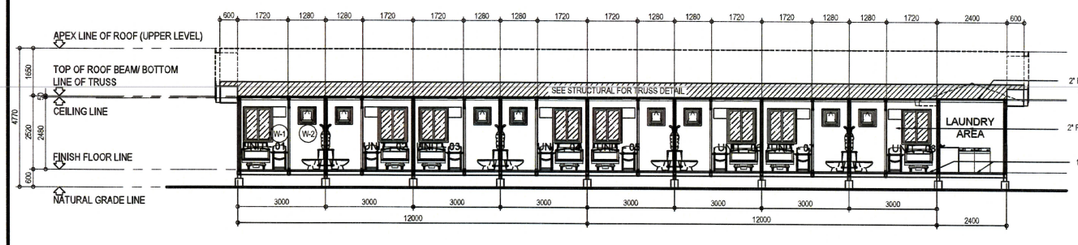
2 / A-3 **RIGHT SIDE ELEVATION**
SCALE 1: 100 M.



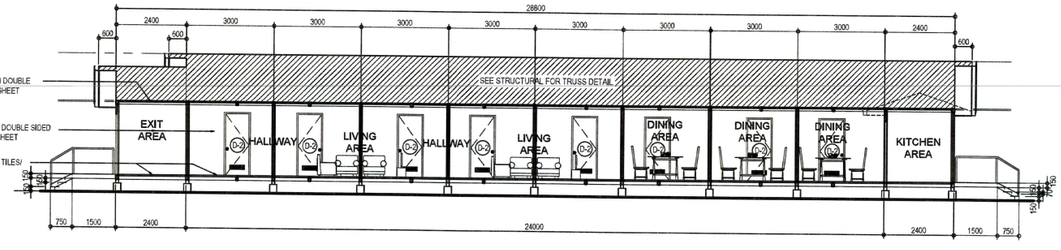

3 / A-3 **REAR ELEVATION**
SCALE 1: 100 M.



4 / A-3 **LEFT SIDE ELEVATION**
SCALE 1: 100 M.




5 / A-3 **LONGITUDINAL SECTION** (ALONG MEDICAL STAFF UNITS)
SCALE 1: 100 M.




6 / A-3 **LONGITUDINAL SECTION** (ALONG LIVING/ DINING AREA)
SCALE 1: 100 M.

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|---|---|---|---|---|---|---|---|
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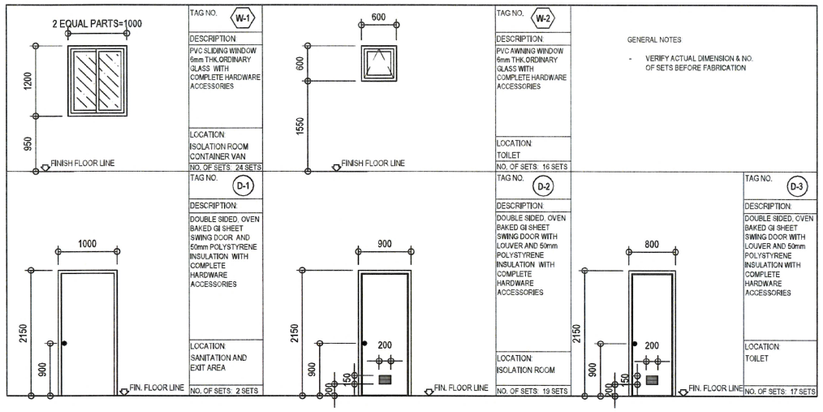
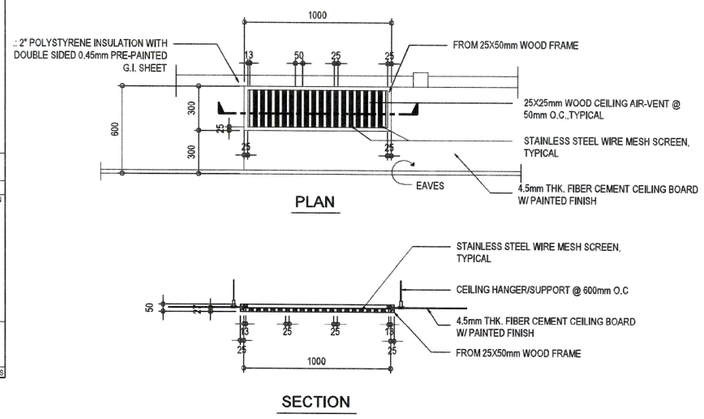
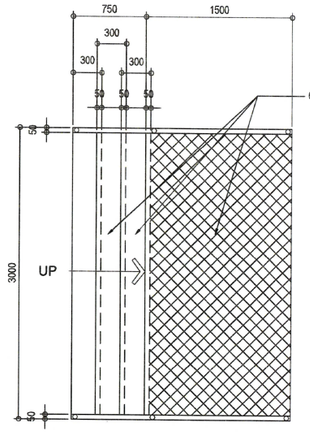


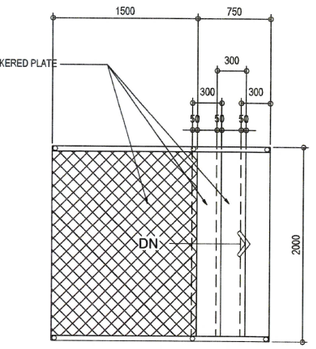

1 / A-4 **SCHEDULE OF DOORS AND WINDOWS**
SCALE 1:50 M.



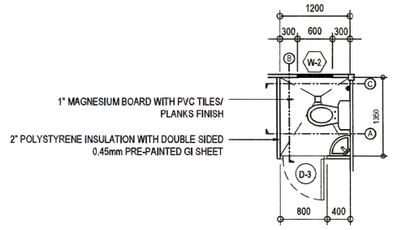

2 / A-4 **DETAIL OF CEILING AIR-VENT**
SCALE 1: 20 M.



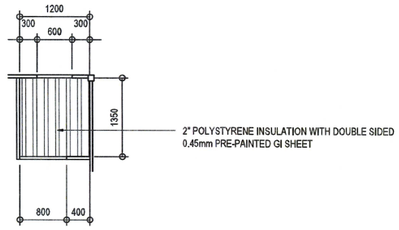

**STAIR PLAN** (ALONG ENTRANCE)



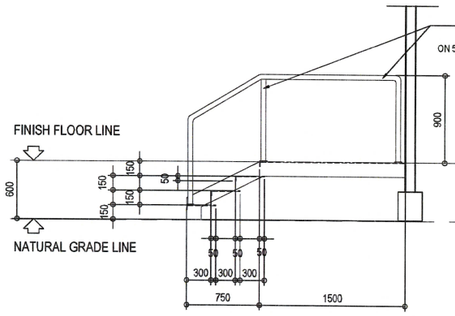

**STAIR PLAN** (ALONG LAUNDRY AREA)



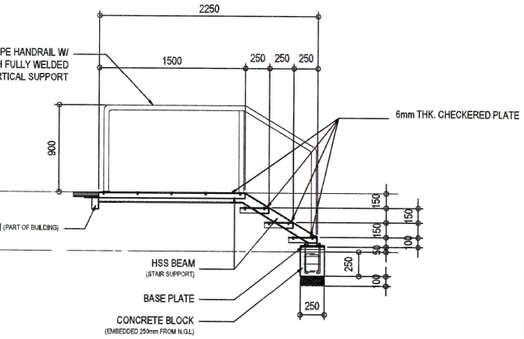

TYPICAL DETAIL PLAN



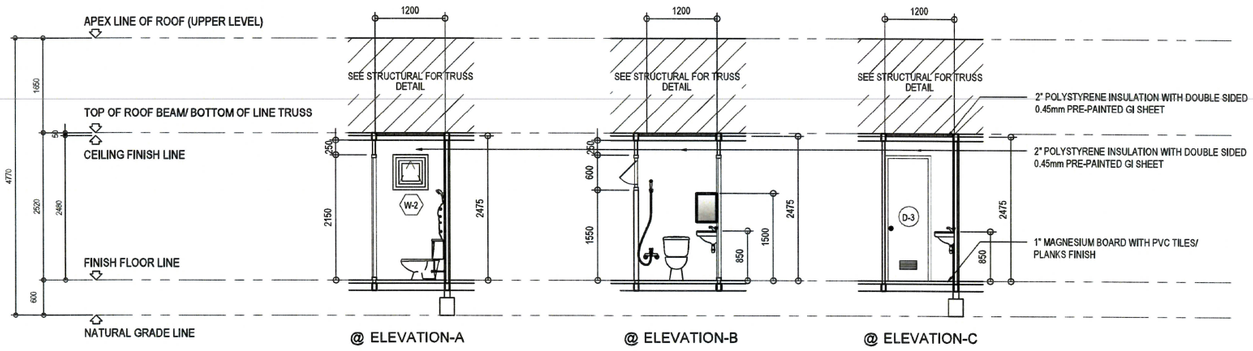

TYPICAL DETAIL CEILING PLAN




TYPICAL SIDE ELEVATION

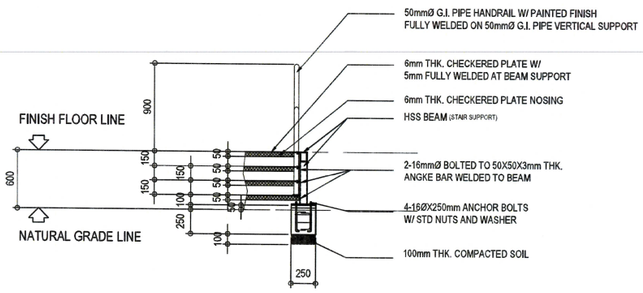



TYPICAL DETAIL SECTION OF STAIRS




TYPICAL INTERIOR ELEVATIONS

3 / A-4 **DETAIL OF TOILET**
SCALE 1: 50 M.




TYPICAL DETAIL OF STAIR (SHOWING STRINGER AND RAILING)

4 / A-4 **STAIR DETAILS**
SCALE 1: 30 M.

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SHEET CONTENTS:
SCHEDULE OF DOORS AND WINDOWS
DETAIL OF CEILING AIR-VENT
TOILET DETAILS
STAIR DETAILS

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SET NO.: BOD B
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## DESIGN CRITERIA :

1.0 DEAD LOADS (DL) :

| | | |
|---|---|---|
| 1.1 CONCRETE | 24.00 | kN/m³ |
| 1.2 STEEL | 77.00 | kN/m³ |
| 1.3 SOIL | 16.00 | kN/m³ |
| 1.4 ROOFING & INSULATION | 0.20 | kPa |
| 1.5 100MM THK. CHB WALL | 2.10 | kPa |

2.0 LIVE LOADS (LL) :

| | | |
|---|---|---|
| 2.1 ROOF | 0.60 | kPa |
| 2.2 RESIDENTIAL | 1.90 | kPa |

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/S

3.1 BASIC WIND SPEED, V = 270 kM/hour
3.2 OCCUPANCY CATEGORY = IV
3.3 EXPOSURE CATEGORY = B
3.4 VELOCITY PRESSURE AT HEIGHT 'Z', qz = $0.613K_ZK_{ZT}K_DV^2$ ($N/^2$); V in m/s

WHERE, V IN KM/HOUR
$K_{ZT}$ = 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/M²

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

IF LOCATION OF THE PROJECT IS NOT APPLICABLE FOR THE GIVEN WIND SPEED ASSUMPTION, THE DESIGN SHALL BE REVISED ACCORDINGLY.

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, 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 (40,000PSI)

4.3 STRUCTURAL STEEL :
FOR ALL STEEL PIPES AND BASE PLATES, USE ASTM A36 STEEL Fy = 248 MPa (36,000PSI)

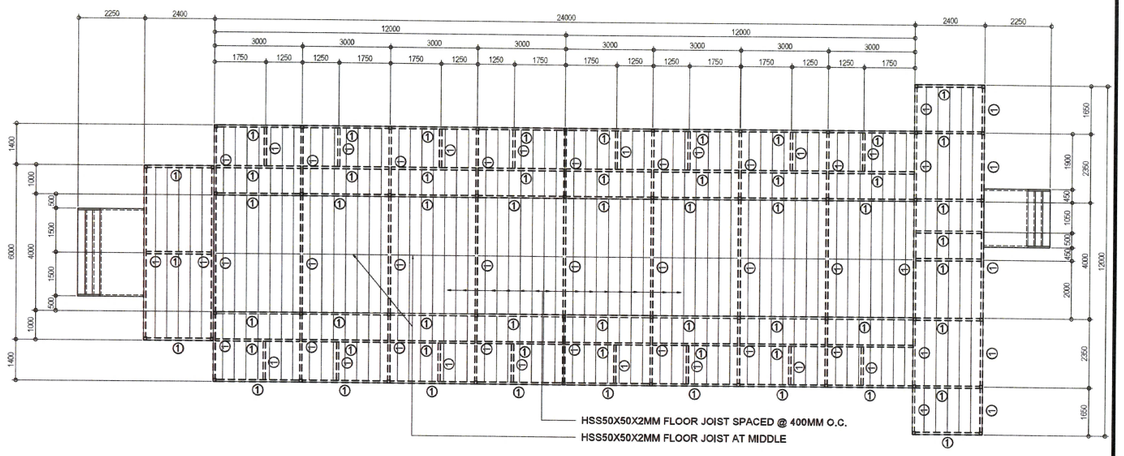
4.4 WELDS :
USE E60XX ELECTRODES

4.5 BOLTS :
USE A307 THREADED & ANCHOR BOLTS Fnt = 310 MPa (44,000PSI)
Fnv = 165 MPa (23,000PSI)

5.0 NOTES ON FOUNDATION

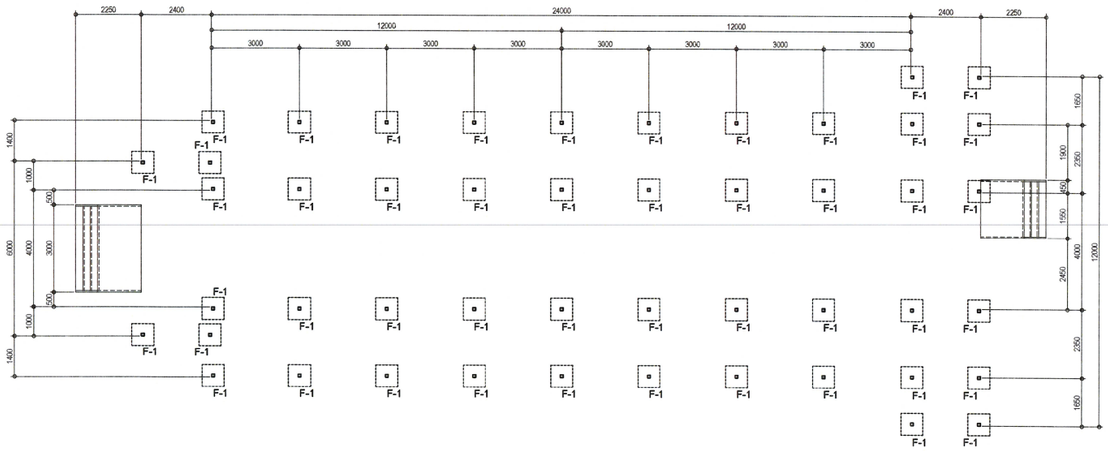
5.1 NO FOOTINGS SHALL REST ON FILL PROVIDE 100MM THK WELL COMPACTED GRAVEL BED BEFORE CASTING.

