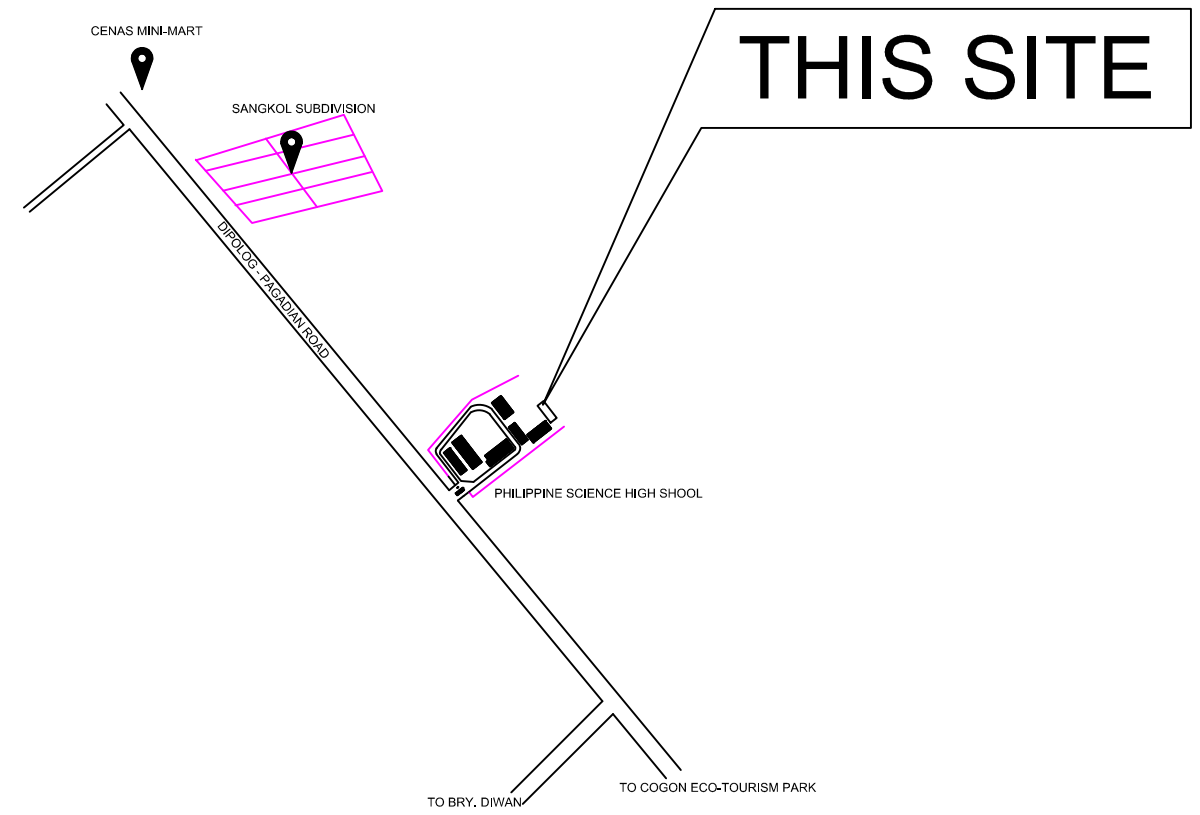


ARCHITECTURAL PLAN



3 LOCATION PLAN
AR-1 NOT TO SCALE

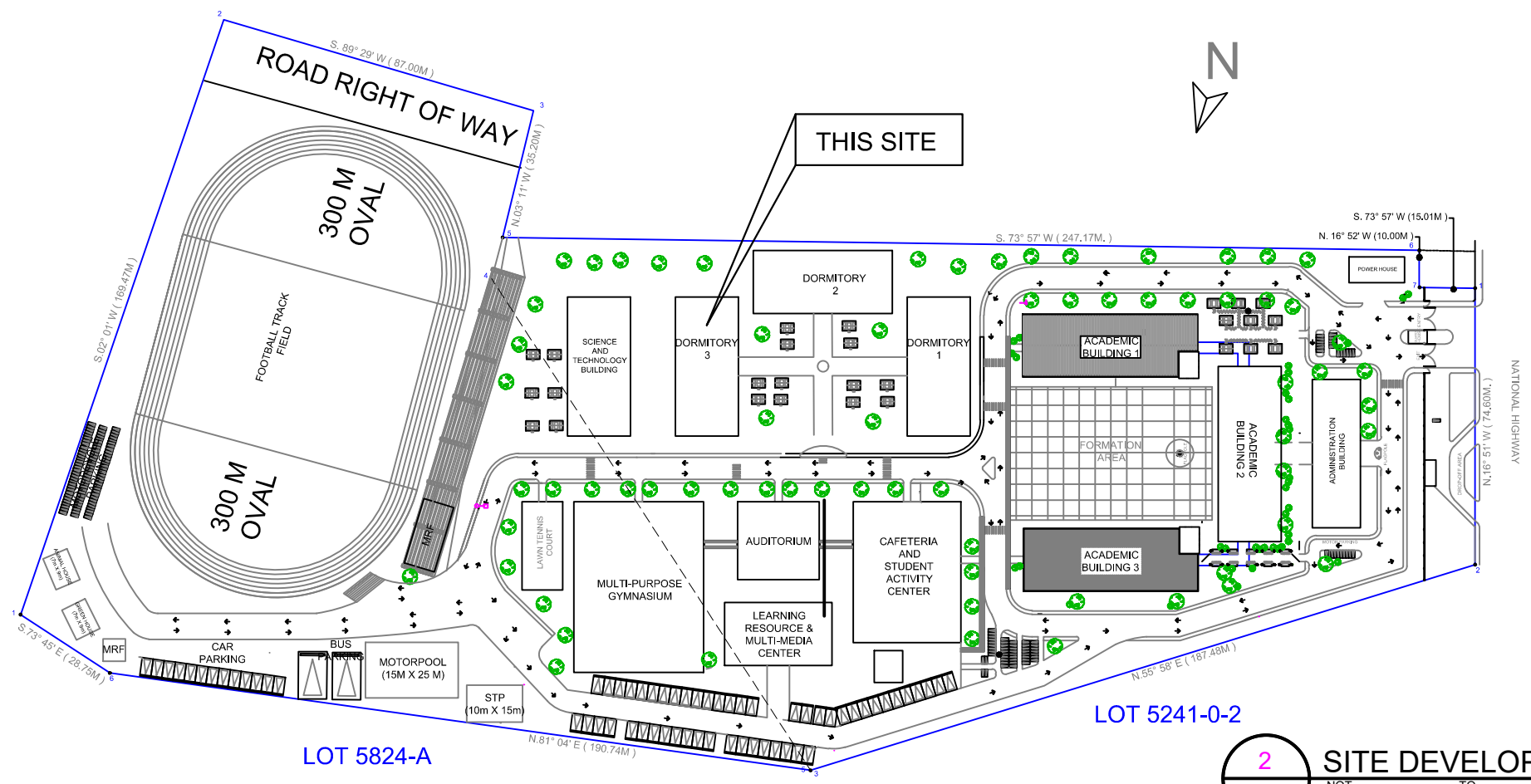
1 PERSPECTIVE
AR-1 NOT TO SCALE

TECHNICAL DESCRIPTION
LOT 5824-A
AREA = 22,385 SQ.MTS.

LINE	BEARING	DISTANCE
1-2	S 02° 01' W	159.49 m
2-3	S 89° 29' W	86.99 m
3-4	N 03° 12' W	61.56 m
4-5	N 53° 56' W	148.01 m
5-6	N 81° 04' E	190.74 m
6-1	S 73° 45' E	28.75 m

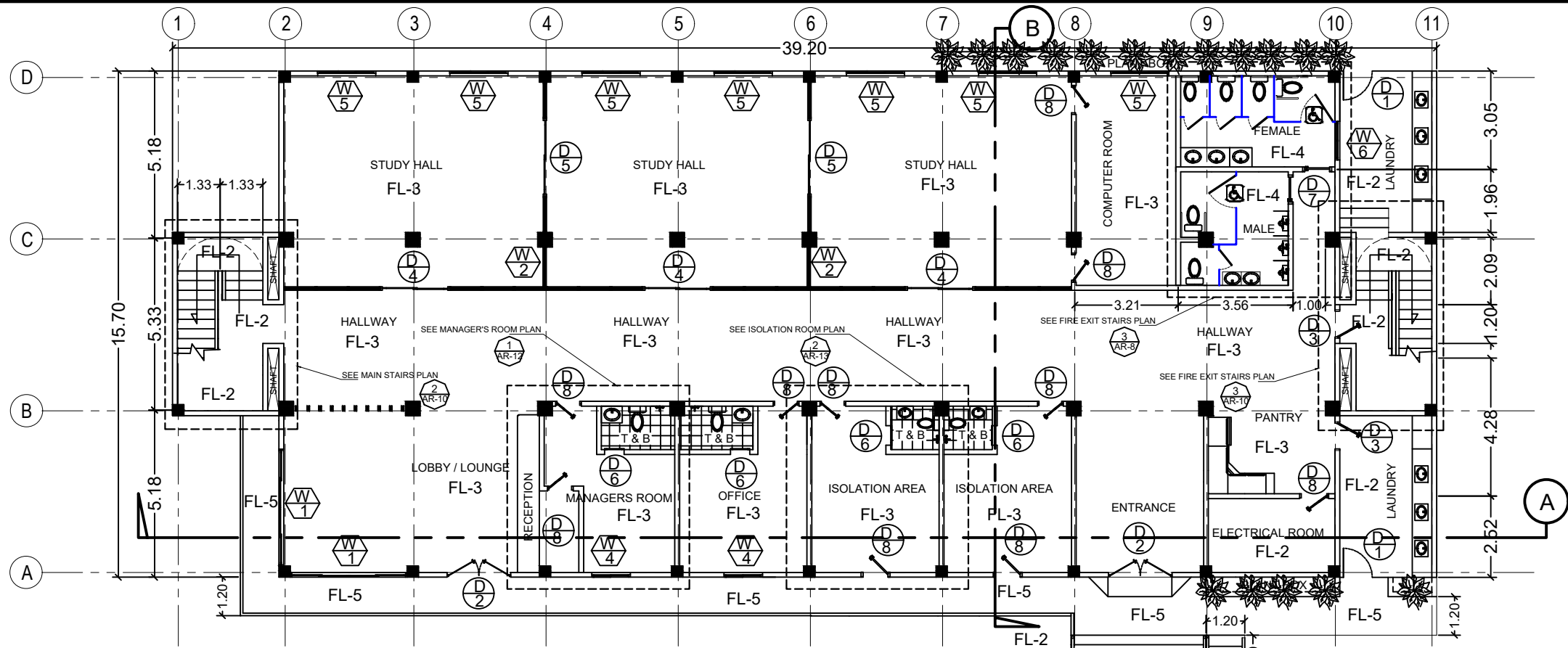
TECHNICAL DESCRIPTION
LOT 5241-0-2
AREA = 27,615 SQ.MTS.