5.2 FOOTING IS DESIGNED WITH AN ASSUMED MINIMAL ALLOWABLE SOIL BEARING CAPACITY (SBC) OF 96 kPa. IF LOCATION IS KNOWN OR FOUND OUT TO HAVE AN SBC OF LESS THAN THE ASSUMED, THE FOOTING DESIGN SHALL BE REVISED ACCORDINGLY.

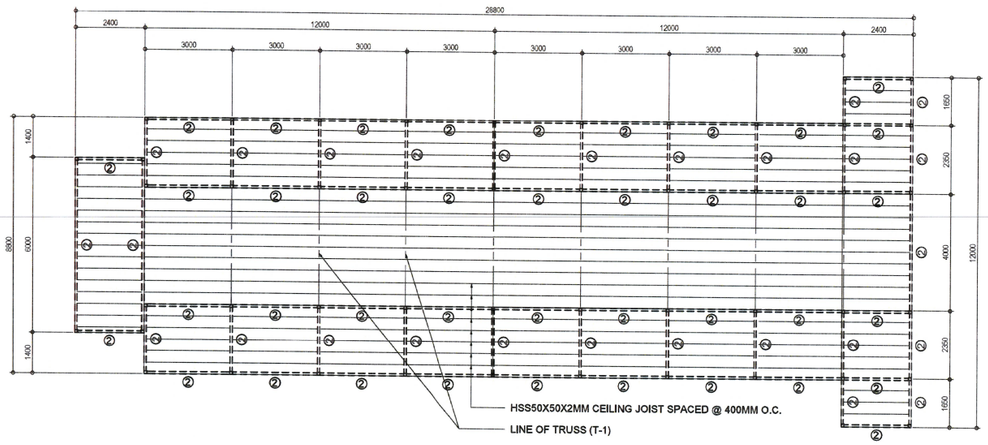



① GRADE BEAM: HSS 75X125X6.25 MM
COLUMN: HSS 100X100X6.25 MM

2 / S-1 GROUND FRAMING PLAN
SCALE 1: 100 M.




1 / S-1 FOUNDATION PLAN
SCALE 1: 100 M.




(SHOWING ROOF BEAM)

② ROOF BEAM: HSS 75X100X6.25 MM

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

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

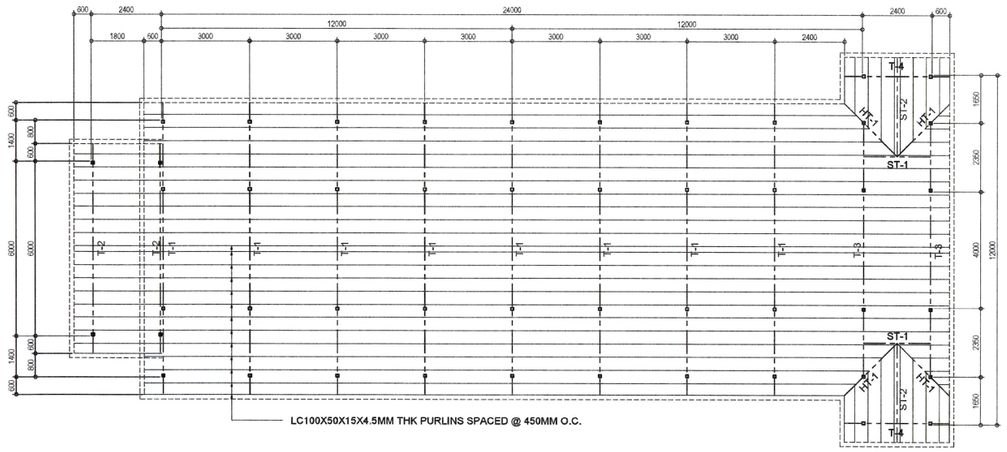
PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
DESIGN CRITERIA
PLANS:
FOUNDATION
GROUND FRAMING
ROOF FRAMING

DESIGNED BY: L.D. TAN & J.M.S. CRUZ ENGINEER III
CADD: J.M.S. CRUZ & J.F.L. CARANDANG ENGINEER II
CHECKED: KATHRINE ANNE C. MACOY 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

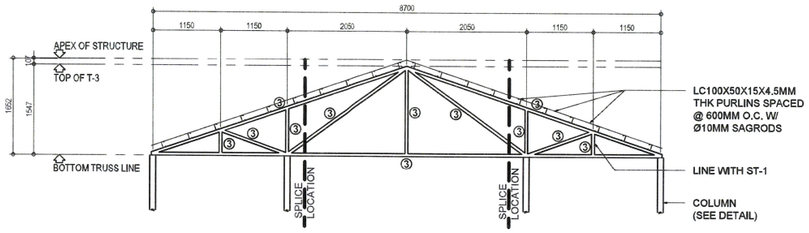
SET NO.: BOD B
SHEET NO.: S-1 6 | 19




(SHOWING TRUSSES)

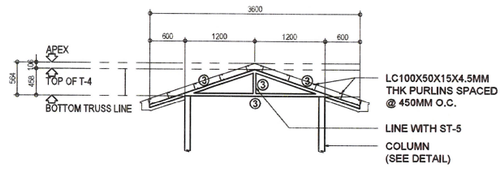
③ TRUSS MEMBERS: HSS 62.5X62.5X6 MM

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



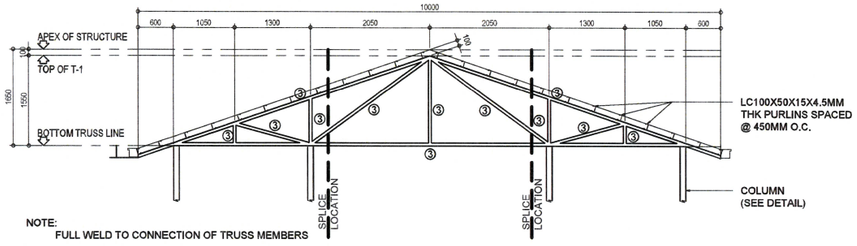

NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

4 / S-2 DETAIL OF T-3
SCALE 1: 50 M.



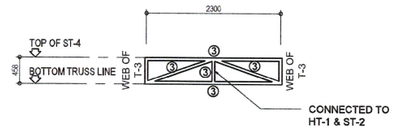

NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

5 / S-2 DETAIL OF T-4
SCALE 1: 50 M.



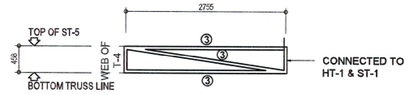

NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

2 / S-2 DETAIL OF T-1
SCALE 1: 50 M.



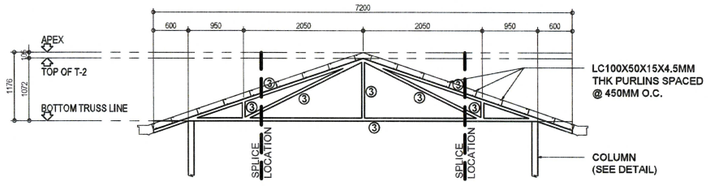

NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

6 / S-2 DETAIL OF ST-1
SCALE 1: 50 M.



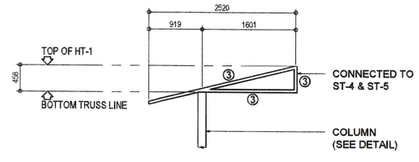

NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

7 / S-2 DETAIL OF ST-2
SCALE 1: 50 M.




NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

3 / S-2 DETAIL OF T-2
SCALE 1: 50 M.




NOTE:
FULL WELD TO CONNECTION OF TRUSS MEMBERS

8 / S-2 DETAIL OF HT-1
SCALE 1: 50 M.

NOTE:
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BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
PLAN:
ROOF FRAMING
TRUSS DETAILS:
T-1, T-2, T-3, T-4, ST-1, ST-2, HT-1

DESIGNED BY:
J.D. TAN & J.M.S. CRUZ
ENGINEER II
CADD:
J.F.L. CARANDANG
ENGINEER II
CHECKED:
KATHRINE ANNE C. MACOY
ENGINEER IV

SUBMITTED:
JOSEPHINE P. ISTURIS
CHIEF, BUILDINGS DIVISION

RECOMMENDING APPROVAL:
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ARISTARCO M. DOROY
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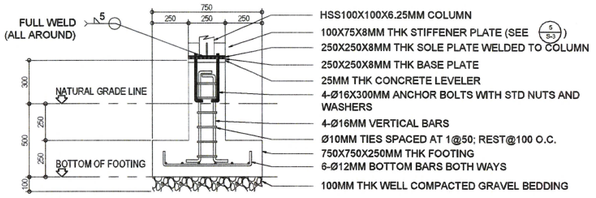
APPROVED:
*SEE COVER SHEET FOR SIGNATURE*
EMIL K. SADAIN, CESO I
UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS

SET NO.: BOD B

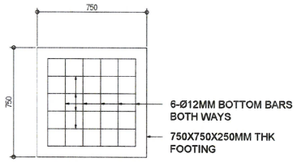
SHEET NO.: S-2 (6 | 19)




(ELEVATION)

## 1 / S-3 DETAIL OF FOOTING, PEDESTAL, AND BASE PLATE (F-1)

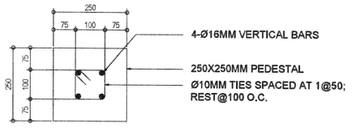
SCALE 1: 20 M.




(ELEVATION)

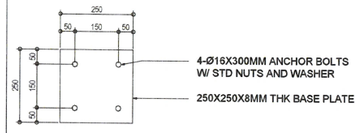
## 2 / S-1 DETAIL OF FOOTING

SCALE 1: 20 M.



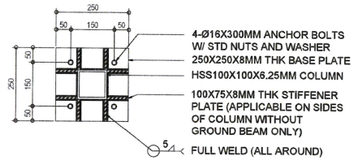

## 3 / S-3 DETAIL OF PEDESTAL

SCALE 1: 10 M.



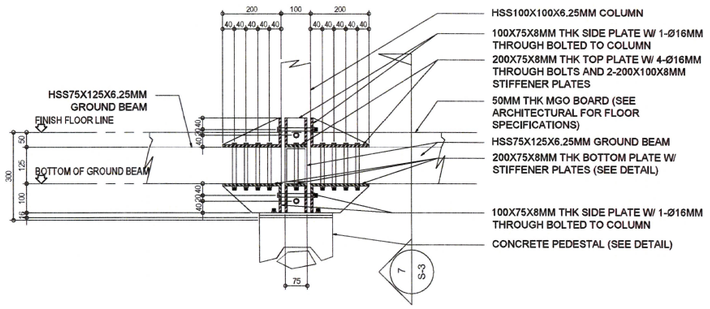

## 4 / S-3 DETAIL OF BASE PLATE

SCALE 1: 10 M.



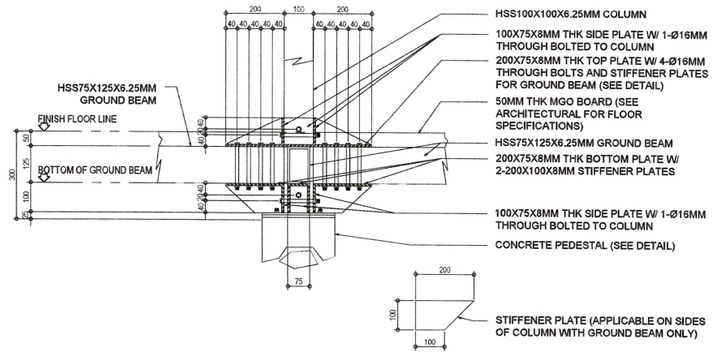

## 5 / S-3 DETAIL OF SOLE PLATE

SCALE 1: 10 M.



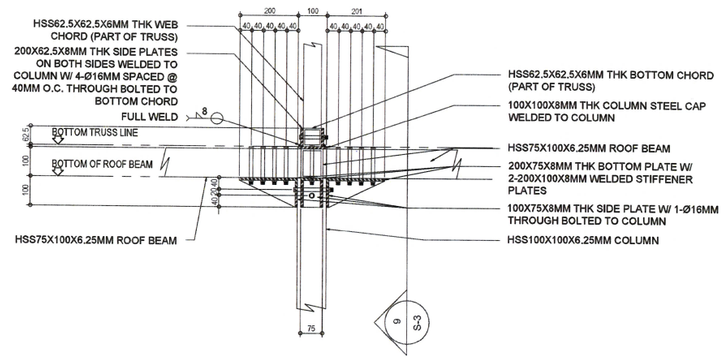

## 6 / S-3 TYP. DETAIL CONNECTION OF GROUND BEAM TO COLUMN

SCALE 1: 10 M.



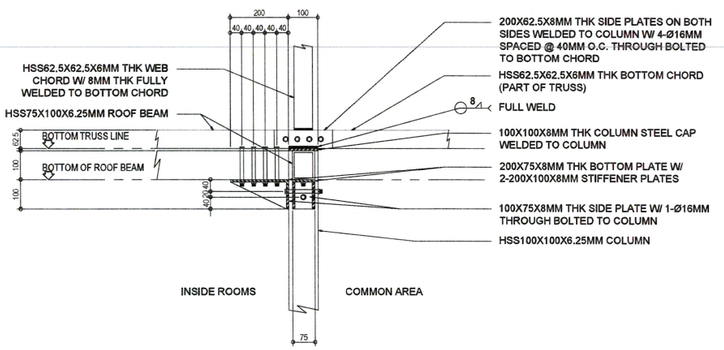

## 7 / S-3 SECTION

SCALE 1: 10 M.



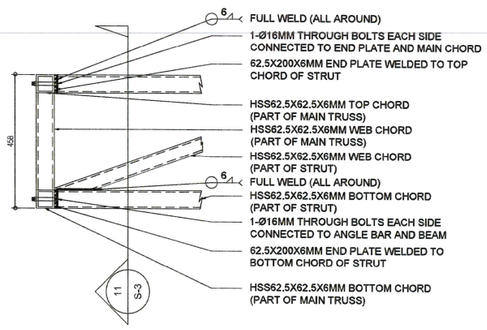

## 8 / S-3 TYP. DETAIL CONNECTION OF ROOF BEAM/TRUSS TO COLUMN

SCALE 1: 10 M.



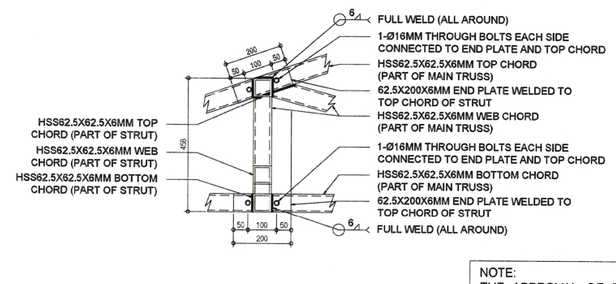

## 9 / S-3 SECTION

SCALE 1: 10 M.




## 10 / S-3 TYP. DETAIL CONNECTION OF STRUT TO MAIN TRUSS

SCALE 1: 10 M.




## 11 / S-3 SECTION

SCALE 1: 10 M.

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**BUREAU OF DESIGN**
**BUILDINGS DIVISION**

BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
DETAILS:
FOOTING, PEDESTAL
BASE PLATE, SOLE PLATE
CONNECTIONS:
GROUND BEAM TO COLUMN
ROOF BEAM/TRUSS TO COLUMN
STRUT TO MAIN TRUSS

DESIGNED BY: **J.D. TAN & J.M.S. CRUZ** ENGINEER II
CADD: **J.F.I. CARANDANG** ENGINEER II
CHECKED: **KATHRINE ANNE C. MACOY** ENGINEER IV

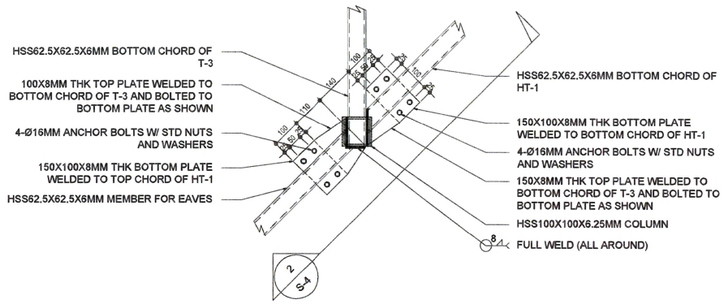
SUBMITTED:
**JOSEPHINE P. ISTURIS**
CHIEF, BUILDINGS DIVISION

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

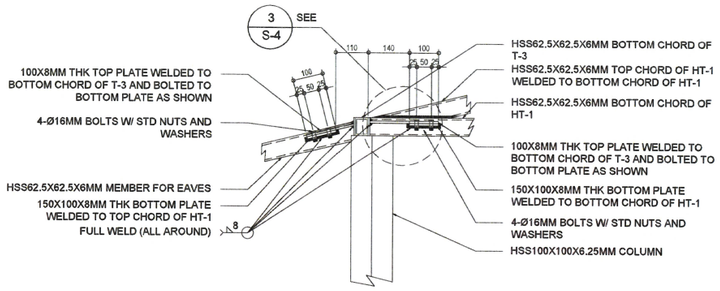
APPROVED:
*SEE COVER SHEET FOR SIGNATURE*
**EMIL K. SADAIN, CESO I**
UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS

SET NO.: BOD B

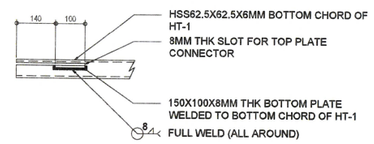
SHEET NO.: S-3 6 | 19



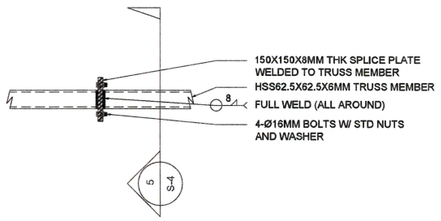

1 S-4 **DETAIL CONNECTION OF HT-1 TO T-3 (TOP VIEW)**
SCALE 1: 10 M.



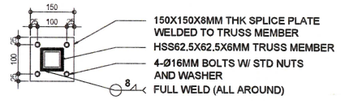

2 S-4 **SECTION/ ELEVATION**
SCALE 1: 10 M.



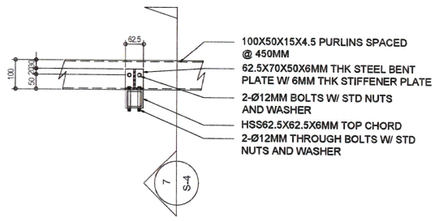

3 S-4 **BLOW-UP DETAIL OF BOTTOM CHORD**
SCALE 1: 10 M.



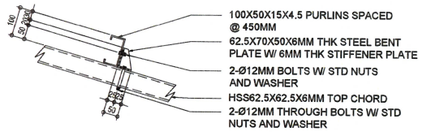

4 S-4 **SPLICE DETAIL FOR TRUSS MEMBERS**
SCALE 1: 10 M.



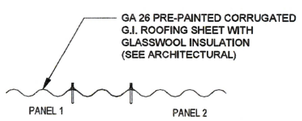

5 S-4 **SECTION**
SCALE 1: 10 M.



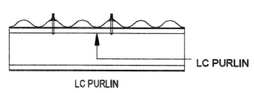

6 S-4 **TYP. DETAIL CONNECTION OF PURLIN**
SCALE 1: 10 M.



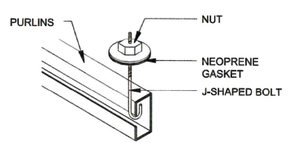

7 S-4 **SECTION**
SCALE 1: 10 M.



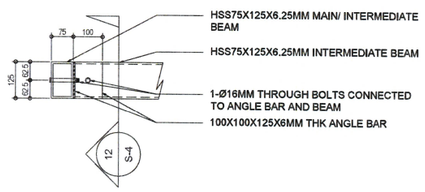

8 S-4 **ROOF PANEL SIDE LAP DETAIL**
SCALE 1: 10 M.



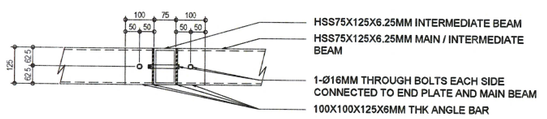

9 S-4 **J-BOLT SPACING**
SCALE 1: 10 M.




10 S-4 **ROOFING FIXER**
SCALE 1: 10 M.




11 S-4 **TYP. DETAIL CONNECTION OF BEAM TO BEAM**
SCALE 1: 10 M.




12 S-4 **SECTION**
SCALE 1: 10 M.

NOTE:
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DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS
**BUREAU OF DESIGN**
BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
CONNECTIONS:
HT-1 TO T-3
SPLICE DETAIL FOR TRUSS MEMBERS
PURLIN TO TRUSS
G.I. ROOFING TO PURLIN
BEAM TO BEAM

DESIGNED BY: **L.D. TAN & J.M.S. CRUZ** ENGINEER II
CADD: **J.F.L. CARANDANG** ENGINEER IV
CHECKED: **KATHRINE ANNE C. MACOY** ENGINEER IV

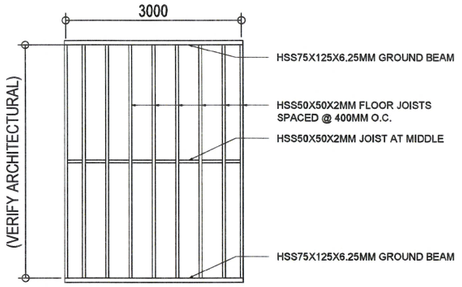
SUBMITTED: **JOSEPHINE P. ISTURIS** CHIEF, BUILDINGS DIVISION

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

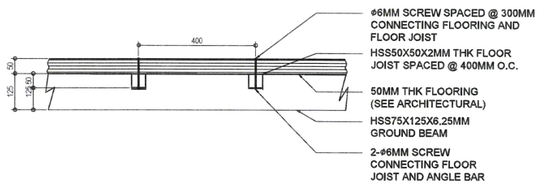
SET NO.: BOD B

SHEET NO.: S-4 6 | 19

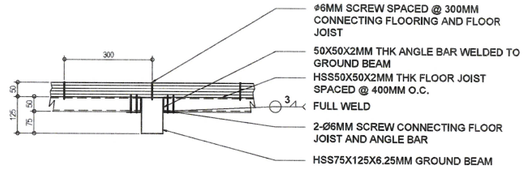



NOTES:
- VERIFY ARCHITECTURAL DRAWINGS FOR ACTUAL FLOOR PANELING
- WELDED CONNECTION FOR MEMBERS OF EACH PANEL

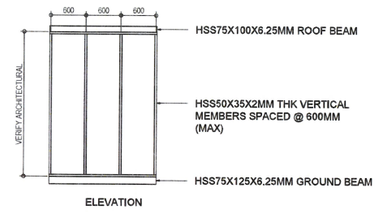
1 / S-5 TYPICAL DETAIL OF FLOOR FRAMING
SCALE 1: 50 M.




2 / S-5 TYPICAL FLOORING FRAMING CONNECTION TO GROUND BEAM
SCALE 1: 10 M.

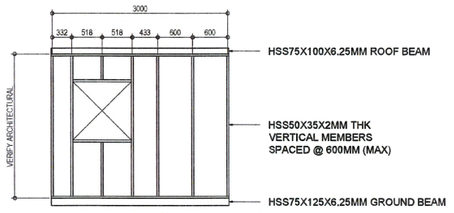



3 / S-5 FLOORING DETAIL (SECTION)
SCALE 1: 10 M.



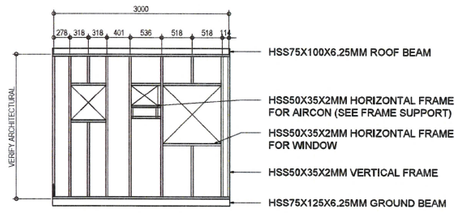

NOTE:
- VERIFY ARCHITECTURAL FOR ACTUAL WALL PANELING
- WELDED CONNECTION FOR MEMBERS OF EACH PANEL

4 / S-5 TYPICAL DETAIL OF WALL FRAMING
SCALE 1: 50 M.



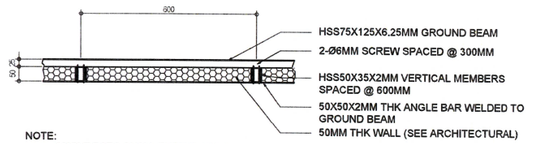

NOTE: VERIFY OPENING LOCATION AS SHOWN IN ARCHITECTURAL PLANS

5 / S-5 TYPICAL DETAIL OF WALL FRAMING W/ OPENING
SCALE 1: 50 M.



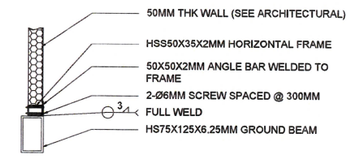

NOTE: VERIFY OPENING LOCATION AS SHOWN IN ARCHITECTURAL PLANS

6 / S-5 TYPICAL DETAIL OF WALL FRAMING W/ OPENING
SCALE 1: 50 M.



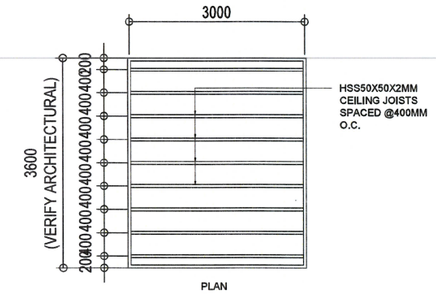

NOTE:
ANGLE BARS SHALL EXTEND UNTIL BEFORE THE CONNECTIONS OF COLUMN TO GROUND BEAM

7 / S-5 WALL FRAMING (TOP VIEW)
SCALE 1: 10 M.



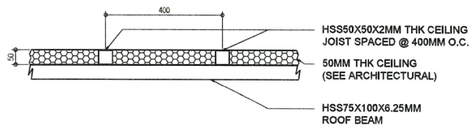

NOTE:
ANGLE BARS SHALL EXTEND UNTIL BEFORE THE CONNECTIONS OF COLUMN TO GROUND BEAM

8 / S-5 TYP. WALL FRAMING CONNECTION TO BEAM
SCALE 1: 10 M.

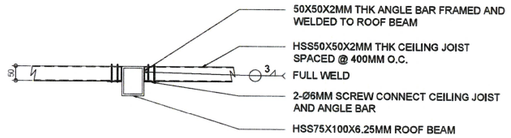



NOTES:
- VERIFY ARCHITECTURAL DRAWINGS FOR ACTUAL CEILING PANELING
- WELDED CONNECTION FOR MEMBERS OF EACH PANEL

9 / S-5 TYPICAL DETAIL OF CEILING FRAMING
SCALE 1: 50 M.

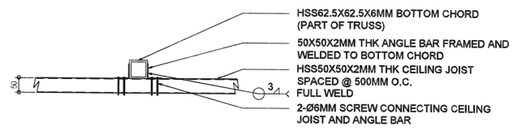



10 / S-5 CEILING DETAIL (SECTION)
SCALE 1: 10 M.




NOTE:
ANGLE BARS SHALL EXTEND UNTIL BEFORE THE CONNECTIONS OF COLUMN TO ROOF/TRUSS BEAM

11 / S-5 TYPICAL CEILING FRAMING CONNECTION TO ROOF BEAM
SCALE 1: 10 M.




NOTE:
ANGLE BARS SHALL EXTEND UNTIL BEFORE THE CONNECTIONS OF COLUMN TO ROOF/TRUSS BEAM

12 / S-5 TYPICAL CEILING FRAMING CONNECTION TO TRUSS
SCALE 1: 10 M.