LINE	BEARING	DISTANCE
1-2	N 16° 51' W	74.60 m
2-3	N 55° 58' E	187.48 m
3-4	S 53° 56' E	148.01 m
4-5	S 03° 13' E	26.34 m
5-6	S 73° 57' W	247.17 m
6-7	N 16° 52' W	10.00 m
7-1	S 73° 57' W	15.01 m



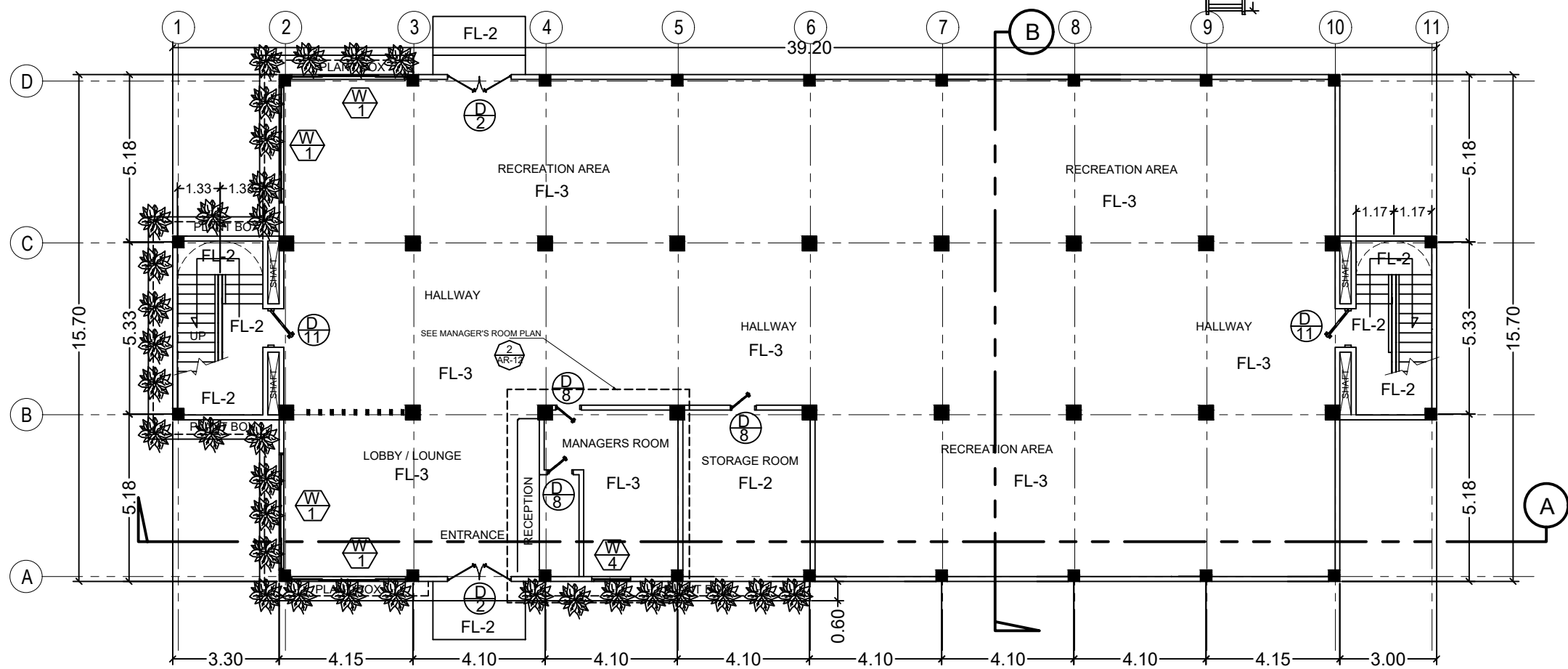
2 SITE DEVELOPMENT PLAN
AR-1 NOT TO SCALE

2 UPPER GROUND FLOOR PLAN
SCALE 1:100

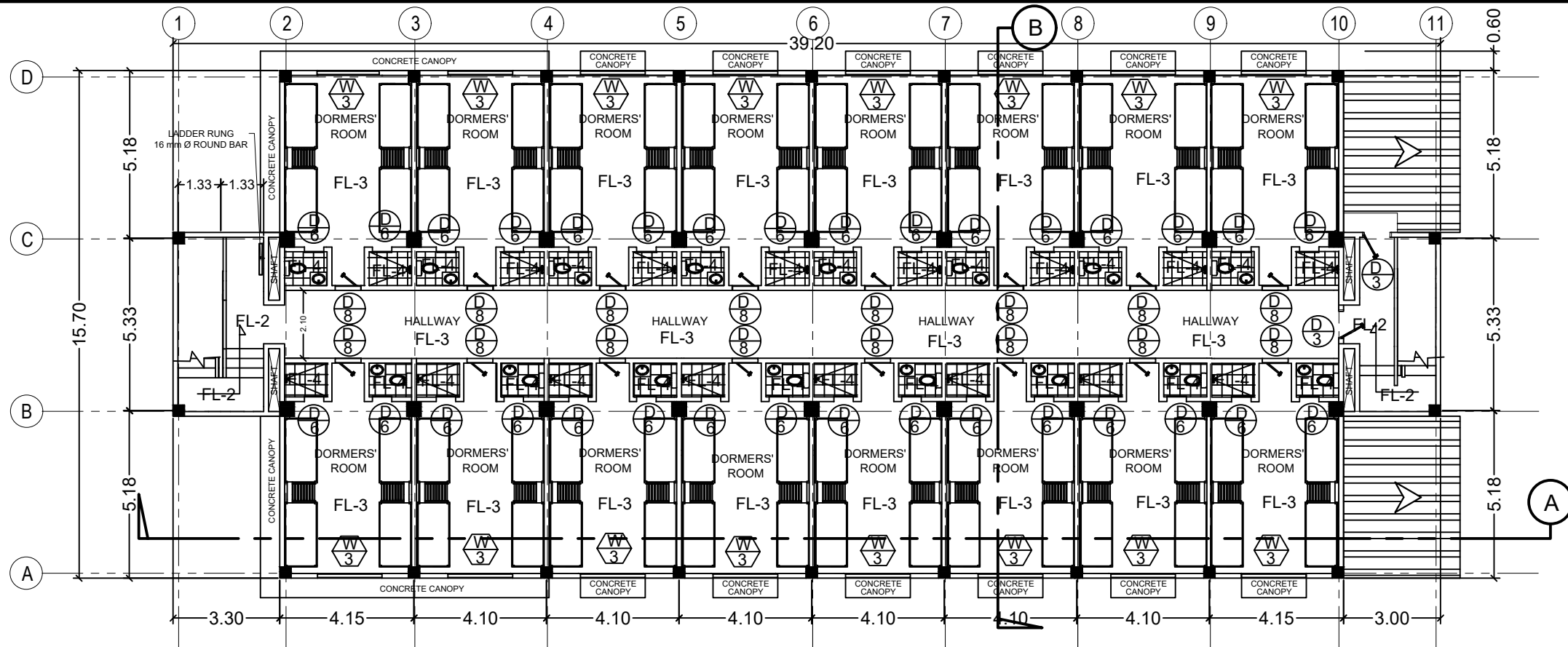


SCHEDULE OF FLOOR & FINISHES		
MARK	DESCRIPTION	REMARKS
FL-1	PLAIN CEMENT FLOOR FINISH WITH GROOVES	
FL-2	PLAIN CEMENT FLOOR FINISH	
FL-3	600 X 600mm PORCELAIN FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL
FL-4	300 X 300 mm NON-SKID PORCELAIN FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL
FL-5	600 X 600mm SAND BEIGES VITRIFIED CERAMIC OUTDOOR FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL

1 LOWER GROUND FLOOR PLAN
SCALE 1:100

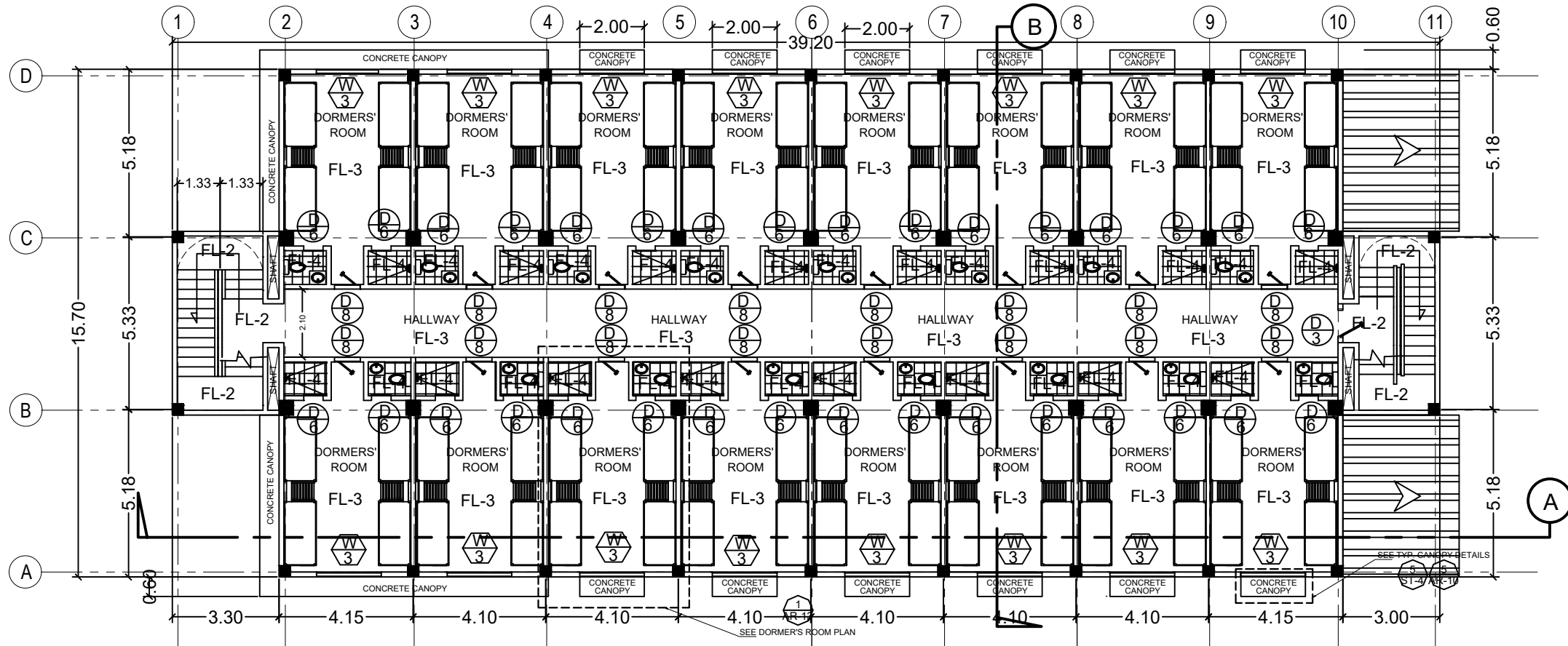


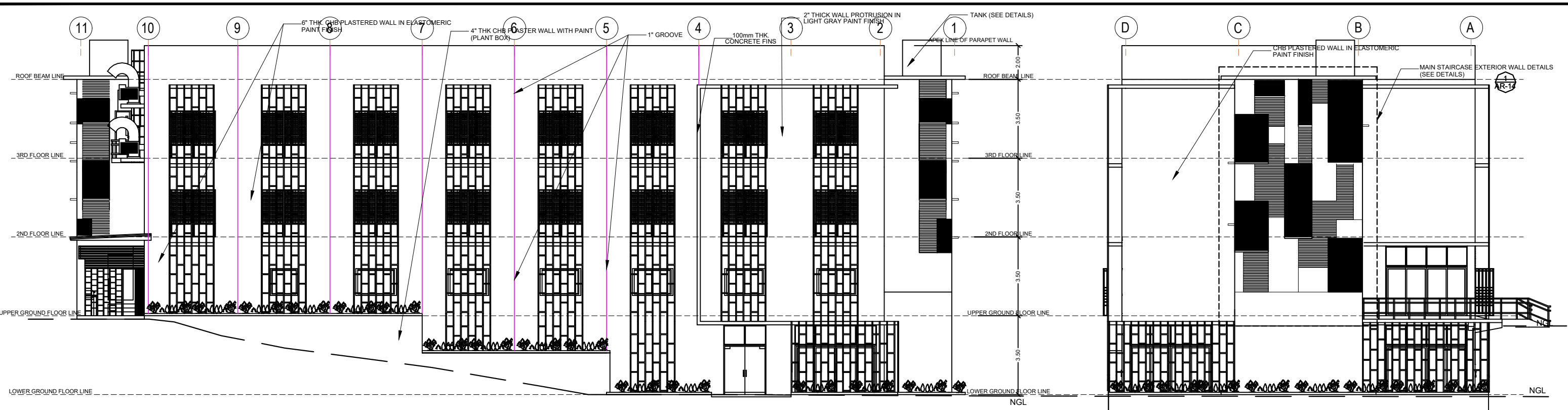
2 THIRD FLOOR PLAN
 AR-3 SCALE 1:100 M.