NOTE:
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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 FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
FRAMES AND CONNECTIONS:
FLOORING
WALLS
CEILING

DESIGNED BY: C.D. TAN & J.M.S. CRUZ, ENGINEER II
CADD: J.F.L. CARANDANG, ENGINEER II
CHECKED: KATHRINE ANNE C. MACOY, ENGINEER IV

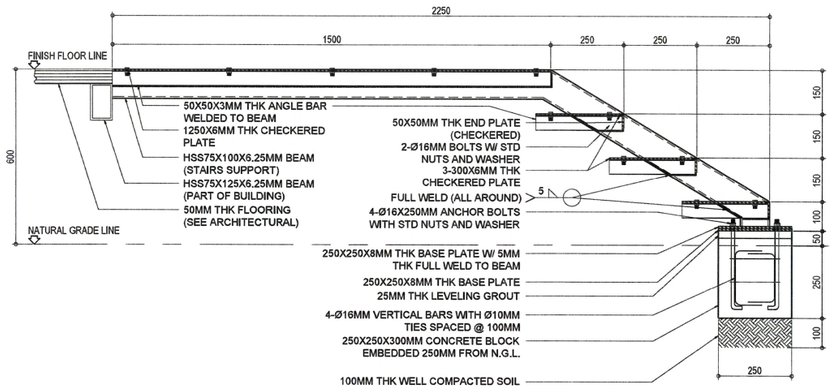
SUBMITTED: JOSEPHINE P. ISTURIS, CHIEF, BUILDINGS DIVISION

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

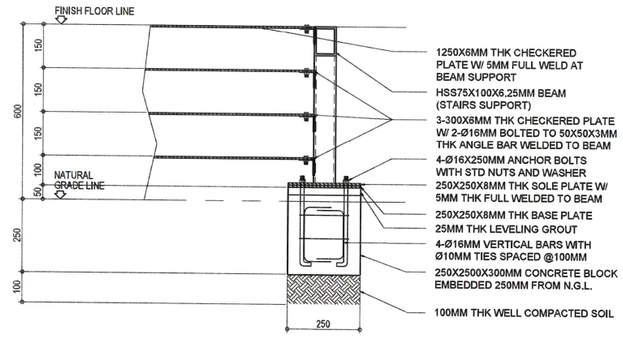
APPROVED: *SEE COVER SHEET FOR SIGNATURE* EMIL K. SADAIN, CESO I, UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS

SET NO.: BOD B

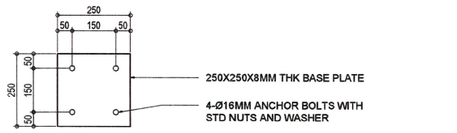
SHEET NO.: S-5 6 19



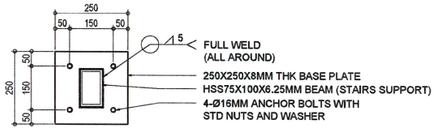

1 / S-6 TYPICAL DETAIL OF STAIR (SIDE VIEW)
SCALE 1: 10 M.



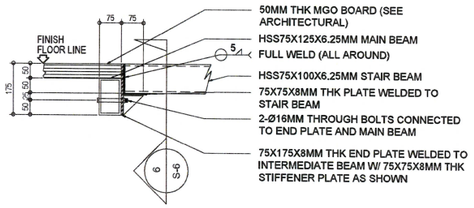

2 / S-6 TYPICAL DETAIL OF STAIR (FRONT VIEW)
SCALE 1: 10 M.



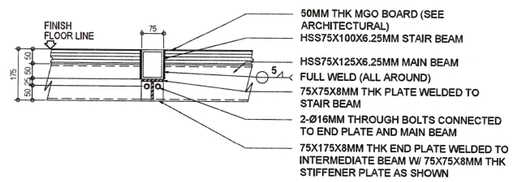

3 / S-6 DETAIL OF BASE PLATE FOR STAIRS
SCALE 1: 10 M.



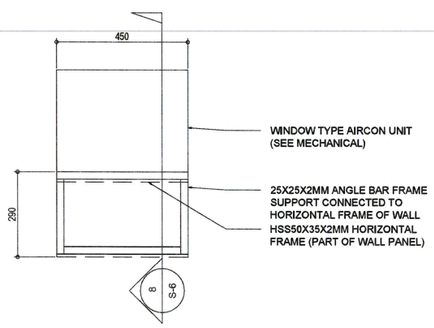

4 / S-6 DETAIL OF SOLE PLATE FOR STAIRS
SCALE 1: 10 M.



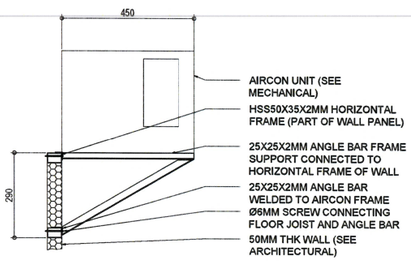

5 / S-6 TYP. DETAIL CONNECTION OF STAIR BEAM TO MAIN BEAM
SCALE 1: 10 M.




6 / S-6 SECTION
SCALE 1: 10 M.




7 / S-6 FRAME SUPPORT FOR ACU
SCALE 1: 10 M.




8 / S-6 SECTION
SCALE 1: 10 M.

NOTE:
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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 FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
DETAILS:
STAIR FRAME, FOOTING, BASE PLATE, SOLE PLATE, FRAME SUPPORT FOR ACU
CONNECTION:
STAIR BEAM TO MAIN BEAM

DESIGNED BY: **C.D. TAN & J.M.S. CRUZ** ENGINEER II
CADD: **J.F.L. CARANDANG** ENGINEER II
CHECKED: **KATHRINE ANNE C. MACOY** 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.: S-6 6 | 19

# 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.

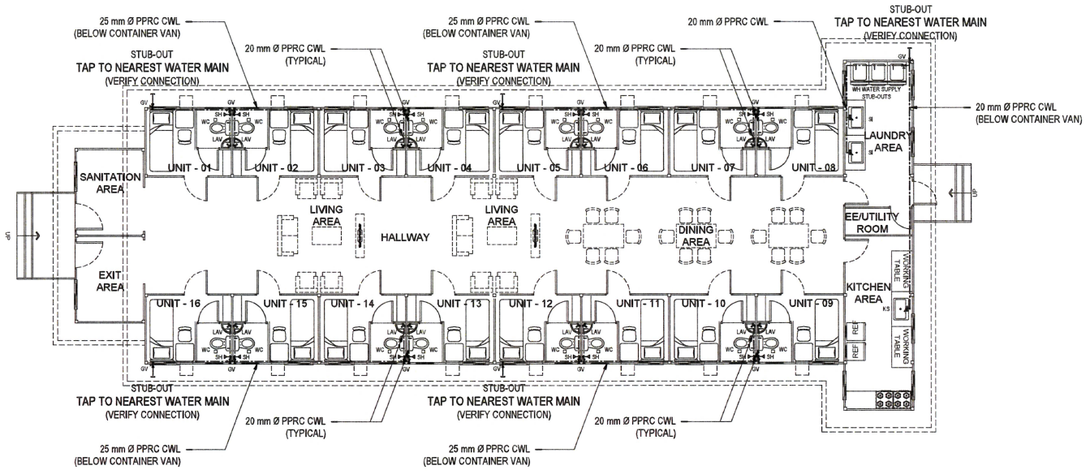
7. NOT LESS THAN 300 mm OF AIR SPACE MUST BE LEFT BETWEEN THE TOP OF THE SEWAGE AND THE UNDER PART OF THE VAULT ROOF SLAB.

8. NO SEPTIC VAULT MUST BE CONSTRUCTED UNDER THE BUILDING.

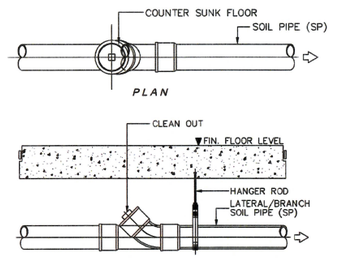
9. ALL PLUMBING WORKS SHALL BE DONE BY A LICENSED MASTER PLUMBER AND A LICENSED PLUMBING CONTRACTOR.

# PLUMBING LEGEND:

| | | | |
|---|---|---|---|
| **CO** | CLEAN OUT | **SD** | SHOWER DRAIN |
| **FD** | FLOOR DRAIN | **SH** | SHOWER HEAD |
| **FAU** | FAUCET | **SI** | SINK |
| **GV** | GATE VALVE | **WC** | WATER CLOSET |
| **KS** | KITCHEN SINK | | |
| **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) | | |
| **PVCSP** | POLYVINYL CHLORIDE SOIL PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) | | |
| **PVCVTR** | POLYVINYL CHLORIDE VENT THROUGH ROOF (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) | | |
| **PVCWP** | POLYVINYL CHLORIDE WASTE PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) | | |

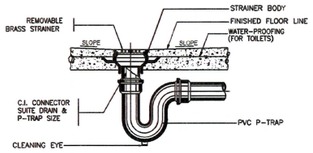



3 P-1 **FLOOR PLAN (WATER LINE LAYOUT)**
SCALE 1:100 M.

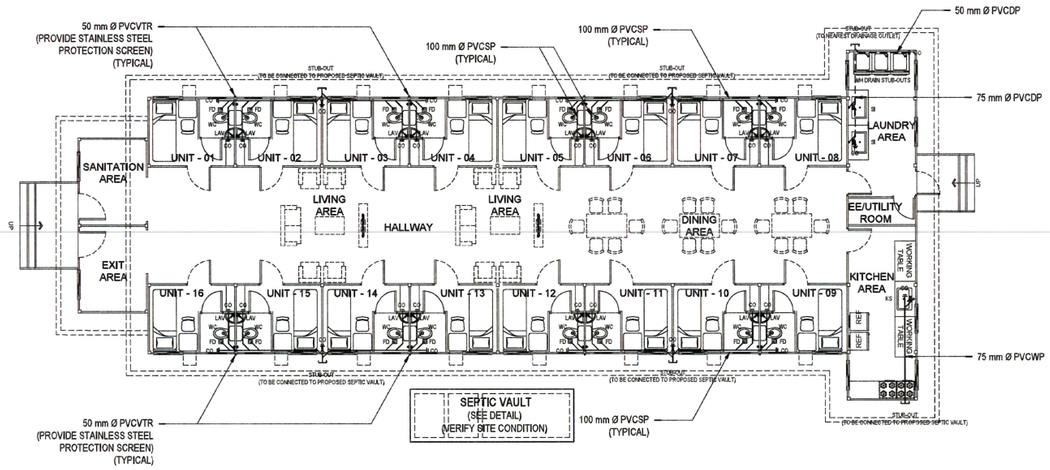



*CLEAN-OUT DETAIL*

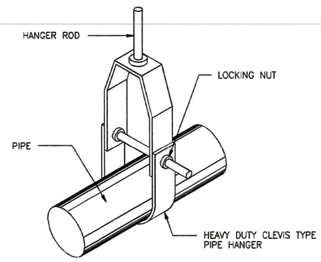
6 P-1 **CLEAN-OUT DETAIL**
SCALE NTS.



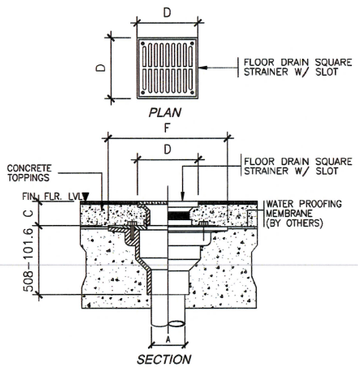

5 P-1 **FLOOR DRAIN P-TRAP DETAIL**
SCALE NTS.




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




1 P-1 **PIPE HANGER DETAIL**
SCALE NTS.




*SCHEDULE OF DIMENSIONS*

| PIPE SIZE IN 'A' | DIMENSIONS IN MM. | | |
|---|---|---|---|
| | C | D | F |
| 50 | 38.10 | 100X100 | 225.42 |
| 75 | 38.10 | 125X125 | 225.42 |
| 100 | 40.00 | 150X150 | 225.42 |
| 150 | 50.80 | 200X200 | 282.57 |

4 P-1 **FLOOR DRAIN 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:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
PLUMBING NOTES
PLUMBING LEGEND
FLOOR PLAN (SEWER AND DRAINAGE LINE LAYOUT)
FLOOR PLAN (WATER LINE LAYOUT)
PIPE HANGER DETAIL
FLOOR DRAIN DETAIL
FLOOR DRAIN P-TRAP DETAIL
CLEAN-OUT DETAIL

DESIGNED BY: **REUBEN C. RAMOS** ENGINEER II
CADD: **REUBEN C. RAMOS** ENGINEER II
CHECKED: **FRANCIS G. SERRANO** 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 / 3 / 19

# PLUMBING NOTES:

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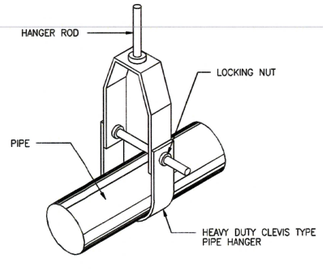
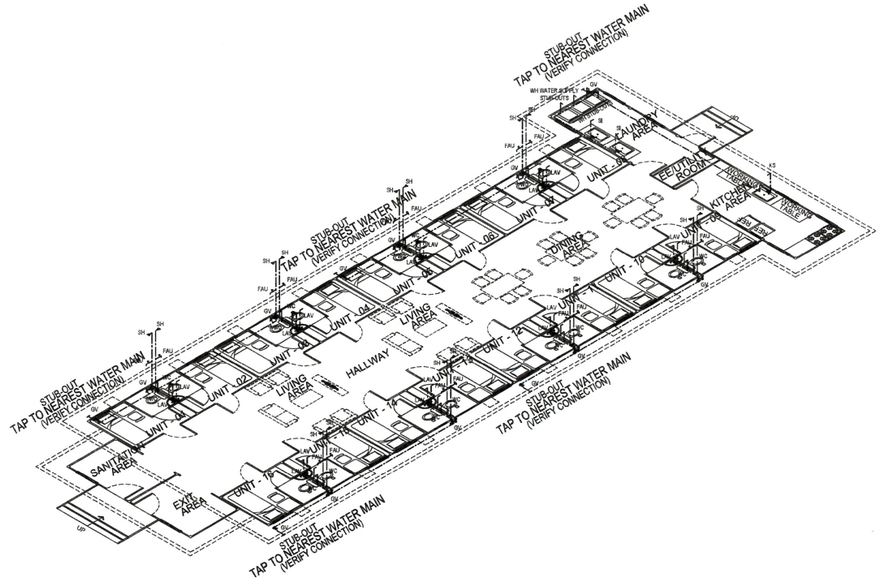
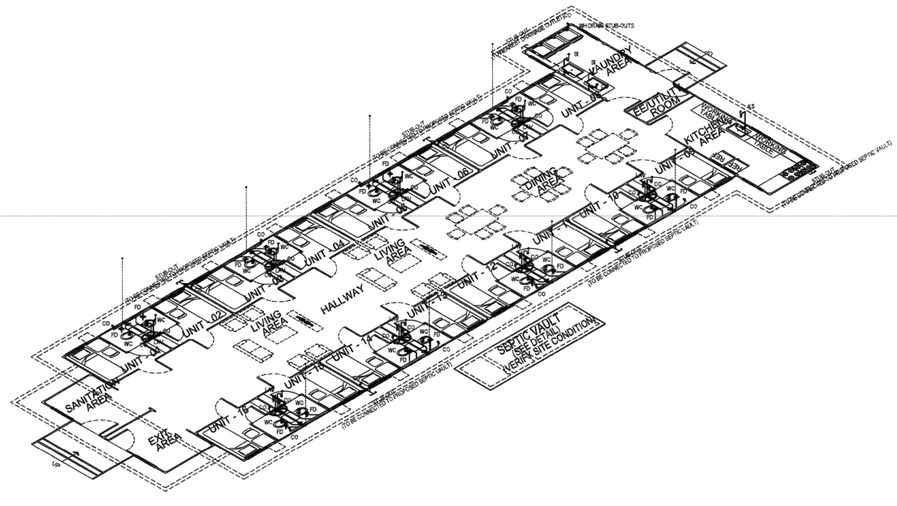


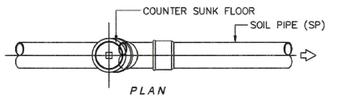

1 / P-2 **PIPE HANGER DETAIL**
SCALE NTS.




3 / P-2 **ISOMETRIC DIAGRAM (WATER LINE LAYOUT)**
SCALE NTS.

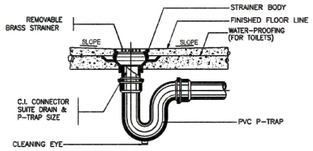



2 / P-2 **ISOMETRIC DIAGRAM (SEWER AND DRAINAGE LINE LAYOUT)**
SCALE NTS.

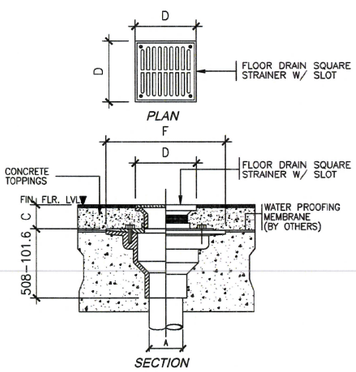



*CLEAN-OUT DETAIL*

6 / P-2 **CLEAN-OUT DETAIL**
SCALE NTS.




5 / P-2 **FLOOR DRAIN P-TRAP DETAIL**
SCALE NTS.




*SCHEDULE OF DIMENSIONS*

| PIPE SIZE IN 'A' | DIMENSIONS IN MM. | | |
|---|---|---|---|
| | C | D | F |
| 50 | 38.10 | 100X100 | 225.42 |
| 75 | 38.10 | 125X125 | 225.42 |
| 100 | 40.00 | 150X150 | 225.42 |
| 150 | 50.80 | 200X200 | 282.57 |

4 / P-2 **FLOOR DRAIN 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:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
PLUMBING NOTES
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ISOMETRIC DIAGRAM (SEWER AND DRAINAGE LINE LAYOUT)
ISOMETRIC DIAGRAM (WATER LINE LAYOUT)
PIPE HANGER DETAIL
FLOOR DRAIN DETAIL
FLOOR DRAIN P-TRAP DETAIL
CLEAN-OUT DETAIL

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

SUBMITTED: **JOSEPHINE P. ISTURIS** 02/17/2020 — 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-2 (3 | 19)

# 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.

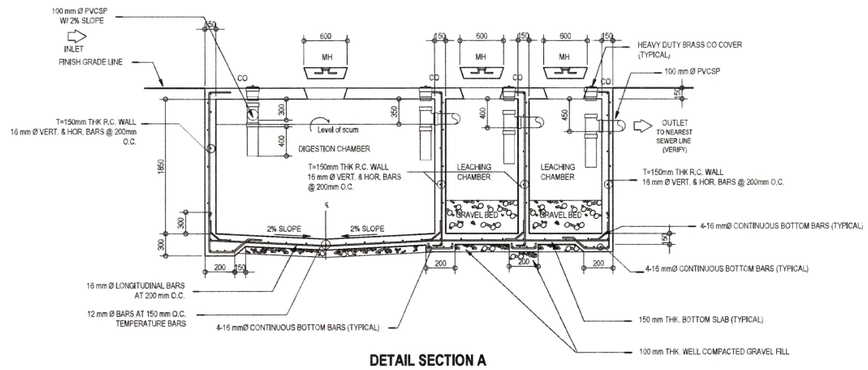
7. NOT LESS THAN 300 mm OF AIR SPACE MUST BE LEFT BETWEEN THE TOP OF THE SEWAGE AND THE UNDER PART OF THE VAULT ROOF SLAB.

8. NO SEPTIC VAULT MUST BE CONSTRUCTED UNDER THE BUILDING.

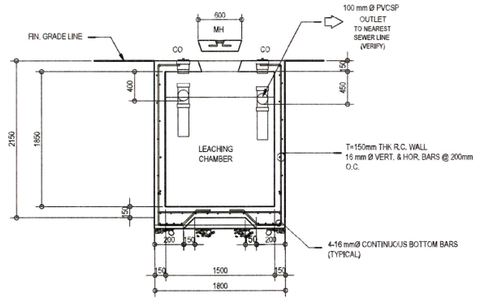
9. ALL PLUMBING WORKS SHALL BE DONE BY A LICENSED MASTER PLUMBER AND A LICENSED PLUMBING CONTRACTOR.

# PLUMBING LEGEND:

| | |
|---|---|
| **CO** | CLEAN OUT |
| **FD** | FLOOR DRAIN |
| **FAU** | FAUCET |
| **GV** | GATE VALVE |
| **LAV** | LAVATORY |
| **KS** | KITCHEN SINK |
| **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) |
| **PVCSP** | POLYVINYL CHLORIDE SOIL PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) |
| **PVCVTR** | POLYVINYL CHLORIDE VENT THROUGH ROOF (SERIES 600) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) |
| **PVCWP** | POLYVINYL CHLORIDE WASTE PIPE (SERIES 1000) (ASTM D2729 / ASTM D3311, ISO 4435 / ASTM D2564) |
| **SD** | SHOWER DRAIN |
| **SH** | SHOWER HEAD |
| **SI** | SINK |
| **WC** | WATER CLOSET |




**DETAIL SECTION A**

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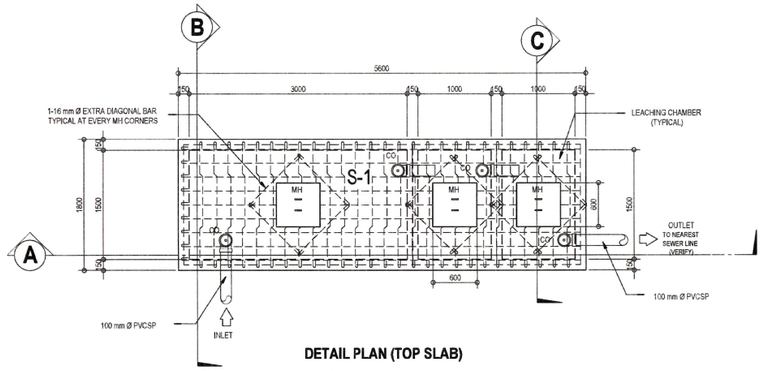
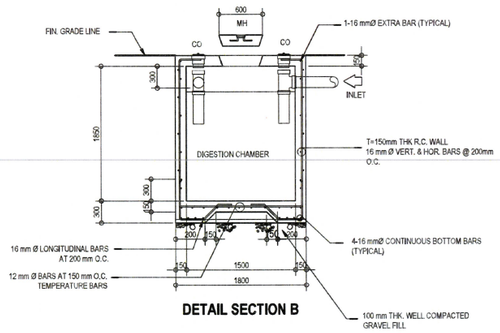



**DETAIL PLAN (TOP SLAB)**




**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-3 DETAIL OF SEPTIC VAULT (with REINFORCING BARS)

SCALE NTS.

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**BUREAU OF DESIGN**
BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

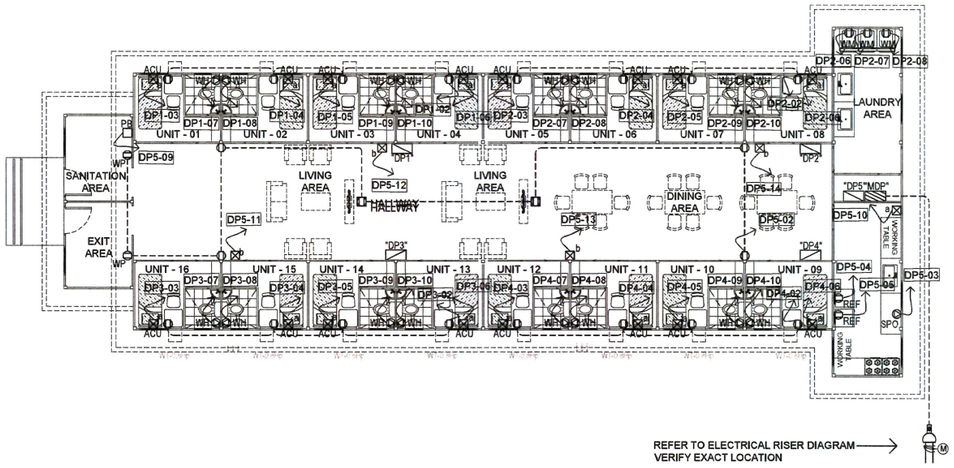
PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

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

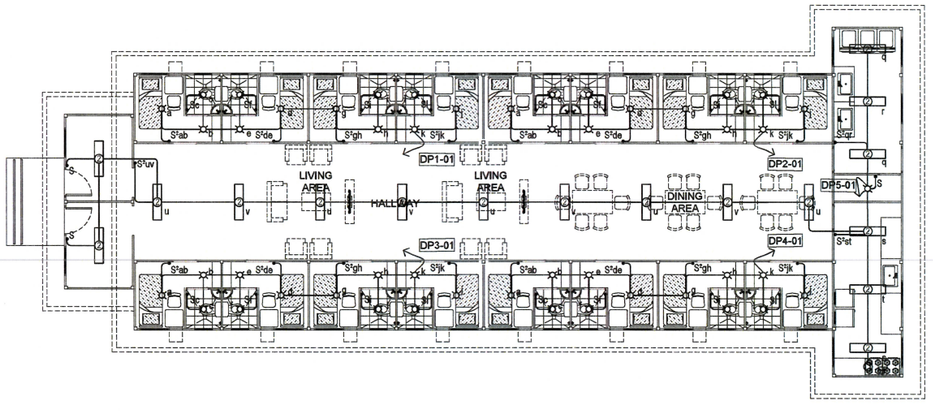
DESIGNED BY: **REUBEN C. RAMOS** ENGINEER II
CADD: **REUBEN C. RAMOS** ENGINEER II
CHECKED: **FRANCIS G. SERRANO** ARCHITECT IV

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-3 3 19




2 / E-1 **POWER LAYOUT** (OPTION 1)
SCALE 1: 100 M.




1 / E-1 **LIGHTING LAYOUT** (OPTION 1)
SCALE 1: 100 M.

**LEGEND:**

- ⊠a — AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 20AT IN NEMA 1 ENCLOSURE
- ⊠b — AUTOMATIC CIRCUIT BREAKER 50AF, 2P, 240VOLTS, 30AT IN NEMA 1 ENCLOSURE

## SCHEDULE OF WIRE, CONDUIT, AND ROD:

### SERVICE WIRE AND CONDUIT:

| | |
|---|---|
| Y1 | 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) in 40mm Ø RSC. |
| Y2 | 2 - 50mm² THHN + 1 - 14mm² THHN (G) in 50mm Ø RSC. |
| Y3 | 2 - 250mm² THHN + 1 - 50mm² THHN (G) in 90mm Ø RSC. |

### GROUNDING WIRE AND CONDUIT:

| | |
|---|---|
| GW1 | 1 - 8.0 mm² THHN in 15mm Ø PVC |
| GW2 | 1 - 14 mm² THHN in 15mm Ø PVC. |
| GW3 | 1 - 50 mm² THHN in 20mm Ø PVC. |

### GROUNDING ROD:

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

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SHEET CONTENTS:
GENERAL NOTES
ELECTRICAL SYMBOLS
LIGHTING LAYOUT
POWER LAYOUT
SCHEDULE OF WIRES AND CONDUITS

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
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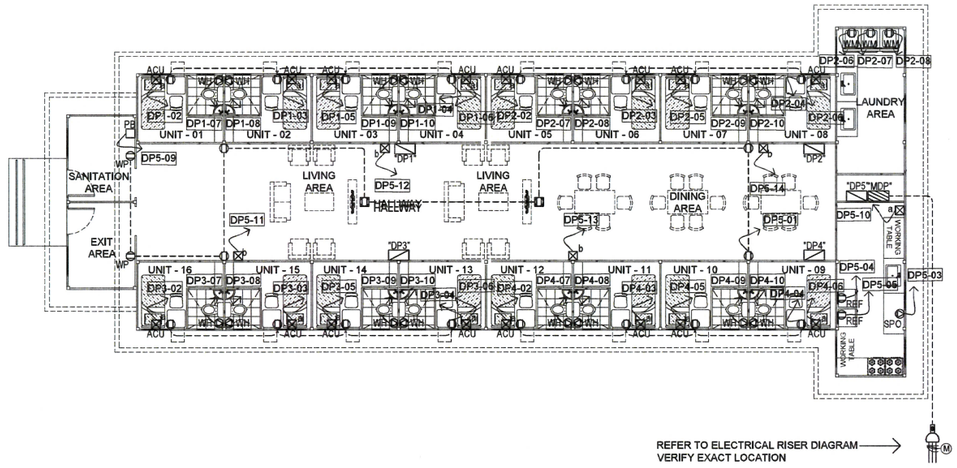
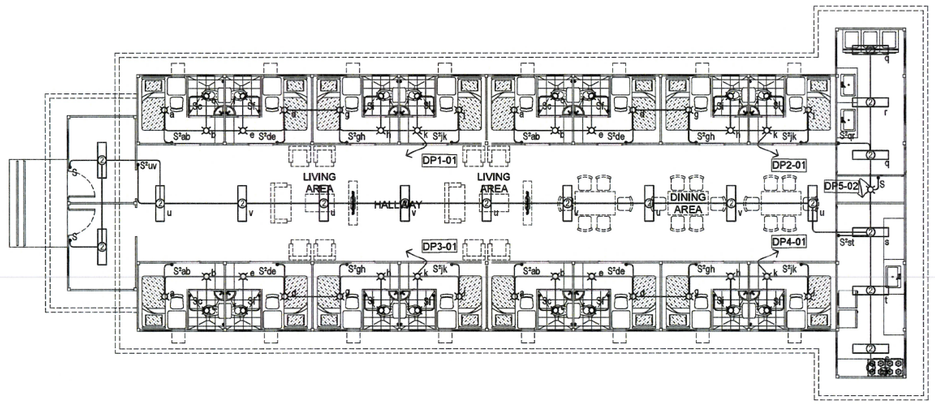
SET NO.: BOD / B
SHEET NO.: E-1 / 4 | 19




2 / E-1 **POWER LAYOUT** (OPTION 2)
SCALE 1: 100 M.