SCHEDULE OF FLOOR & FINISHES		
MARK	DESCRIPTION	REMARKS
FL-1	PLAIN CEMENT FLOOR FINISH WITH GROOVES	
FL-2	PLAIN CEMENT FLOOR FINISH	
FL-3	600 X 600mm PORCELAIN FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL
FL-4	300 X 300 mm NON-SKID PORCELAIN FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL
FL-5	600 X 600mm SAND BEIGES VITRIFIED CERAMIC OUTDOOR FLOOR TILES FINISH	MARIWASA OR APPROVED EQUAL

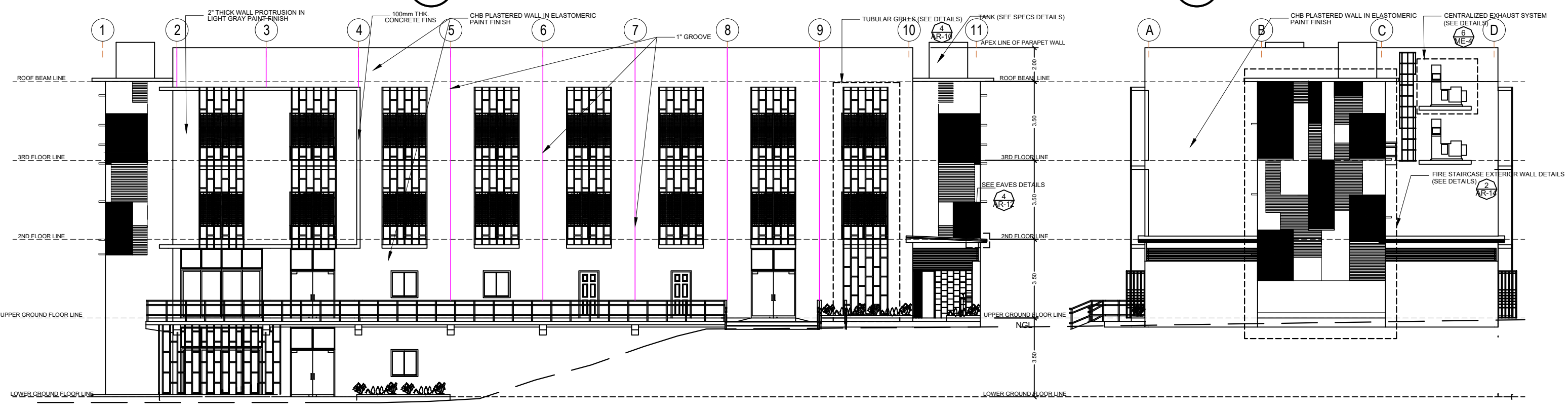
1 SECOND FLOOR PLAN
 AR-3 SCALE 1:100 M.





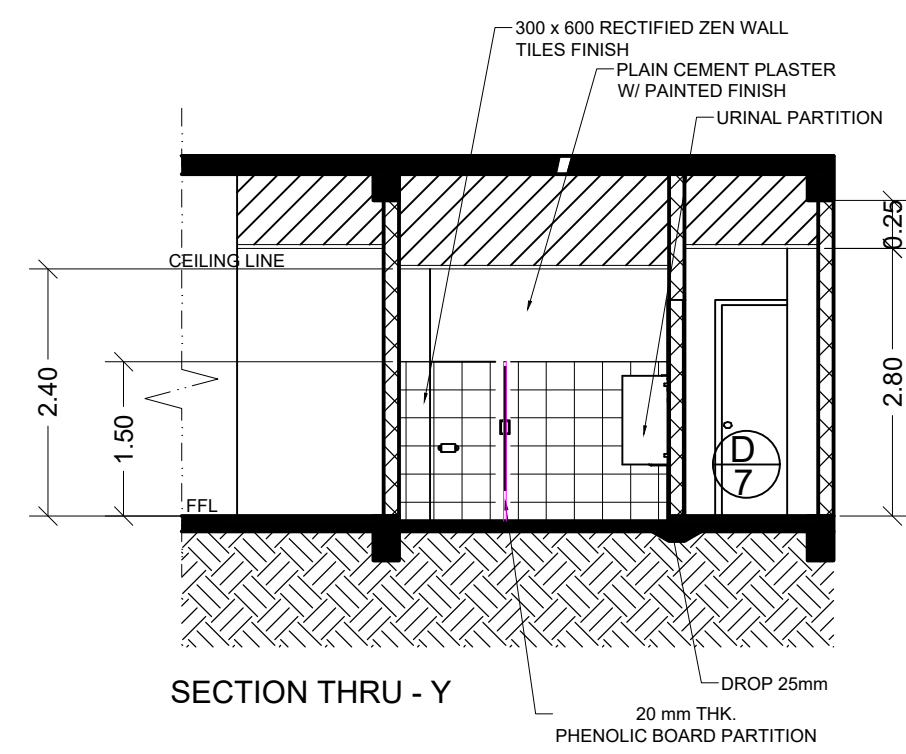
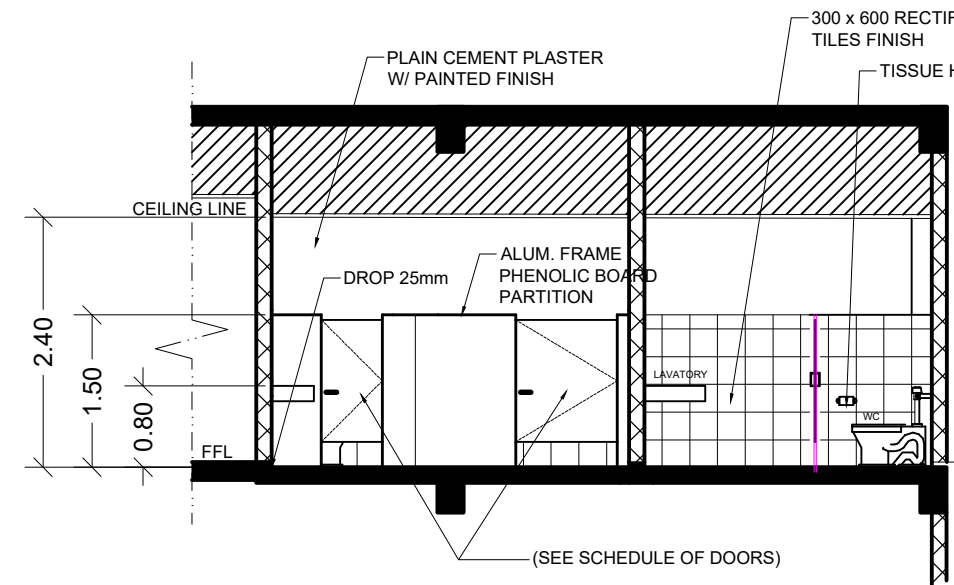
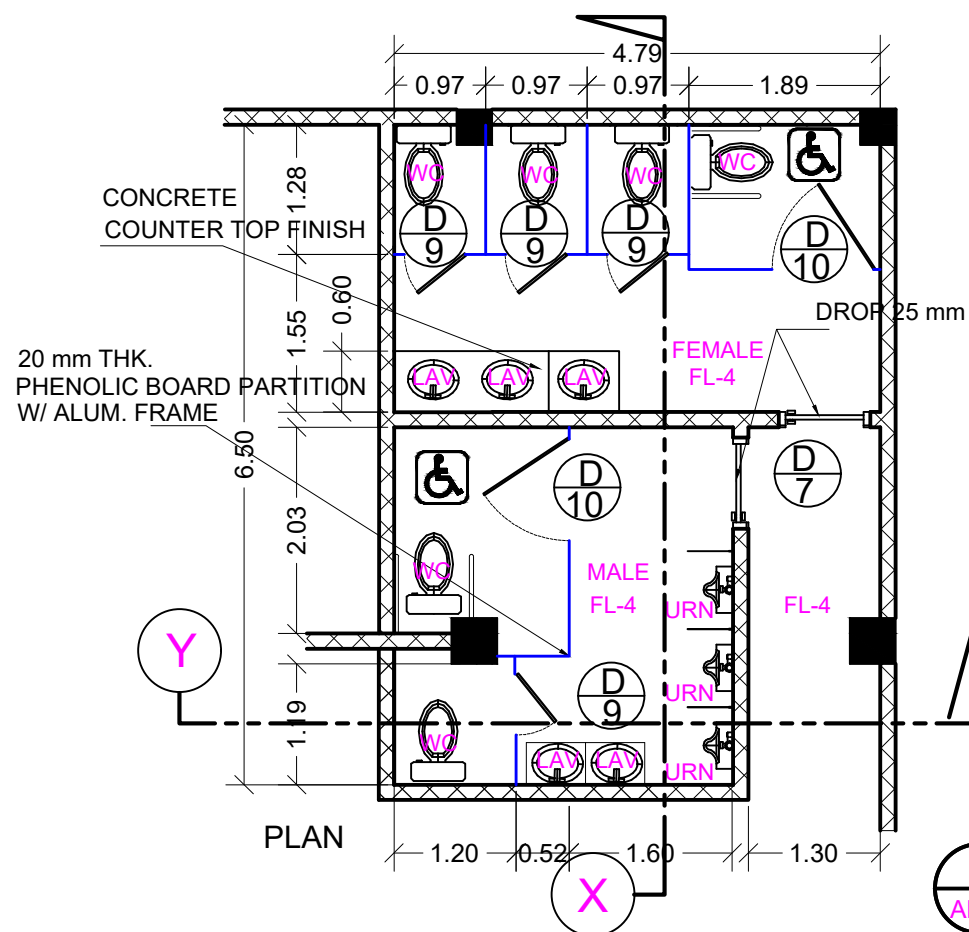
3 REAR ELEVATION
 SCALE 1:100 M.
 AR-7

4 LEFT SIDE ELEVATION
 SCALE 1:100 M.
 AR-7



1 FRONT ELEVATION
 SCALE 1:100 M.
 AR-7

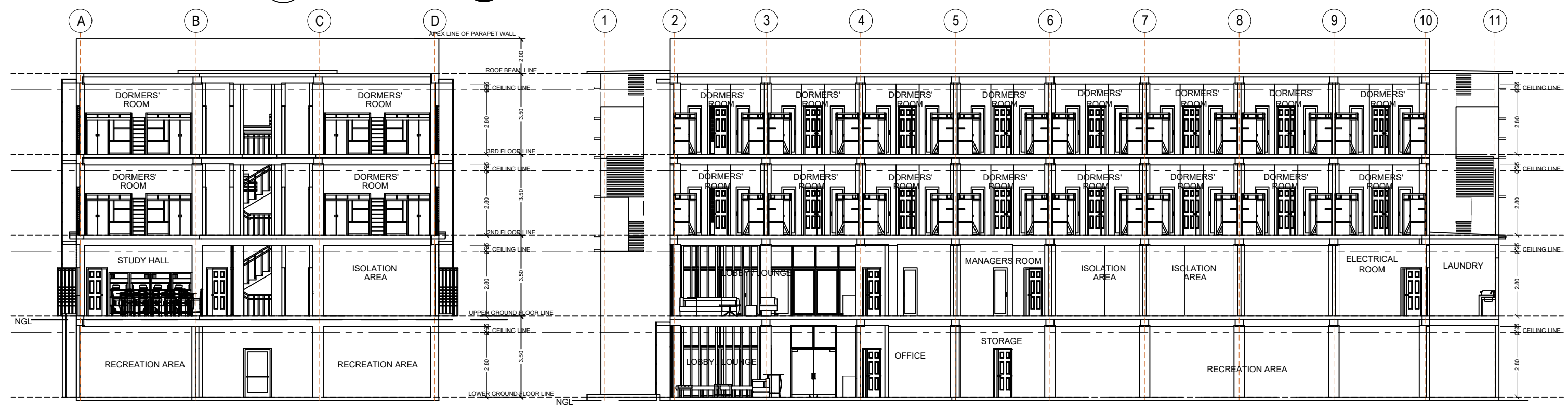
2 RIGHT SIDE ELEVATION
 SCALE 1:100 M.
 AR-7