1 / E-1 **LIGHTING LAYOUT** (OPTION 2)
SCALE 1: 100 M.

**LEGEND:**

$\boxtimes_a$ AUTOMATIC CIRCUIT BREAKER
50AF, 2P, 240VOLTS, 20AT
IN NEMA 1 ENCLOSURE

$\boxtimes_b$ AUTOMATIC CIRCUIT BREAKER
50AF, 2P, 240VOLTS, 30AT
IN NEMA 1 ENCLOSURE

## SCHEDULE OF WIRE, CONDUIT, AND ROD:

### SERVICE WIRE AND CONDUIT:

Y1 3 - 22mm² THHN + 1 - 8.0mm² THHN (G) in 32mm Ø RSC.

Y2 3 - 30mm² THHN + 1 - 8.0mm² THHN (G) in 40mm Ø RSC.

Y3 3 - 150mm² THHN + 1 - 30mm² THHN (G) in 80mm Ø RSC.

### GROUNDING WIRE AND CONDUIT:

GW1 1 - 8.0 mm² THHN in 15mm Ø PVC

GW3 1 - 30 mm² THHN in 20mm Ø PVC.

### GROUNDING ROD:

GR1 20mmØ x 2400mm LENGTH COPPERCLAD GROUNDING ROD

GR2 25mmØ x 3000mm LENGTH COPPERCLAD GROUNDING ROD

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SCHEDULE OF WIRES AND CONDUITS

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

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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-1a / 4 / 19

## 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 SINGLE-PHASE, 2-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

- 1-18 WATTS COMPACT FLUORESCENT LIGHTING FIXTURE
- 2-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, SURFACED CEILING MOUNTED
- S — SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS, 250VOLTS)
- $S^2$ — 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS, 250VOLTS)
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS, 250VOLTS) EF DENOTES EXHAUST FAN OUTLET, REF DENOTES REFRIGERATOR OUTLET, WM DENOTES WASHING MACHINE OUTLET
- FLOOR MOUNTED POP-UP CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS, 250VOLTS)
- $SPO$ — SPECIAL PURPOSE OUTLET, GROUNDING TYPE (30AMPS, 250VOLTS)
- PB — PULLBOX
- "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 LOADS AND COMPUTATION: (OPTION 1)

### MAIN DISTRIBUTION PANELBOARD "MDP"

| CKT. NO. | LOAD DESCRIPTION | VA PER CKT. | VOLTS | BRANCH BREAKER RATING AF | P | AT | SIZE OF HOMERUN ( WIRES IN CONDUIT ) |
|---|---|---|---|---|---|---|---|
| 1 | "DP1" | 22768 | 230 | 225 | 2 | 125 | 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) IN 32mm Ø RSC |
| 2 | "DP2" | 22768 | 230 | 225 | 2 | 125 | 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) IN 32mm Ø RSC |
| 3 | "DP3" | 22768 | 230 | 225 | 2 | 125 | 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) IN 32mm Ø RSC |
| 4 | "DP4" | 22768 | 230 | 225 | 2 | 125 | 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) IN 32mm Ø RSC |
| 5 | "DP5" | 26613 | 230 | 225 | 2 | 150 | 2 - 50mm² THHN + 1 - 14mm² THHN (G) IN 50mm Ø RSC |
| 6 | SPACE | | | | | | |
| TOTAL CONNECTED LOADS | | 117685 | MAIN ACB: 600AF, 2P, 240V, 400AT, 42kAIC, NEMA 1 ENCLOSURE | | | | |

$I_L$ @ 70% D.F. = $\left(\frac{117685}{230}\right)(0.70) + (0.25)(12) = 361.17$ AMPERES

USE : 2- 250mm² THHN + 1 - 50mm² THHN (G) IN 90mm Ø RSC (361.17A / 400A )

### DISTRIBUTION PANELBOARD "DP1" TYPICAL TO "DP2", "DP3" & "DP4"

| CKT. NO. | LOAD DESCRIPTION | VA PER CKT. | VOLTS | BRANCH BREAKER RATING AF | P | AT | SIZE OF HOMERUN ( WIRES IN CONDUIT ) |
|---|---|---|---|---|---|---|---|
| 1 | LIGHT OUTLETS | 700 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 2 | CONVENIENCE OUTLETS | 720 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 3 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 4 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 5 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 6 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 7 | WATER HEATER | 3000 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 8 | WATER HEATER | 3000 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 9 | WATER HEATER | 3000 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 10 | WATER HEATER | 3000 | 230 | 50 | 2 | 30 | 2 -5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 11 | SPARE | 1500 | 230 | 50 | 2 | 20 | ——— |
| 12 | SPARE | 1500 | 230 | 50 | 2 | 20 | ——— |
| TOTAL CONNECTED LOADS | | 22768 | MAIN ACB: 225AF, 2P, 240V, 125AT, 10kAIC, NEMA 3R ENCLOSURE | | | | |

$I_L$ @ 80% D.F. = $\left(\frac{22768}{230}\right)(0.80) + (0.25)(6.9) = 80.92$ AMPERES

USE : 2 - 30mm² THHN + 1 - 8.0mm² THHN (G) IN 40mm Ø RSC (80.92A / 115A )

### DISTRIBUTION PANELBOARD "DP5"

| CKT. NO. | LOAD DESCRIPTION | VA PER CKT. | VOLTS | BRANCH BREAKER RATING AF | P | AT | SIZE OF HOMERUN ( WIRES IN CONDUIT ) |
|---|---|---|---|---|---|---|---|
| 1 | LIGHT OUTLETS | 500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 2 | CONVENIENCE OUTLETS | 1440 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 3 | SPECIAL PURPOSE OUTLET | 2000 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 4 | REFRIGERATOR OUTLET | 500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 5 | REFRIGERATOR OUTLET | 500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 6 | WASHING MACHINE OUTLET | 1500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 7 | WASHING MACHINE OUTLET | 1500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 8 | WASHING MACHINE OUTLET | 1500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 9 | PULLBOX | 1500 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 10 | EXHAUST FAN | 1633 | 230 | 50 | 2 | 20 | 2 - 3.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 11 | 2HP SPLIT TYPE ACU | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 12 | 2HP SPLIT TYPE ACU | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 13 | 2HP SPLIT TYPE ACU | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 14 | 2HP SPLIT TYPE ACU | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5mm² THHN + 1 - 3.5mm² THHN (G) IN 15mm Ø RSC |
| 15 | SPARE | 1500 | 230 | 50 | 2 | 20 | ——— |
| 16 | SPARE | 1500 | 230 | 50 | 2 | 20 | ——— |
| TOTAL CONNECTED LOADS | | 26613 | MAIN LUGS ONLY: 150 AMPS, 2P, 240V, 15kAIC, NEMA 1 ENCLOSURE | | | | |

$I_L$ @ 80% D.F. = $\left(\frac{26613}{230}\right)(0.80) + (0.25)(12) = 95.57$ AMPERES

USE : 2 - 50mm² THHN + 1 - 14mm² THHN (G) IN 50mm Ø RSC (95.57A / 150A )

### REQUIRED CAPACITY OF TRANSFORMER BANK :

TOTAL VA = 117685

$I = \frac{(VA)}{230} = \frac{(117685)}{230}$

I = 511.67 AMPS

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

KVA = $\frac{(230)(511.67)(0.85)}{1000\ (1.10)}$ = 90.94 kVA

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

### REQUIRED CAPACITY OF GENERATING SET:(PROVISION)

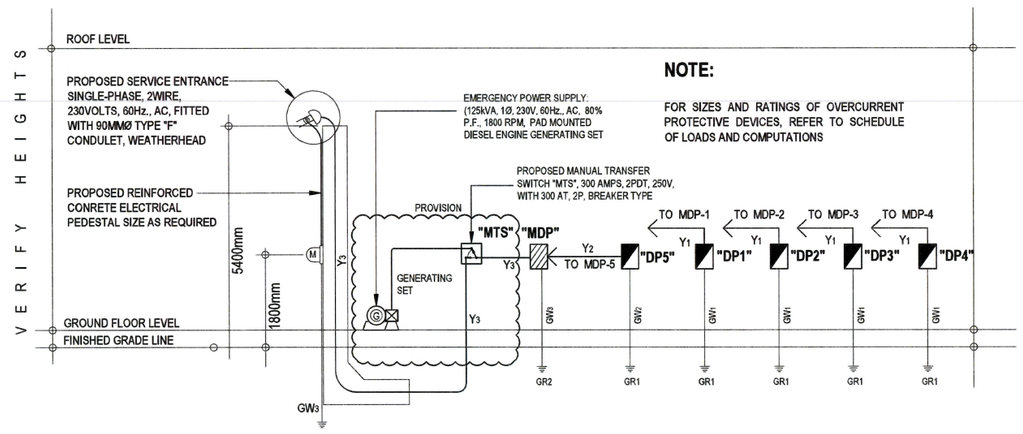
$I = \frac{(VA)}{230} = \frac{(117685)}{230}$

I = 511.67 AMPS

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

KVA = $\frac{(230)(511.67)(0.90)}{1000\ (1.10)}$ = 96.29 kVA

USE: ONE(1) - 125 kVA, 230V, 3Ø, 80% P.F., 1800 RPM, 60Hz., A.C. PAD MOUNTED DIESEL ENGINE GENERATING SET




**NOTE:**

FOR SIZES AND RATINGS OF OVERCURRENT PROTECTIVE DEVICES, REFER TO SCHEDULE OF LOADS AND COMPUTATIONS

## ELECTRICAL RISER DIAGRAM

NOT TO SCALE

| | | | | | |
|---|---|---|---|---|---|
| REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS<br>**BUREAU OF DESIGN**<br>BUILDINGS DIVISION<br>BONIFACIO DRIVE PORT AREA, MANILA | PROJECT AND LOCATION:<br>DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL | SHEET CONTENTS:<br>GENERAL NOTES<br>ELECTRICAL SYMBOLS<br>SCHEDULE OF LOADS AND COMPUTATIONS<br>ELECTRICAL RISER DIAGRAM | DESIGNED BY: MARU BRYAN T. ZAPLAN, ENGINEER II<br>CADD: MARU BRYAN T. ZAPLAN, ENGINEER II<br>CHECKED: ERIBERTO B. SIOSON, ENGINEER IV | SUBMITTED:<br>JOSEPHINE P. ISTURIS<br>CHIEF, BUILDINGS DIVISION | RECOMMENDING APPROVAL:<br>*SEE COVER SHEET FOR SIGNATURE*<br>ARISTARCO M. DOROY<br>OFFICER-IN-CHARGE<br>BUREAU OF DESIGN | APPROVED:<br>*SEE COVER SHEET FOR SIGNATURE*<br>EMIL K. SADAIN, CESO I<br>UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS | SET NO.: BOD / B | SHEET NO.: E-2 / 4 / 19 |

## 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

- 1-18 WATTS COMPACT FLUORESCENT LIGHTING FIXTURE
- 2-28 WATTS FLUORESCENT LIGHTING FIXTURE, BOX TYPE, SURFACED CEILING MOUNTED
- S — SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- S² — 2 SINGLE-POLE WALL SWITCHES ON ONE SWITCH PLATE, (10AMPS. 250VOLTS)
- DUPLEX CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS) EF DENOTES EXHAUST FAN OUTLET, REF DENOTES REFRIGERATOR OUTLET, WM DENOTES WASHING MACHINE OUTLET. WP DENOTES WEATHERPROOF OUTLET
- FLOOR MOUNTED POP-UP CONVENIENCE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS)
- SPO — SPECIAL PURPOSE OUTLET, GROUNDING TYPE (20AMPS. 250VOLTS)
- PB — PULLBOX
- "DP" — DISTRIBUTION PANEL
- "MDP" — DISTRIBUTION PANEL
- G — GENERATING SET, PORTABLE TYPE
- M — SERVICE KWHR METER
- MANUAL TRANSFER SWITCH
- CONCEALED OR EMBEDDED CONDUIT RUN
- CIRCUIT HOMERUN
- GROUNDING SYSTEM