SECTION THRU - X

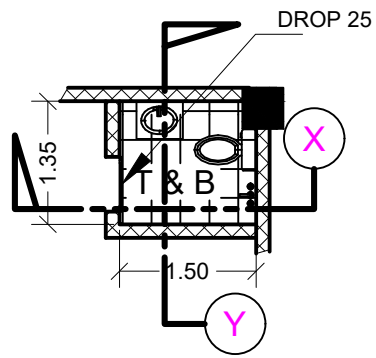
SECTION THRU - Y

3 TYPICAL DETAIL OF STAFF COMFORT ROOM @ UPPER GROUND FLOOR
SCALE 1:50 M.

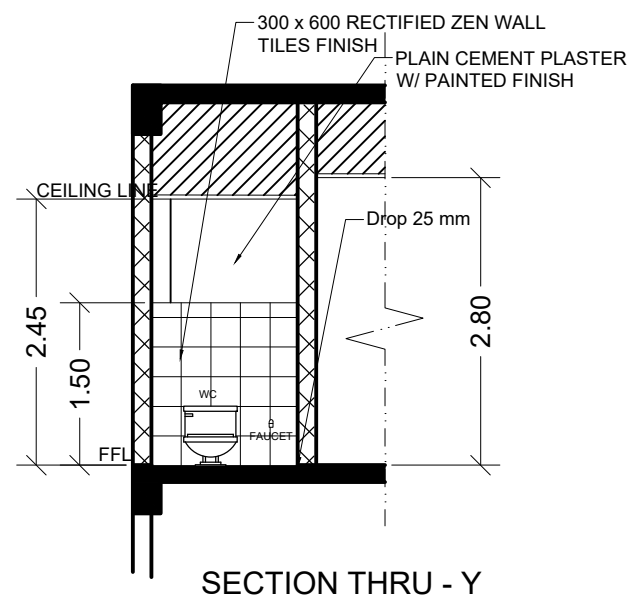


2 CROSS SECTION THRU - B
SCALE 1:100 M.

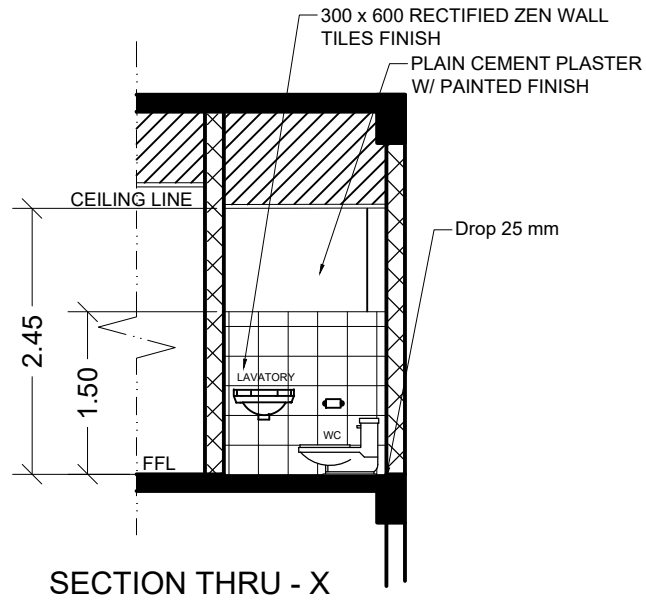
1 LONGITUDINAL SECTION THRU - A
SCALE 1:100 M.



PLAN

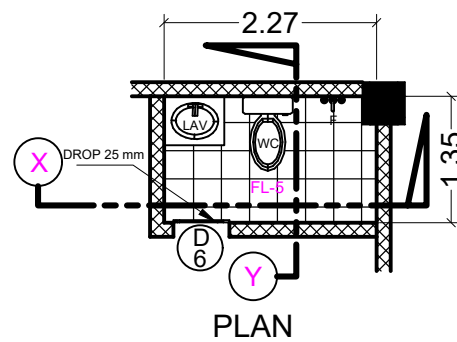


SECTION THRU - Y

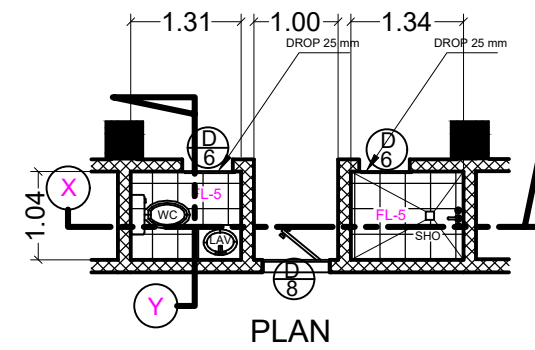


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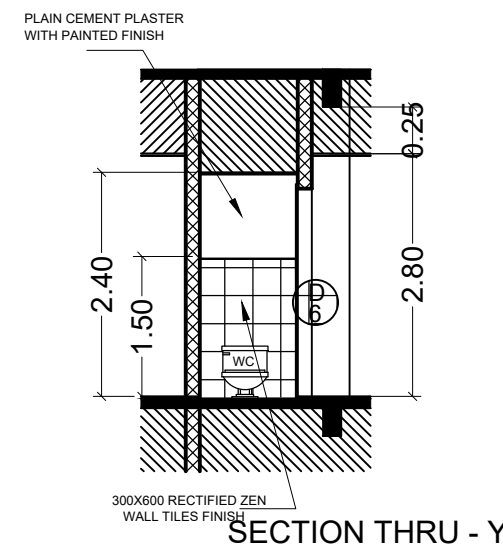
1 TYPICAL DETAIL OF ISOLATION AREA TOILET & BATH
SCALE 1:50 M.



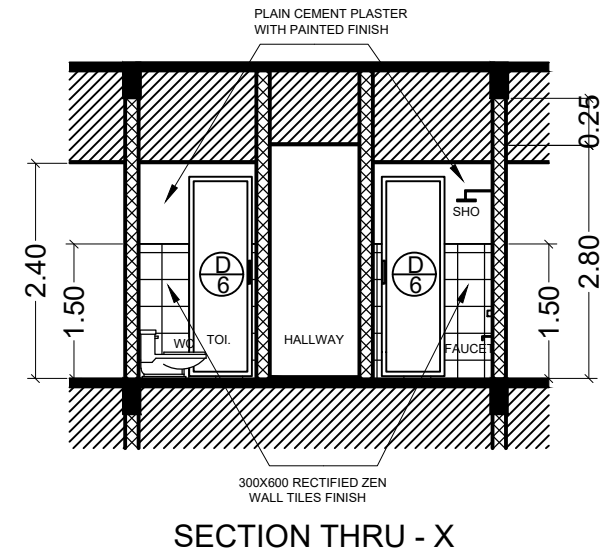
PLAN



PLAN

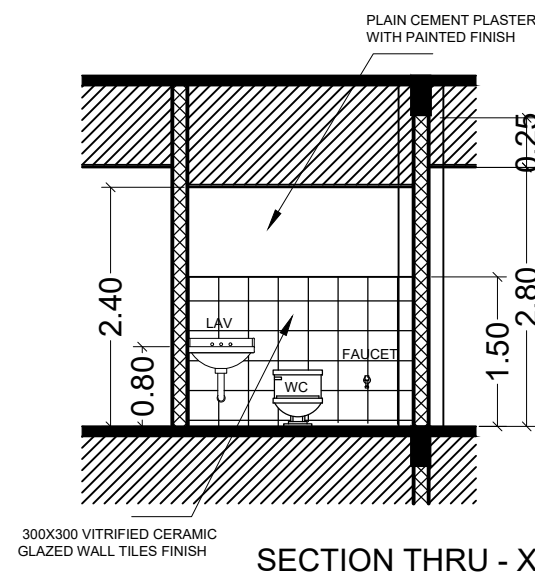


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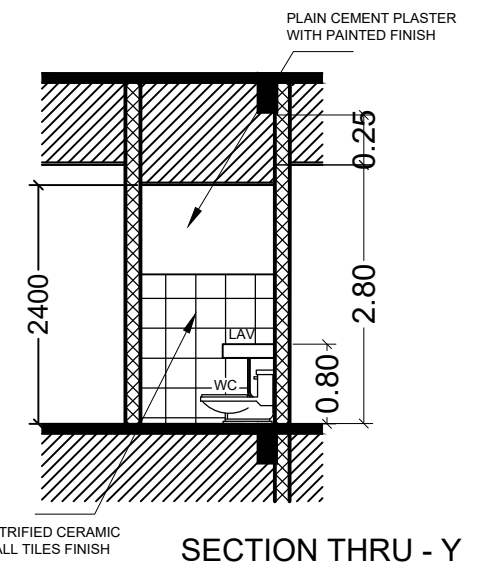