## SCHEDULE OF LOADS AND COMPUTATION: (OPTION 2)

### MAIN DISTRIBUTION PANELBOARD "MDP"

| CKT. NO. | LOAD DESCRIPTION | VA PER CKT | VA PER PHASE AB | VA PER PHASE BC | VA PER PHASE CA | VOLTS | BRANCH BREAKER RATING AF | BRANCH BREAKER RATING P | BRANCH BREAKER RATING AT | SIZES OF HOMERUN (WIRES AND CONDUIT) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | DP1 | 22768 | 7420 | 7674 | 7674 | 230 | 100 | 2 | 80 | 3 - 22 mm² THHN + 1- 8.0mm² THHN(G) in 32mmØ C. |
| 2 | DP2 | 22768 | 7420 | 7674 | 7674 | 230 | 100 | 2 | 80 | 3 - 22 mm² THHN + 1- 8.0mm² THHN(G) in 32mmØ C. |
| 3 | DP3 | 22768 | 7420 | 7674 | 7674 | 230 | 100 | 2 | 80 | 3 - 22 mm² THHN + 1- 8.0mm² THHN(G) in 32mmØ C. |
| 4 | DP4 | 22768 | 7420 | 7674 | 7674 | 230 | 100 | 2 | 80 | 3 - 22 mm² THHN + 1- 8.0mm² THHN(G) in 32mmØ C. |
| 5 | DP5 | 29613 | 10760 | 9333 | 9520 | 230 | 100 | 2 | 100 | 3 - 30 mm² THHN + 1- 8.0mm² THHN(G) in 40mmØ C. |
| 6 | SPARE | 3000 | 1000 | 1000 | 1000 | 230 | 100 | 2 | 30 | ——— |
| | TOTAL CONNECTED LOADS | 123685 | 41440 | 41029 | 41216 | | MAIN ACB: 400AF, 300AT, 3P, 240 V, 10kAIC IN NEMA 1 ENCLOSURE | | | |

$I_L$ @ 70% D.F. = $1.732\left[\left(\frac{41440}{230}\right)(0.70) + (0.25)(10)\right] = 222.78$ AMPS. USE: 3 - 150 mm² THHN + 1 - 30 mm² THHN (G) in 80mm Ø RSC. (222.78A / 295A )

### DISTRIBUTION PANELBOARD "DP1" TYPICAL TO "DP2","DP3", & "DP4"

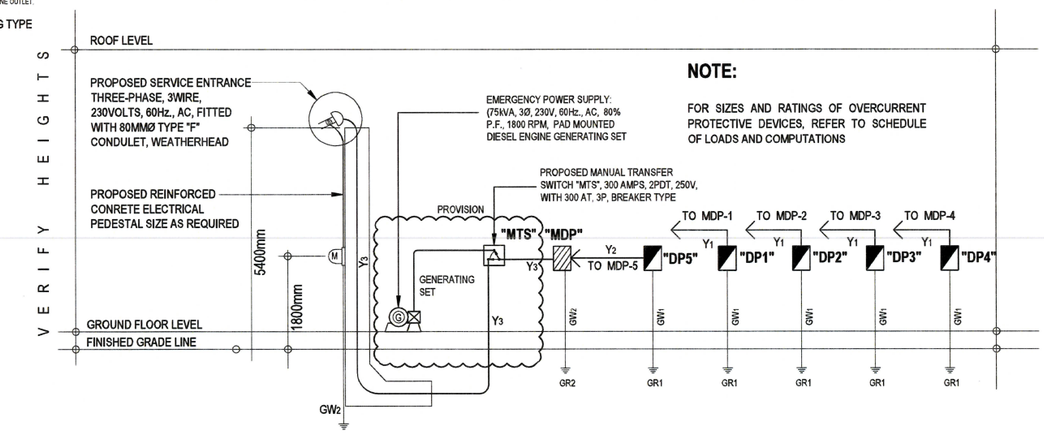
| CKT. NO. | LOAD DESCRIPTION | VA PER CKT | VA PER PHASE AB | VA PER PHASE BC | VA PER PHASE CA | VOLTS | BRANCH BREAKER RATING AF | BRANCH BREAKER RATING P | BRANCH BREAKER RATING AT | SIZES OF HOMERUN (WIRES AND CONDUIT) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | LIGHT OUTLETS | 700 | 700 | | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 2 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | | | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 3 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | | 1587 | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 4 | CONVENIENCE OUTLETS | 720 | 720 | | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 5 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | | | 1587 | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 6 | 0.75 HP AIR-CONDITIONING UNIT | 1587 | | 1587 | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 7 | WATER HEATER | 3000 | 3000 | | | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 8 | WATER HEATER | 3000 | | | 3000 | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 9 | WATER HEATER | 3000 | | 3000 | | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 10 | WATER HEATER | 3000 | 3000 | | | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 11 | SPARE | 1500 | | | 1500 | 230 | 50 | 2 | 20 | ——— |
| 12 | SPARE | 1500 | | 1500 | | 230 | 50 | 2 | 20 | ——— |
| | TOTAL CONNECTED LOADS | 22768 | 7420 | 7674 | 7674 | | MAIN ACB: 100AF, 80AT, 3P, 240 V, 10kAIC IN NEMA 1 ENCLOSURE | | | |

$I_L$ @ 80% D.F. = $1.732\left[\left(\frac{7674}{230}\right)(0.80) + (0.25)(6.9)\right] = 49.22$ AMPS. USE: 3 - 22 mm² THHN + 1 - 8.0 mm² THHN (G) in 32mm Ø RSC. (49.22A / 90A )

### DISTRIBUTION PANELBOARD "DP5"

| CKT. NO. | LOAD DESCRIPTION | VA PER CKT | VA PER PHASE AB | VA PER PHASE BC | VA PER PHASE CA | VOLTS | BRANCH BREAKER RATING AF | BRANCH BREAKER RATING P | BRANCH BREAKER RATING AT | SIZES OF HOMERUN (WIRES AND CONDUIT) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | CONVENIENCE OUTLETS | 1440 | | 1440 | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 2 | LIGHT OUTLETS | 500 | | | 500 | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 3 | SPECIAL PURPOSE OUTLETS | 2000 | 2000 | | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 4 | REFRIGERATOR OUTLET | 500 | | 500 | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 5 | REFRIGERATOR OUTLET | 500 | | | 500 | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 6 | WASHING MACHINE OUTLET | 1500 | 1500 | | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 7 | WASHING MACHINE OUTLET | 1500 | | 1500 | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 8 | WASHING MACHINE OUTLET | 1500 | | | 1500 | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 9 | PULLBOX | 1500 | 1500 | | | 230 | 50 | 2 | 20 | 2 - 3.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 10 | EXHAUST FAN | 1633 | | 1633 | | 230 | 50 | 2 | 20 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 11 | 2HP SPLIT TYPE ACU | 2760 | | | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 12 | 2HP SPLIT TYPE ACU | 2760 | 2760 | | | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 13 | 2HP SPLIT TYPE ACU | 2760 | | 2760 | | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 14 | 2HP SPLIT TYPE ACU | 2760 | | | 2760 | 230 | 50 | 2 | 30 | 2 - 5.5 mm² THHN + 1- 3.5mm² THHN(G) in 15mmØ C. |
| 15 | SPARE | 1500 | 1500 | | | 230 | 50 | 2 | 20 | ——— |
| 16 | SPARE | 1500 | | 1500 | | 230 | 50 | 2 | 20 | ——— |
| 17 | SPARE | 1500 | | | 1500 | 230 | 50 | 2 | 20 | ——— |
| 18 | SPARE | 1500 | 1500 | | | 230 | 50 | 2 | 20 | ——— |
| | TOTAL CONNECTED LOADS | 29613 | 10760 | 9333 | 9520 | | MAIN LUGS ONLY: 100AMPS, 3P, 240 V,10kAIC IN NEMA 1 ENCLOSURE | | | |

$I_L$ @ 80% D.F. = $1.732\left[\left(\frac{10760}{230}\right)(0.80) + (0.25)(12)\right] = 70.02$ AMPS. USE: 3 - 30 mm² THHN + 1 - 8.0 mm² THHN (G) in 40mm Ø RSC. (70.02A / 115A )




## ELECTRICAL RISER DIAGRAM

NOT TO SCALE

### REQUIRED CAPACITY OF TRANSFORMER BANK :

TOTAL VA = 41440

$I = \frac{\sqrt{3}\,(VA)}{230} = \frac{\sqrt{3}\,(41440)}{230}$

I = 312.07 AMPS

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

$KVA = \frac{\sqrt{3}\,(230)(312.07)(0.85)}{1000\,(1.10)}$

= 96.06 kVA

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

### REQUIRED CAPACITY OF GENERATING SET:(PROVISION)

$I = \frac{\sqrt{3}\,(VA)}{230} = \frac{\sqrt{3}\,(41440)}{230}$

I = 312.07 AMPS

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

$KVA = \frac{\sqrt{3}\,(230)(312.07)(0.90)}{1000\,(1.10)}$

= 101.72 kVA

USE: ONE(1) - 125 kVA, 230V, 3Ø, 80% P.F., 1800 RPM, 60Hz., A.C. PAD MOUNTED DIESEL ENGINE GENERATING SET

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**BUREAU OF DESIGN**
BUILDINGS DIVISION
BONIFACIO DRIVE PORT AREA, MANILA

PROJECT AND LOCATION:
DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL

SHEET CONTENTS:
GENERAL NOTES
ELECTRICAL SYMBOLS
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:
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*SEE COVER SHEET FOR SIGNATURE*
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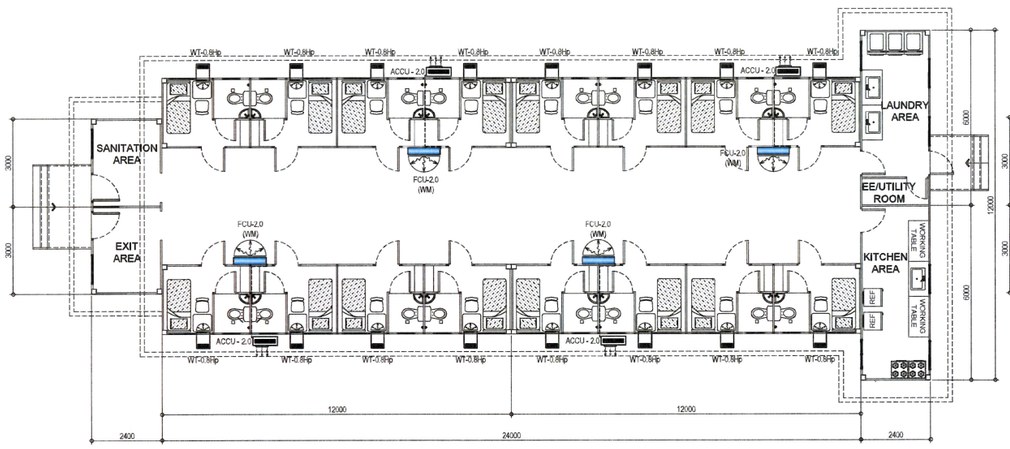
OFFICER-IN-CHARGE BUREAU OF DESIGN

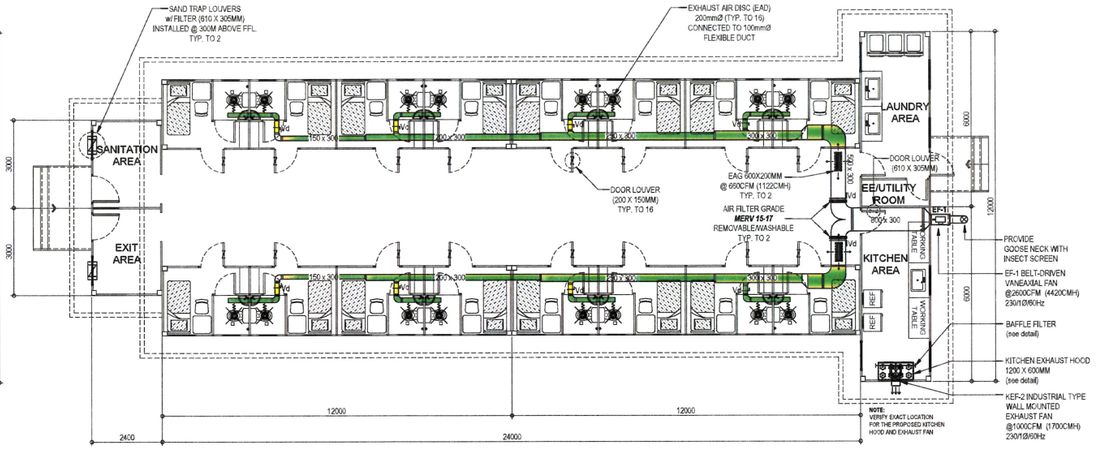
APPROVED:
*SEE COVER SHEET FOR SIGNATURE*
**EMIL K. SADAIN, CESO I**
UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS

SET NO.: BOD B

SHEET NO.: E-2a 4 19




1 / M - 1 GROUND FLOOR PLAN AIR-CONDITIONING PLAN
SCALE 1: 100M




2 / M - 1 GROUND FLOOR PLAN VENTILATION PLAN
SCALE 1: 100M

## 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 DUCT WORKS SHALL BE PROVIDED WITH ANGULAR BAR SUPPORTS. (SUBMIT SHOP DRAWING PRIOR TO INSTALLATION)
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 MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH ANGULAR BAR SUPPORTS AND VIBRATION ISOLATOR. (SUBMIT SHOP DRAWING PRIOR TO INSTALLATION)
10. ALL INDICATED DIMENSIONS ARE IN MILIMETERS

## SCHEDULE OF EQUIPMENT

SPLIT AIR CONDITIONER (WALL MOUNTED TYPE)

| INDOOR UNIT | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNATION | QTY. | COOLING CAPACITY | | TYPE | AIR FLOW RATE $m^3$ / hr | ELECTRICAL DATA | | | | | DIMENSION (H x W x D) |
| | | KJ/HR | HP (TR) | | | WATTS | VOLTS | PHASE | HERTZ | RUNNING CURRENT | |
| FCU-2.0 (WM) | 4 | 18 180 | 2.0 (1.5) | WALL MOUNTED | 2214 | 1730 | 220 | SINGLE | 60 | 7.6A | 302 x 1102 x 244 |

| OUTDOOR UNIT | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|
| DESIGNATION | QTY. | DIMENSION (H x W x D) | REFRIGERANT | WEIGHT kG | PIPE SIZE (MM) | | MAX PIPE LENGTH (M) | |
| | | | | | LIQUID | GAS | | |
| ACCU - 2.0HP | 4 | 619 x 824 x 299 | 410 A | 26 | 6.3 Ø | 12.7 Ø | 20 | ALL UNITS SHALL BE BRAND NEW & COMPLETE ELECTRONIC (REMOTE)CONTROL WITH STANDARD ACCESSORIES. READY FOR SERVICE. NOTE : ALL FAN COIL UNITS (FCU'S) SHALL BE PROVIDED WITH EVAPORATOR DRAIN PIPE. |