SECTION THRU - X

2 TYPICAL DETAIL OF DORMER'S TOILET & BATH
SCALE 1:50 M.

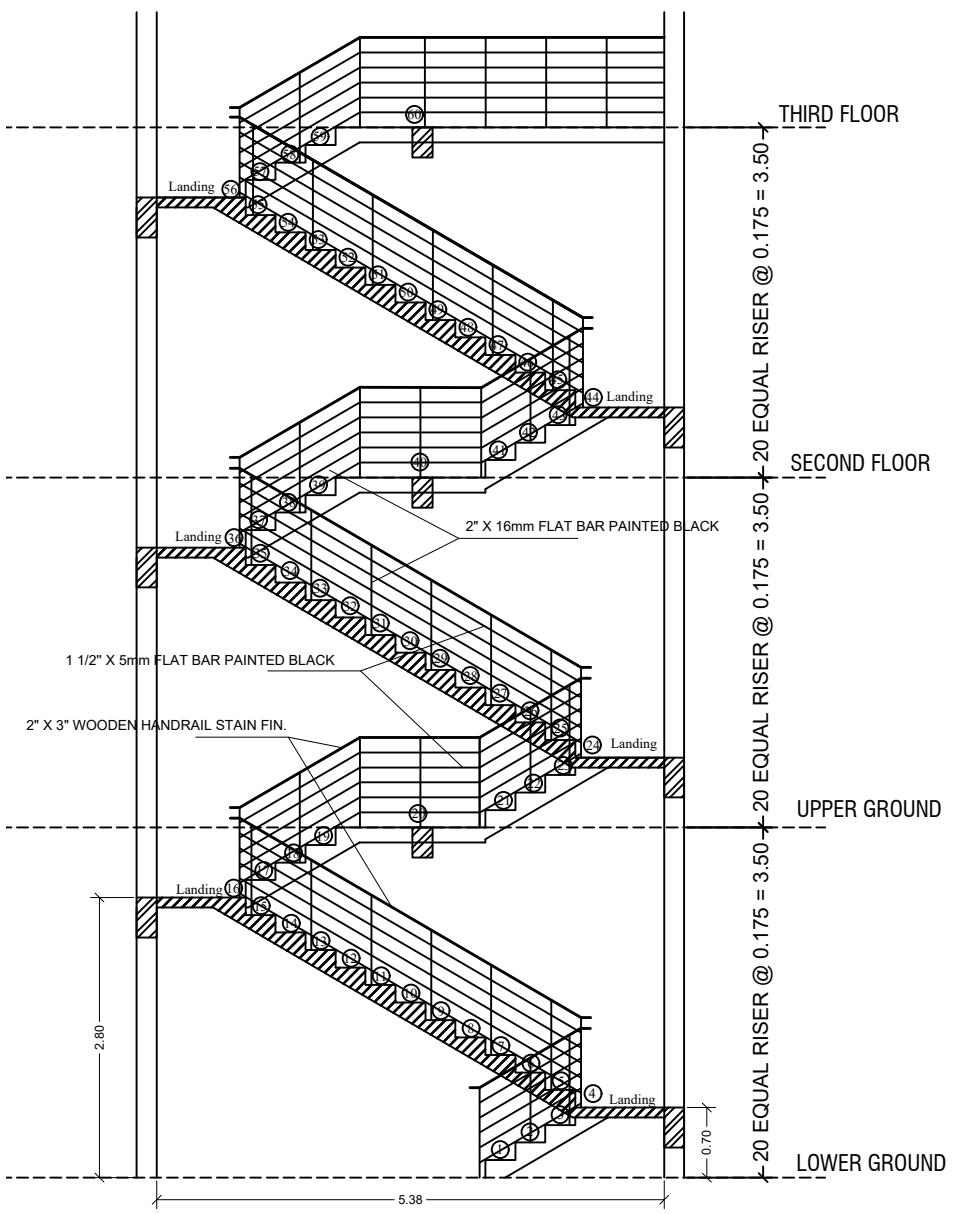


SECTION THRU - X

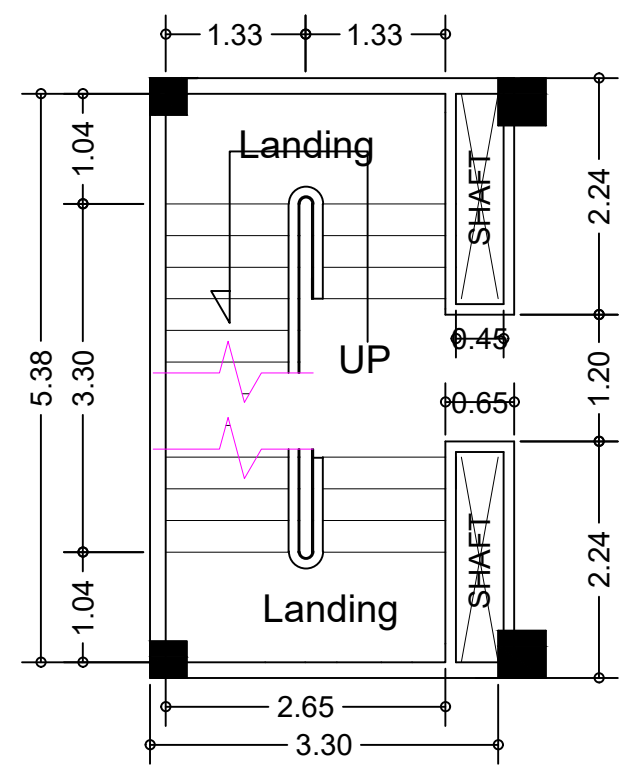


SECTION THRU - Y

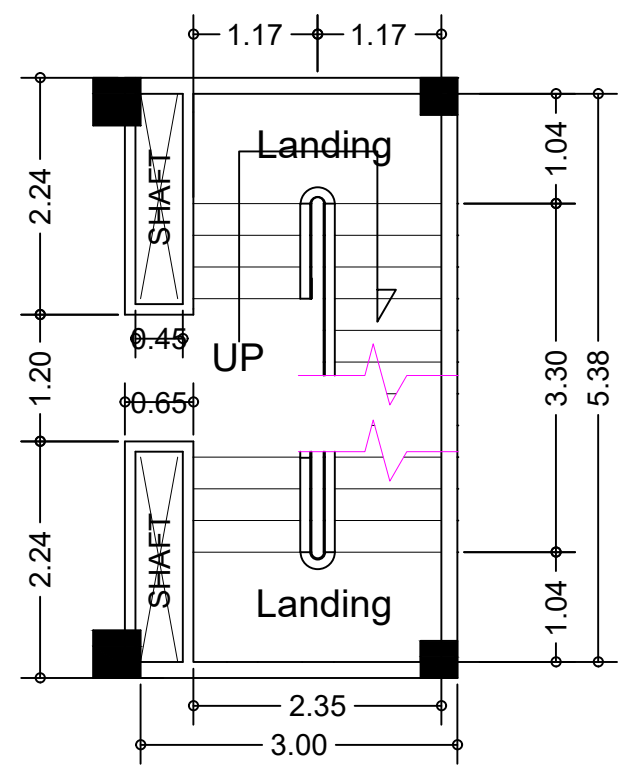
3 TYPICAL DETAIL OF MANAGER'S TOILET & BATH
SCALE 1:50 M.



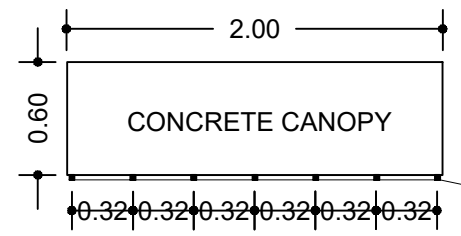
1 TYPICAL DETAIL OF STAIR
SCALE: AR-10 NDTs



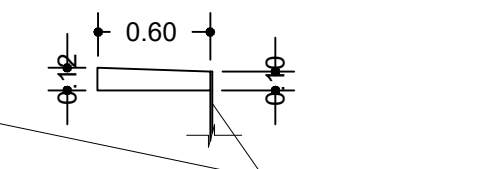
2 MAIN STAIRS PLAN
SCALE: AR-10 NDTs



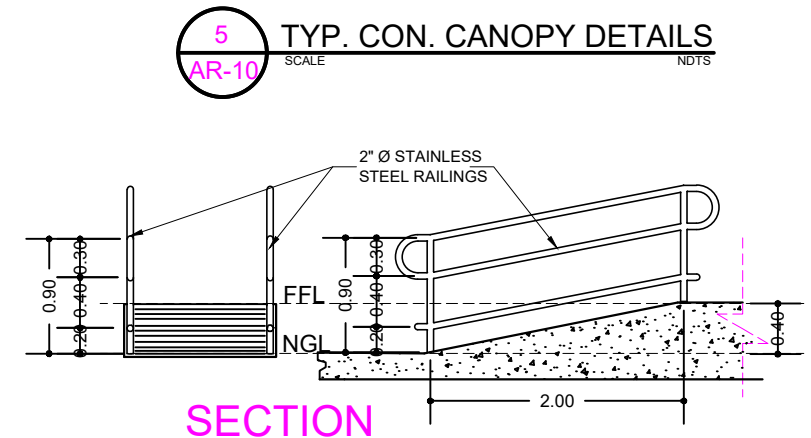
3 FIRE EXIT STAIRS PLAN
SCALE: AR-10 NDTs



PLAN

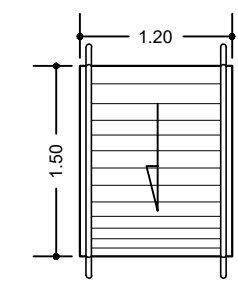


SECTION



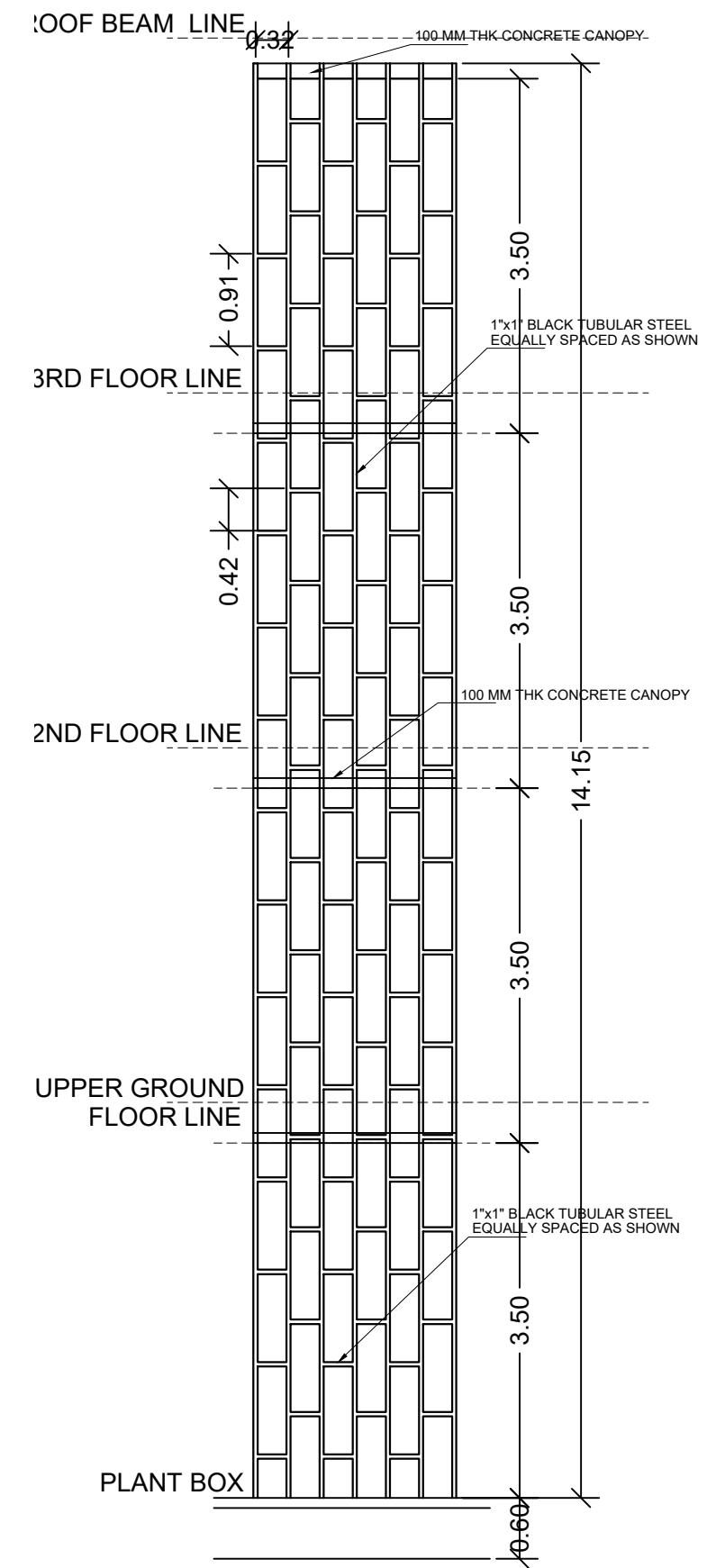
5 TYP. CON. CANOPY DETAILS
SCALE: AR-10 NDTs