WINDOW-TYPE AIR CONDITIONER

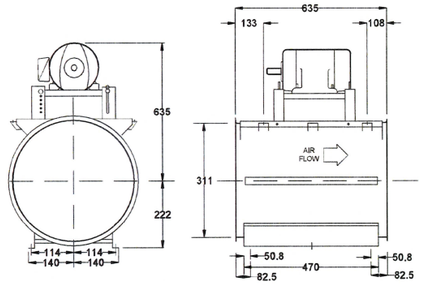
| INDOOR UNIT | | | | | | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|
| DESIGNATION | QTY. | COOLING CAPACITY | | TYPE | DIMENSION (W x H x D) | ELECTRICAL DATA | | | | REFRIGERANT TYPE | LOCATION | |
| | | kJ / Hr | HP | | | KW | VOLTS | PHASE | HERTZ | | | |
| WT-0.80 | 16 | 7 420 | 0.80 | WINDOW NON-INVERTER | 450 x 350 x 580 | 0.65 | 230 | SINGLE | 60 | R410A | ROOMS | ALL UNITS SHALL BE BRAND NEW & MANUAL TYPE PROVIDED WITH DRAIN PIPE READY FOR SERVICE. |

EXHAUST FAN

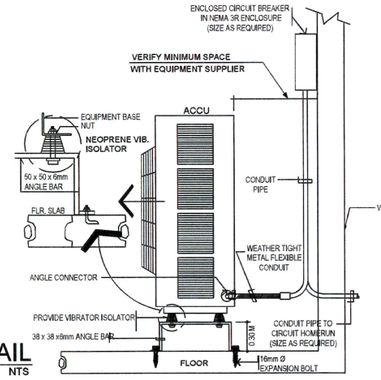
| DESIGNATION | QTY. | CAPACITY | | TYPE | STATIC PRESSURE | RPM | WATTS | MOTOR RATING | | | LOCATION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CMH | CFM | | | | | VOLTS | PHASE | HERTZ | | |
| EF-1 | 1 | 4420 | 2600 | BELT-DRIVEN VANEAXIAL | 6.35mm $H_2O$ | 3521 | 1306 | 220 | SINGLE | 60 | CONTAINER VAN | ALL UNITS SHALL BE BRAND NEW PROVIDED WITH SUPPORT AND VIBRATION ISOLATORS |
| KEF-1 | 1 | 1700 | 1000 | WALL MOUNTED | 3.80mm $H_2O$ | 1560 | 80 | 220 | SINGLE | 60 | KITCHEN AREA | |

## LEGENDS & SYMBOLS :

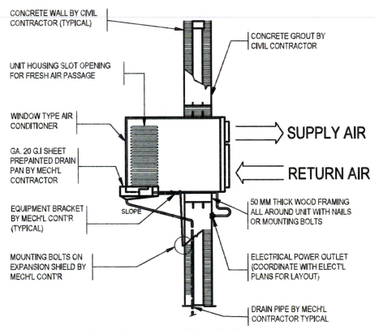
- FAN COIL UNIT WALL MOUNTED TYPE (FCU -WM)
- AIR COOLED CONDENSING UNIT (ACCU)
- WINDOW TYPE AIR CONDITIONER (WT)
- EXHAUST FAN (EF1) BELT-DRIVEN VANEAXIAL FAN
- EXHAUST FAN (EF2) INDUSTRIAL TYPE WALL MOUNTED
- EXHAUST AIR DISC (EAD)
- REFRIGERANT LINE
- FLEXIBLE DUCT 100MMØ
- SAND TRAP LOUVERS WITH FILTER
- BAFFLE FILTER
- VOLUME DAMPER (Vd)



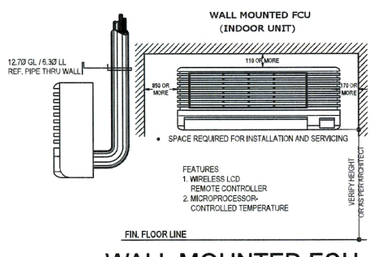

BELT-DRIVEN VANEAXIAL FAN DETAIL
SCALE NTS




AIR COOLED CONDENSING UNIT (ACCU) DRAWING DETAIL
SCALE NTS




WINDOW TYPE AC INSTALLATION DETAIL
SCALE NTS




WALL MOUNTED FCU MOUNTING DETAIL
SCALE NTS

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LEGENDS AND SYMBOLS
MISCELLANEOUS DRAWING DETAILS

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CADD: BR GALMAK ENGINEER II; CJA SAGUISAG ENGINEER II
CHECKED: CORNELIO T. EVANGELISTA JR. ENGINEER III

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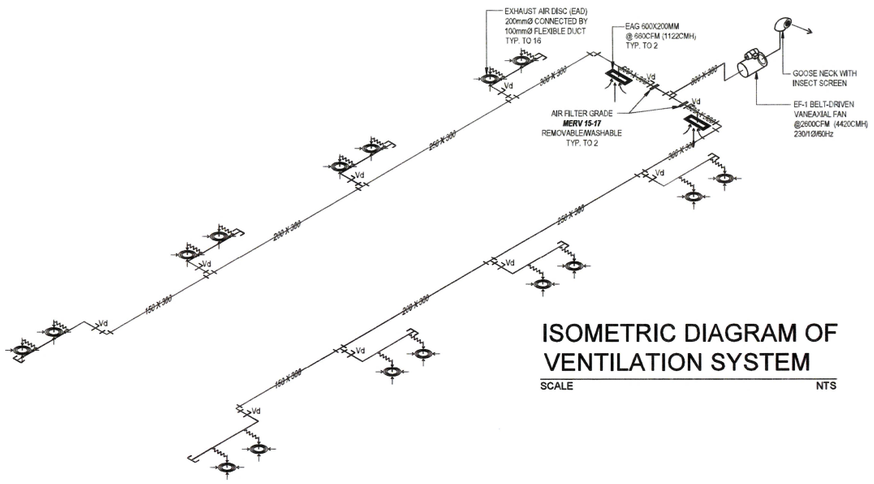
RECOMMENDING APPROVAL: SEE COVER SHEET FOR SIGNATURE; ARISTARCO M. DOROY, OFFICER-IN-CHARGE, BUREAU OF DESIGN

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

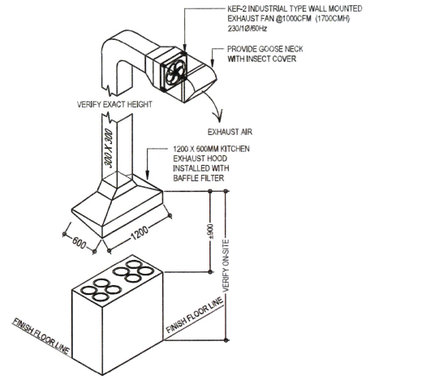
SET NO.: BOD B

SHEET NO.: M - 1 / 2 19



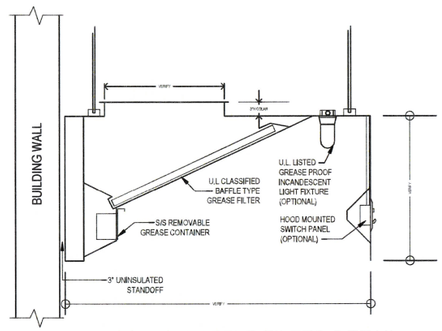

## ISOMETRIC DIAGRAM OF VENTILATION SYSTEM

SCALE NTS



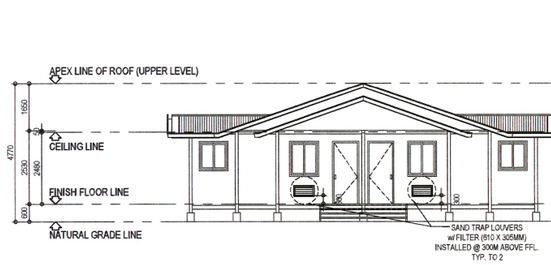

## ISOMETRIC DETAIL OF KITCHEN EXHAUST SYSTEM

SCALE NTS




## KITCHEN BAFFLE FILTER DETAIL

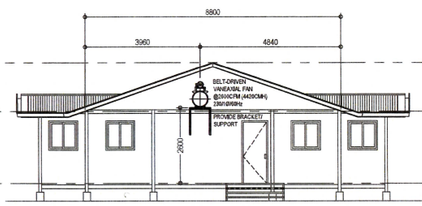
SCALE NTS




## FRONT ELEVATION

SHOWING LOCATION OF SAND TRAP LOUVER

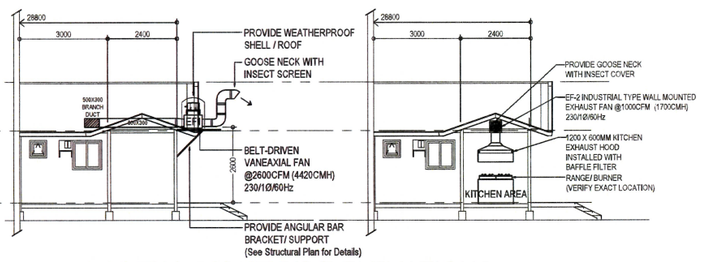
SCALE NTS




## REAR ELEVATION

SHOWING LOCATION OF VANEAXIAL FAN

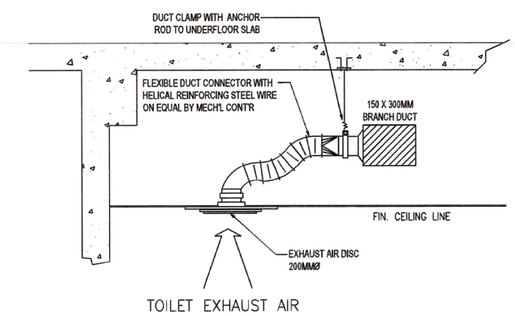
SCALE NTS




## PARTIAL RIGHT SIDE ELEVATIONS

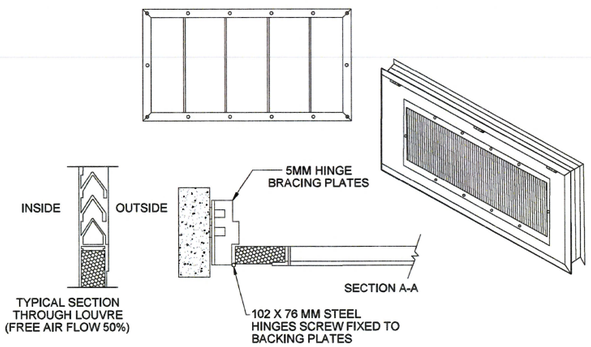
SHOWING LOCATION OF VANEAXIAL AND KITCHEN EXHAUST FAN

SCALE NTS



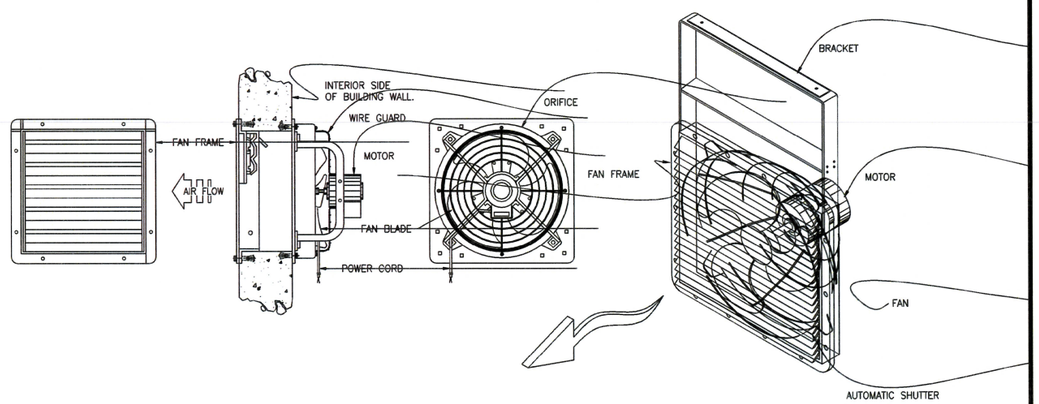

## EXHAUST AIR DISC CONNECTION TO FLEXIBLE PIPE DETAIL

SCALE NTS




## SAND TRAP LOUVER DETAIL

SCALE NTS




## INDUSTRIAL TYPE EXHAUST FAN DETAIL

SCALE NTS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| REPUBLIC OF THE PHILIPPINES<br>DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS<br>**BUREAU OF DESIGN**<br>BUILDINGS DIVISION<br>BONIFACIO DRIVE PORT AREA, MANILA | PROJECT AND LOCATION:<br>DPWH STANDARD FOR THE PROPOSED WE HEAL AS ONE OFF-SITE DORMITORY / ISOLATION FACILITY FOR MEDICAL PERSONNEL | SHEET CONTENTS:<br>ISOMETRIC DIAGRAM OF VENTILATION SYSTEM<br>ISOMETRIC DETAIL OF KITCHEN EXHAUST SYSTEM<br>FRONT, REAR AND RIGHT SIDE ELEVATION DETAIL SHOWING LOCATION OF SAND TRAP LOUVERS, VANEAXIAL FAN AND KITCHEN EXHAUST FAN<br>MISCELLANEOUS DRAWING DETAILS | DESIGNED BY:<br>**BENJAMIN R. GALMAK**<br>ENGINEER II<br>CADD:<br>**BR GALMAK** **CJA SAGUISAG**<br>ENGINEER III ENGINEER II<br>CHECKED:<br>**CORNELIO T. EVANGELISTA JR. 4**<br>ENGINEER III | SUBMITTED:<br>**JOSEPHINE P. ISTURIS**<br>CHIEF, BUILDINGS DIVISION | RECOMMENDING APPROVAL:<br>*SEE COVER SHEET FOR SIGNATURE*<br>**ARISTARCO M. DOROY**<br>OFFICER-IN-CHARGE<br>BUREAU OF DESIGN | APPROVED:<br>*SEE COVER SHEET FOR SIGNATURE*<br>**EMIL K. SADAIN, CESO I**<br>UNDERSECRETARY FOR TECHNICAL SERVICES AND UPMO OPERATIONS | SET NO.:<br>BOD<br>B | SHEET NO.:<br>M - 2<br>2 19 |