SECTION

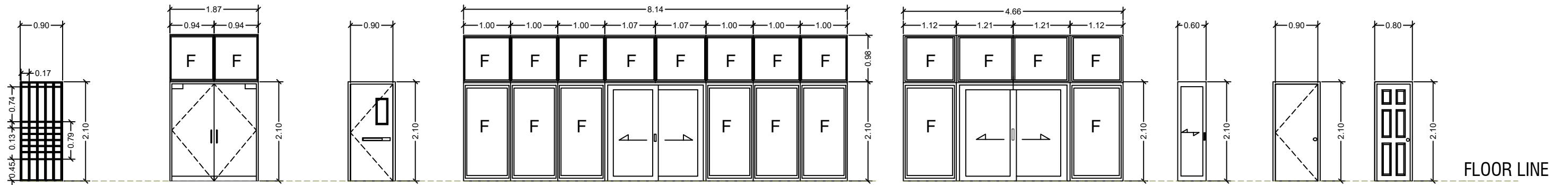


PLAN

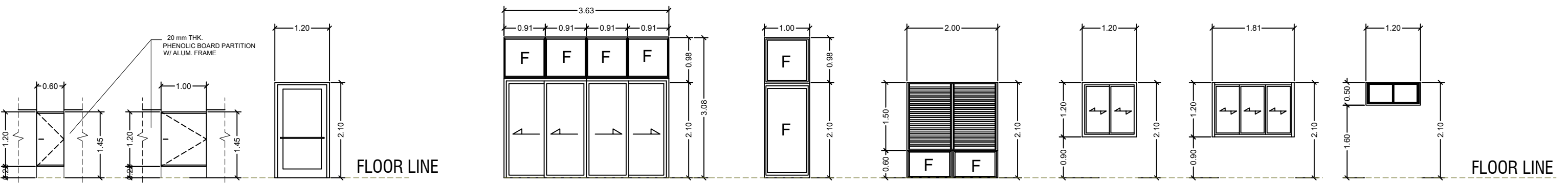
6 TYP. RAMP DETAILS
SCALE: AR-10 NDTs



4 TUBULAR GRILLS DETAILS
SCALE: AR-10 NDTs



D-1 QTY: 2 units D-2 QTY: 3 units D-3 QTY: 4 units D-4 QTY: 3 units D-5 QTY: 2 units D-6 QTY: 68 units D-7 QTY: 2 units D-8 QTY: 44 units



D-9 QTY: 4 units D-10 QTY: 2 units D-11 QTY: 2 units W-1 QTY: 6 units W-2 QTY: 2 units W-3 QTY: 32 units W-4 QTY: 3 units W-5 QTY: 7 units W-6 QTY: 1 unit

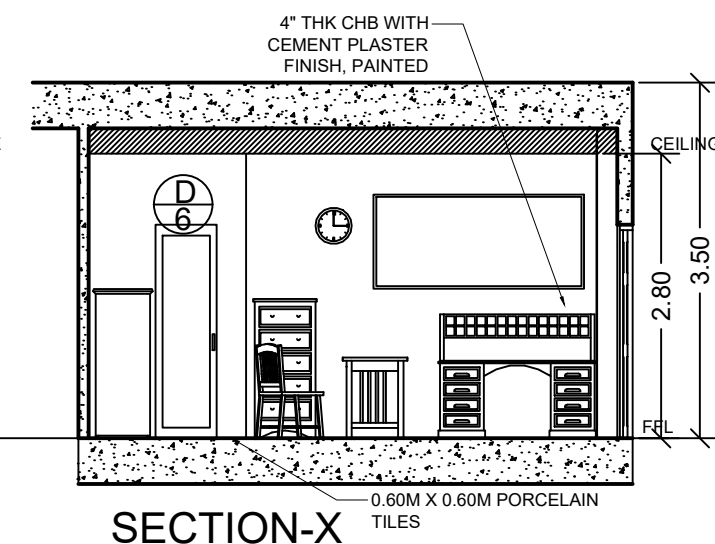
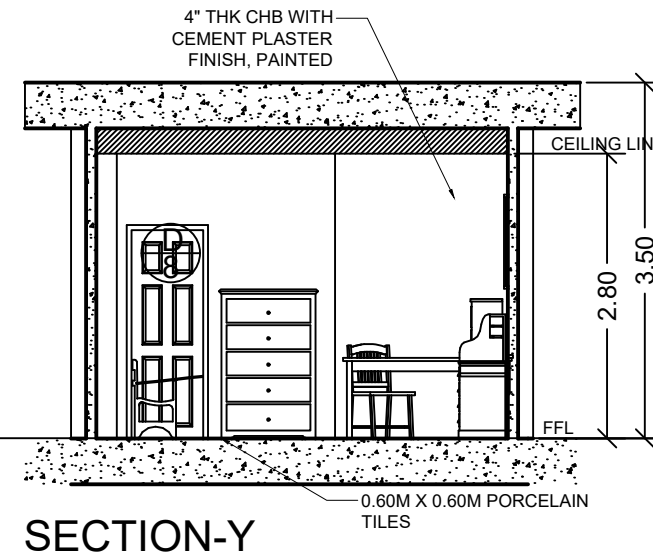
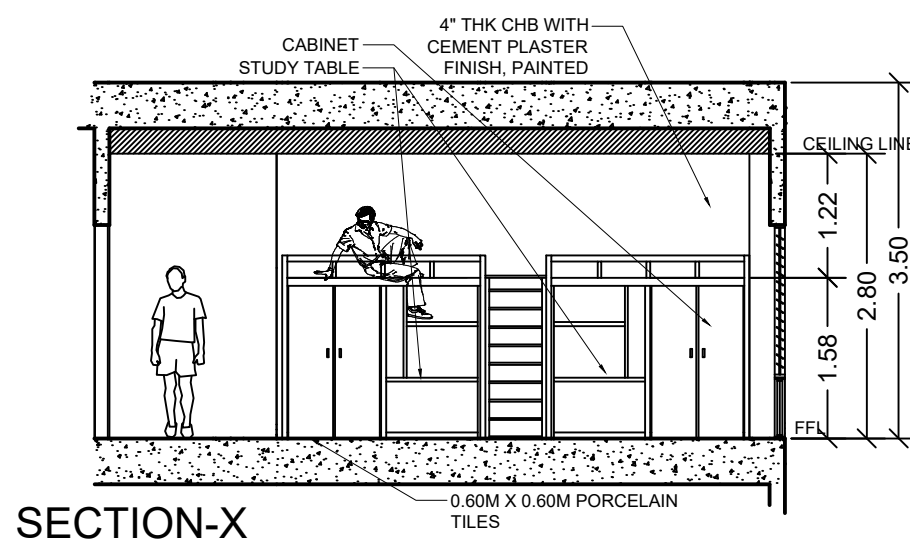
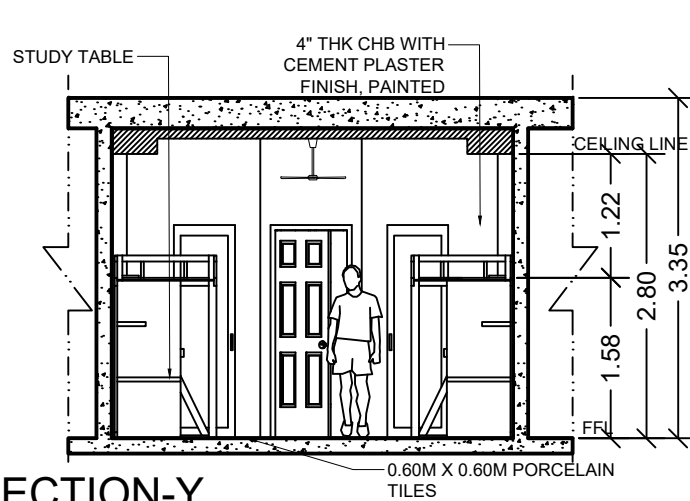
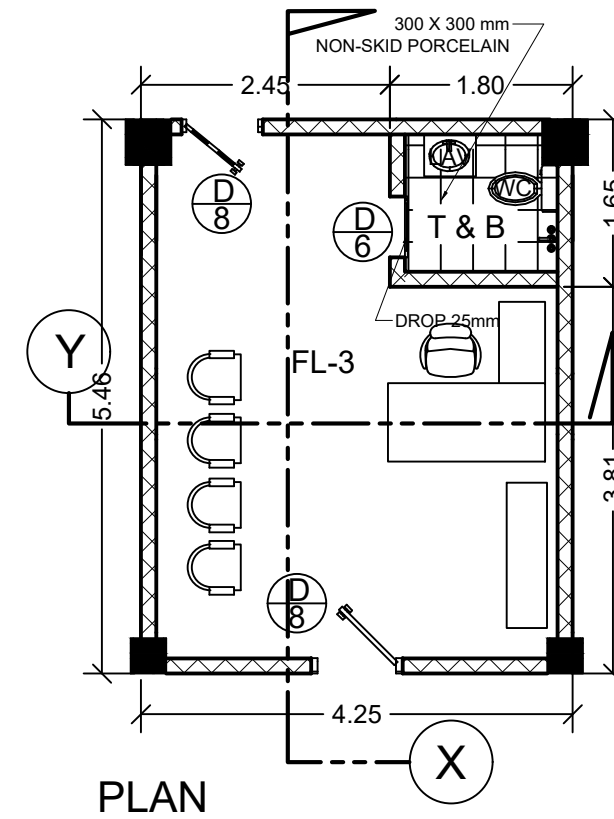
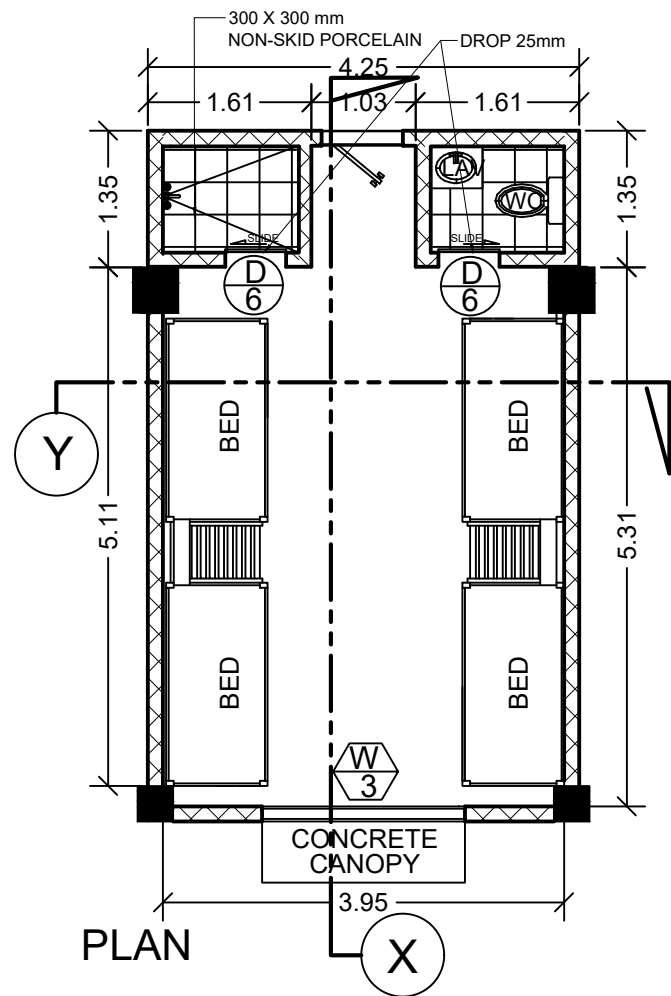
LEGEND:

DOORS

D-1	TUBULAR STEEL 25mm X 25mm
D-2	6mm THK DOUBLE SWING TEMPERED GLASS DOOR WITH ALUM. FRAME
D-3	3mm THK STEEL DOOR W/ 20 cm X 40 cm OBSERVATION GLASS
D-4	6mm THK TEMPERED SLIDING GLASS DOOR W/ 6mm THK FIXED CLEAR GLASS ON ALUM. ANALOC TUBULAR FRAME
D-5	6mm THK TEMPERED SLIDING GLASS DOOR W/ 6mm THK FIXED CLEAR GLASS ON ALUM. ANALOC TUBULAR FRAME
D-6	ALUM. FRAME SLIDING SMOKE GLASS DOOR
D-7	SINGLE SWING PVC DOOR
D-8	SINGLE SWING WOODEN PANEL DOOR WITH 2" X 6" WOODEN DOOR JAMB
D-9	PHENOLIC BOARD DOOR
D-10	PHENOLIC BOARD DOOR
D-11	SINGLE SWING TEMPERED GLASS DOOR WITH TUBULAR STAINLESS STEEL FRAME

WINDOWS

W-1	SLIDING GLASS DOOR W/ 6mm THK CLEAR GLASS ON ALUM. ANALOC TUBULAR
W-2	6mm THK ALUMINUM CLEAR GLASS FIXED WINDOW PARTITION
W-3	6 mm thk. GLASS JALOUSIE WINDOW W/ SCREEN AND FIXED CLEAR GLASS ON ANALOC ALUMINUM FRAME AT THE BOTTOM
W-4	ALUM. FRAME DOUBLE SLIDING GLASS PANEL WINDOW
W-5	ALUM. FRAME TRIPLE SLIDING GLASS PANEL WINDOW
W-6	ALUM. FRAME AWNING CLEAR GLASS WINDOW



1 DORMER'S ROOM PLAN
AR-13 SCALE 1:50 M.

2 ISOLATION ROOM PLAN
AR-13 SCALE 1:50 M.

STRUCTURAL PLAN

GENERAL NOTES:

1.0 GENERAL :

- 1.1 UNLESS NOTED OTHERWISE, ALL DIMENSIONS SHOWN ARE IN MILLIMETERS AND ELEVATIONS SHOWN ARE IN METERS.
- 1.2 THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE, AND SHALL NOTIFY THE ENGINEER OF DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK. THIS SHALL INCLUDE THE LOCATION AND DIMENSIONS OF GROOVES, REGLETS, SLEEVES, CURBS, OPENINGS, EMBEDDED OR ATTACHED ITEMS, ETC. (REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING.)
- 1.3 ALL FIGURED DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS OR DETAILS. SPECIFIC NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- 1.4 THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURES. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION UNLESS SO STATED. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PROTECT THE STRUCTURES, ADJACENT PROPERTIES, WORKMEN AND OTHER PERSONS DURING ALL PHASES OF CONSTRUCTION.
- 1.5 THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN CHARGE OF ANY CONDITION WHICH IN HIS OPINION MIGHT ENDANGER THE STABILITY OF THE STRUCTURES OR CAUSE DISTRESS IN THE STRUCTURES.
- 1.6 THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACINGS AND SHORINGS FOR ALL THE STRUCTURAL MEMBERS AS REQUIRED FOR STRUCTURE STABILITY DURING ALL PHASES OF CONSTRUCTION.
- 1.7 THE CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO ENSURE THE PROPER ALIGNMENT OF THE STRUCTURES DURING AND AFTER THE INSTALLATION OF ALL STRUCTURAL AND FINISH MATERIALS.
- 1.8 THE CONTRACTOR SHALL INFORM THE SUB-CONTRACTORS THAT NO CONSTRUCTION MATERIALS SHALL BE STORED ON POURED FLOORS, AND SHALL ENSURE THAT THE SUB-CONTRACTORS DO NOT VIOLATE THIS IMPORTANT REQUIREMENT.
- 1.9 TYPICAL DETAILS AND GENERAL NOTES ON S-1 AND S-2 SHALL APPLY TO ALL PARTS OF THE WORKS UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

2.0 STANDARDS AND REFERENCES :

THE FOLLOWING SHALL GOVERN THE DESIGN, FABRICATION AND CONSTRUCTION OF THE PROJECT:

- 2.1 AMERICAN CONCRETE INSTITUTE (ACI PUBLICATIONS) :
ACI 318-05 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
ACI 315-94 MANUAL OF STANDARD PRACTICE FOR DETAILS AND DETAILING OF CONCRETE REINFORCEMENT.
- 2.2 AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) PUBLICATION:
MANUAL OF STEEL CONSTRUCTION, NINTH EDITION.
ALLOWABLE STRESS DESIGN (ASD)
- 2.3 AMERICAN WELDING SOCIETY (AWS) PUBLICATION D.1.1-2000.
- 2.4 AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)
- 2.5 NATIONAL STRUCTURAL CODE OF THE PHILIPPINES (NSCP) VOL. 1, SIXTH EDITION 2010.
- 2.6 ASSOCIATION OF STRUCTURAL ENGINEERS OF THE PHILIPPINES (ASEP) HANDBOOK OF STRUCTURAL STEEL SHAPES AND SECTIONS, 2004
- 2.7 UNIFORM BUILDING CODE (UBC), VOL. 2 1997 EDITION

3.0 BASIC DESIGN LOADS :

3.1. DEAD LOADS (DL) :

3.1.1 CONCRETE	24.00	kN/m ³
3.1.2 STEEL	77.00	kN/m ³
3.1.3 SOIL	18.00	kN/m ³
3.1.4 CEILING	200	Pa
3.1.5 MISCELLANEOUS	200	Pa
3.1.6 100mm THK.CHB WALL	2107	Pa
3.1.7 150mm THK.CHB WALL	2730	Pa
3.1.8 FLOOR TILES PLUS MORTAR	1100	Pa

3.2. LIVE LOADS (LL) :

3.2.1 BASIC FLOOR AREA	1900	Pa
3.2.2 HALLWAYS ABOVE GROUND FLOOR	3800	Pa
3.2.3 STAIRS, HALLWAYS, AND ASSEMBLY	4800	Pa
3.2.4 ROOF	900	Pa

3.3. WIND LOAD (WL)

WIND LOADING ON MWFRS (MAIN WIND FORCE RESISTING SYSTEM) :

$$P = q_s [(GC_{ps}) - (GC_{pi})]$$

WHERE :

P = DESIGN WIND PRESSURE, KN/m²

q = VELOCITY PRESSURE, KN/m²

$$= 47.3 \times 10^{-6} K_z K_{zt} V^2 I_w$$

WHERE :

K_z = VELOCITY PRESSURE COEFFICIENT GIVEN IN NSCP TABLE 207.3 EXPOSURE B.

K_{zt} = TOPOGRAPHIC FACTOR = 1.0

V = BASIC WIND SPEED SHOWN IN NSCP FIG. 207-1 = 250kph

I = IMPORTANCE FACTOR = 1.15

G = GUST EFFECT FACTOR SHOWN = 0.85

C_p = EXTERNAL PRESSURE COEFFICIENT SHOWN IN NSCP FIG. 207-3

GC_{pi} = PRODUCT OF INTERNAL PRESSURE & GUST EFFECT FACTOR IN NSCP TABLE 207-4.

3.4. SEISMIC LOAD , E
SEISMIC LOADS FOR BUILDING STRUCTURES ARE CALCULATED BASED ON THE FOLLOWING:

$$E = \rho E_h + E_v$$

$$E_m = \Omega_o E_h$$

WHERE:

- E = EARTHQUAKE LOAD ON THE STRUCTURE
- E_h = THE EARTHQUAKE LOAD DUE TO THE BASE SHEAR, V, OR THE DESIGN LATERAL FORCE F_p.
- E_m = THE ESTIMATED MAXIMUM EARTHQUAKE FORCE THAT CAN BE DEVELOPED IN THE STRUCTURE.
- E_v = THE LOAD EFFECT RESULTING FROM THE VERTICAL COMPONENT OF THE EARTHQUAKE GROUND MOTION AND IS EQUAL TO AN ADDITIONAL OF 0.5 Ca I D TO THE DEAD LOAD EFFECT. D, FOR STRENGTH DESIGN, AND MAY BE TAKEN AS ZERO FOR ALLOWABLE STRESS DESIGN.
- Ω_o = THE SEISMIC FORCE AMPLIFICATION FACTOR THAT IS REQUIRED TO ACCOUNT FOR STRUCTURAL OVERSTRENGTH.

ρ = RELIABILITY / REDUNDANCY FACTOR WHICH SHALL NOT BE TAKEN LESS THAN 1.0 AND GREATER THAN 1.5, IS GIVEN BY THE FOLLOWING FORMULA:

$$\rho = 2 - \frac{6.1}{f_{max} A_g}$$

WHERE:

- f_{max} = THE MAXIMUM ELEMENT-STORY SHEAR RATIO. FOR A GIVEN DIRECTION OF LOADING, THE ELEMENT-STORY SHEAR RATIO IS THE RATIO OF THE DESIGN OF STORY SHEAR IN THE HEAVILY LOADED SINGLE ELEMENT DIVIDED BY THE TOTAL DESIGN STORY SHEAR.
- FOR MOMENT FRAMES, IT SHALL BE TAKEN AS THE MAXIMUM OF THE SUM OF THE SHEARS IN ANY TWO ADJACENT COLUMNS IN A MOMENT FRAME BAY DIVIDED BY THE STORY SHEAR. FOR COLUMNS COMMON TO TWO BAYS, 70 PERCENT OF THE SHEAR IN THAT COLUMN MAY BE USED IN THE COLUMN SHEAR SUMMATION.
- A_g = THE GROUND FLOOR AREA OF THE STRUCTURE.

EARTHQUAKE BASE SHEAR, (V) :

THE TOTAL DESIGN BASE SHEAR IN A GIVEN DIRECTION SHALL BE DETERMINED FROM THE FOLLOWING FORMULA:

$$V = C_y I (W) / R T$$

AND NEED NOT EXCEED THE FOLLOWING:

$$V = \frac{2.5 C_a I (W)}{R}$$

BUT SHALL NOT BE LESS THAN THE FOLLOWING:

$$V = 0.11 C_a I W$$

IN ADDITION FOR SEISMIC ZONE 4, THE TOTAL BASE SHALL ALSO BE NOT LESS THAN THE FOLLOWING:

$$V = \frac{8.5 Z N_v I (W)}{R}$$

WHERE:

- SEISMIC ZONE FACTOR, Z = 0.40
- IMPORTANCE FACTOR, I = 1.5
- GLOBAL DUCTILITY CAPACITY, R = 8.5 (SMRF)
- SEISMIC FORCE OVERSTRENGTH FACTOR, Ω_o = 2.8
- SEISMIC SOURCE TYPE, = A
- NEAR - SOURCE FACTOR, N_v = 1.6
- NEAR - SOURCE TYPE, N_a = 1.2

4.0 MATERIALS :

4.1 NORMAL WEIGHT CONCRETE :

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

COLUMN, BEAM, SLAB, & OTHERS	f'c = 28MPa (4,000 PSI)
FOOTING	f'c = 21MPa (3,000 PSI)

- 4.1.2 ALL CONCRETE SHALL BE DEPOSITED, VIBRATED AND CURED IN ACCORDANCE WITH ACI STANDARD 318-2005.

- 4.1.3 MINIMUM CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:
A. FOOTINGS & BOT. OF FOOTING TIE BEAM = 75mm (CAST AGAINST EARTH)
B. BEAMS AND COLUMNS = 40mm (TO STIRRUPS AND TIES)
C. SLABS AND WALLS = 20mm (CAST AGAINST FORMS)

- 4.1.4 BEFORE CONCRETE IS POURED, CHECK WITH ALL TRADES TO ENSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, ETC. RELATIVE TO THE WORK.

- 4.1.5 WHEN CONCRETE WILL BE EXPOSED TO EXTERNAL SOURCES OF CHLORIDES IN SERVICES, SUCH AS DEICING SALTS, BRACKISH WATER, SEAWATER OR SPRAY FROM THESE SOURCES, CONCRETE MUST BE PROPORTIONED TO SATISFY THE SPECIAL EXPOSURE REQUIREMENTS OF ACI 318-2005.

- 4.1.6 ALL CONCRETE SHALL BE KEPT MOIST FOR A MINIMUM OF 7 CONSECUTIVE DAYS IMMEDIATELY AFTER POURING BY THE USE OF WET BURLAP.

4.2 REINFORCING BARS :

- 4.2.1 UNLESS OTHERWISE SPECIFIED ON PLANS, ALL REINFORCING BARS SHALL BE DEFORMED WITH A MINIMUM YIELD STRENGTH, f_y = 414 MPa (60,000 PSI), FOR DIAMETER 12mm AND BELOW, USE f_y = 275 Mpa (40,000 PSI)

- 4.2.2 ALL REINFORCING BARS SHALL BE CLEANED OF RUST, GREASE OR OTHER MATERIALS WHICH TEND TO IMPAIR BOND.
- 4.2.3 ALL REINFORCING BARS SHALL BE ACCURATELY AND SECURELY PLACED BEFORE POURING CONCRETE OR APPLYING MORTAR OR GROUT.
- 4.2.4 LAPPED SPLICES SHALL BE STAGGERED WHERE POSSIBLE.
- 4.2.5 UNLESS INDICATED OTHERWISE, SPLICING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 318-2005.
- 4.2.6 UNLESS SHOWN OTHERWISE ON PLANS, SPLICES SHALL BE AS FOLLOWS :
A. BEAMS AND FOOTING TIE BEAMS : TOP AND BOTTOM BARS SHALL NOT BE SPLICED WITHIN THE COLUMN OR WITHIN A DISTANCE OF TWICE THE MEMBER DEPTH FROM THE FACE OF THE COLUMN ; AT LEAST TWO EXTRA STIRRUP - TIES SHALL BE PROVIDED AT ALL SPLICES. THE SPLICE LENGTH SHALL NOT BE LESS THAN THE LENGTH IN ITEM 4.2.9 BELOW.
B. COLUMNS : SPLICES WHEN PERMITTED SHALL BE MADE WITHIN THE CENTER HALF OF COLUMN HEIGHT, AND LAP SPLICE SHALL NOT BE LESS THAN 40 BAR DIAMETERS. THE USE OF APPROVED MECHANICAL DEVICES MAY BE PERMITTED PROVIDED THAT NOT MORE THAN ALTERNATE BARS ARE SPLICED AT ANY LEVEL AND THE MINIMUM VERTICAL DISTANCE BETWEEN TWO ADJACENT BAR SPLICES SHALL BE 600mm.
C. CONCRETE MASONRY UNIT (CMU) WALLS : VERTICAL BARS SHALL BE SPLICED AT THE TOP OF WALL FOOTING OR TIE BEAM AND AT THE BOTTOM OF RC LINTEL BEAM OR BEAMS. SPLICE LENGTHS SHALL BE 600mm MIN.
- 4.2.7 UNLESS INDICATED OTHERWISE, ALL BEAMS TERMINATING AT THE COLUMN SHALL HAVE TOP AND BOTTOM BARS EXTENDING TO THE FAR FACE OF THE COLUMN, TERMINATING IN A STANDARD 90° HOOK LENGTH OF ANCHORAGE NOT LESS THAN 600mm.
- 4.2.8 SHOP DRAWINGS FOR BENDING AND CUTTING OF REINFORCEMENT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO FABRICATION.
- 4.2.9 SPLICE LENGTH OF REINFORCING BARS SHALL BE AS SHOWN IN THE TABLE BELOW.

4.3 STRUCTURAL STEEL/ANCHOR BOLTS/BOLTS/WELDS & WELDMENTS

- 4.3.1 ALL STRUCTURAL STEEL SHALL HAVE A MINIMUM YIELD STRENGTH, F_y = 248 MPa (36 KSI) AND SHALL CONFORM TO ASTM A 36 SPECIFICATIONS.
- 4.3.2 ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC SPECIFICATIONS (9TH EDITION) AND CODE OF STANDARD PRACTICE AS AMENDED TO DATE.
- 4.3.3 ALL COLD FORMED STEEL SHALL HAVE A MINIMUM STRENGTH, F_y = 230 MPa (33 KSI)
- 4.3.4 NO STEEL SHALL BE FABRICATED OR ERECTED UNTIL SHOP DRAWINGS HAVE BEEN APPROVED BY THE STRUCTURAL ENGINEER.
- 4.3.5 ALL SHOP AND FIELD WELDING SHALL BE IN ACCORDANCE WITH AWS D.1.1-2000 AND PERFORMED BY QUALIFIED WELDERS.
- 4.3.6 UNLESS INDICATED OTHERWISE, WELDING ELECTRODES SHALL BE E70XX, MINIMUM THICKNESS OF WELD SHALL BE 3mm.
- 4.3.7 UNLESS OTHERWISE INDICATED ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A307 SPECIFICATIONS.
- 4.3.8 BOLTS FOR MEMBER CONNECTIONS SHALL BE HIGH STRENGTH BOLTS, CONFORMING TO ASTM A325 FRICTION TYPE WITH WASHERS.

4.4 CONCRETE MASONRY UNITS (CMU)

- 4.4.1 CMU USED IN THESE WORKS SHALL HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH @ 28 DAYS AS FOLLOWS :
100mm THICK NON-LOAD BEARING CMU, f_m = 2.4 MPa (350 PSI)
150mm THICK NON-LOAD BEARING CMU, f_m = 2.4 MPa (350 PSI)
- 4.4.2 ALL CELLS SHALL BE SOLIDLY FILLED WITH GROUT. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 13.80 MPa (2,000 PSI) @ 28 DAYS.
- 4.4.3 UNLESS INDICATED OTHERWISE, CMU REINFORCEMENT SHALL BE 10mmØ HOR. BARS SPACED @ 600mm AND 10mmØ VERT. BARS SPACED @ 600mm.
- 4.4.4 ALL WALLS SHALL BE CONSTRUCTED IN CONVENTIONAL RUNNING BOND, UNLESS NOTED OTHERWISE.
- 4.4.5 GROUT MASONRY IN 2.4m MAXIMUM LIFTS. REINFORCING SHALL BE SECURED AGAINST DISPLACEMENT PRIOR TO GROUTING BY WIRE POSITIONERS AT INTERVALS NOT EXCEEDING 200 BAR DIAMETERS NOR 3m.
- 4.4.6 IF WORK IS STOPPED ONE (1) HOUR OR LONGER, PROVIDE HORIZONTAL CONSTRUCTION JOINTS BY STOPPING THE GROUT 50mm BELOW THE TOP OF THE BLOCK.

5.0 CONSTRUCTION JOINTS :

- 5.1 CONTRUCTION JOINTS NOT INDICATED ON PLANS SHALL BE MADE SO AS TO LEAST IMPAIR THE STRENGTH OF THE STRUCTURE AND SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- 5.2 UNLESS SHOWN OTHERWISE, SLAB ON GRADE SHALL HAVE CONTROL JOINTS @ 6.00m MAXIMUM CENTER TO CENTER.

6.0 NOTES ON BEAMS AND GIRDERS :

- 6.1 UNLESS OTHERWISE NOTED IN PLANS OR SPECIFICATIONS, CAMBER ALL BEAMS AND GIRDERS AT LEAST 0.006m FOR EVERY 4.50m OF SPAN EXCEPT CANTILEVERS FOR WHICH THE CAMBERS SHALL BE AS NOTED IN THE PLANS OR AS ORDERED BY THE DESIGNERS. BUT IN NO CASE LESS THAN .019m FOR EVERY 3.00m OF FREE SPAN.

- 6.2 IF THERE ARE TWO OR MORE LAYERS OF REINFORCING BARS , USE SEPARATORS OF SIZE NOT LESS THAN 25mm BARS SPACED ABOUT 1.00m ON CENTER AND PLACED DIAGONALLY. IN NO CASE SHALL THERE BE LESS TWO (2) SEPARATORS BETWEEN LAYERS OF BARS.
- 6.3 WHEN A BEAM CROSSES A GIRDER, REST BEAM BARS ON TOP OF GIRDER BARS. REINFORCING BARS SHALL BE SYMMETRICAL ABOUT THE CENTER LINE WHENEVER POSSIBLE. UPPER LAYER SHALL BE PLACED DIRECTLY ABOVE THOSE IN THE BOTTOM LAYER. SPACING OF BARS IN LAYER SHALL NOT BE LESS THAN 0.025m NOR ONE BAR DIAMETER.
- 6.4 GENERALLY, NO SPLICE SHALL BE PERMITTED ON BEAM AT POINT WHERE CRITICAL BENDING STRESSES OCCUR. WELDED SPLICES SHALL DEVELOP IN TENSION AT LEAST 125% OF THE SPECIFIED STRENGTH OF THE BAR, NOT MORE THAN 50% OF THE BARS AT ANY ONE SECTION SHALL BE ALLOWED TO BE SPLICED THEREIN.
- 6.5 FOR BAR TERMINATIONS OF TOP BARS AT SUPPORT AND MIDSPAN BARS, CUT-OFF ONLY TWO BARS AT EVERY 0.3m INTERVAL (UNLESS REQUIRED IN SPECIFICATIONS, OR NOTED OTHERWISE.)

7.0 FOUNDATIONS :

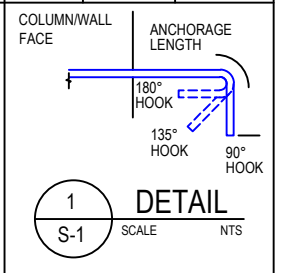
- 7.1 FOOTINGS WERE DESIGNED USING AN ASSUMED ALLOWABLE SOIL BEARING CAPACITY OF 150 kPa AT DEPTHS INDICATED IN THE DRAWING. IN CASE THE ACTUAL SOIL BEARING CAPACITY IS FOUND LESS THAN THE ASSUMED 150 kPa, NOTIFY THE STRUCTURAL ENGINEER FOR PROPER REVISION OF FOOTINGS.
- 7.2 CONFIRMATION OF ACTUAL SOIL BEARING CAPACITY SHALL BE PERFORMED PRIOR TO THE CONSTRUCTION OF THE FOUNDATION.
- 7.3 WHERE LOOSE/SOFT MATERIAL IS ENCOUNTERED AT DEPTH OF FOOTING/FOUNDATION INDICATED, EXCAVATE TO FIRM LAYER AND REPLACE LOOSE/SOFT MATERIALS UNDERNEATH THE FOOTING WITHIN THE FOOTING AREA PLUS 1/2 DEPTH OF SOIL MATERIAL ON ALL SIDES WITH SELECTED BACKFILL. COMPACT SELECTED BACKFILL TO 95% MAXIMUM DRY DENSITY (ASTM D1557).
- 7.4 ALL COLUMN FOOTINGS SHALL REST ON 100mm THK COMPACTED GRAVEL BASE COURSE, UNLESS OTHERWISE STATED.
- 7.5 FILL/BACKFILL SHALL BE PLACED IN 200mm LAYERS AND EACH LAYER SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY BEFORE SUBSEQUENT LAYERS ARE TO BE LAID.

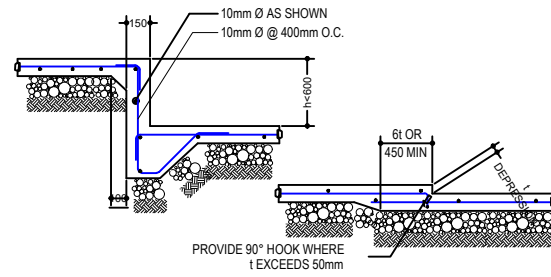
LAP SPLICE & ANCHORAGE LENGTH TABLE

BAR DIAMETER (mm)	ANCHORAGE LENGTH (m)	STANDARD HOOK (m)			LAP SPLICE (m)				UNIT WEIGHT (kg/m)	MIN. LAP SPLICE LENGTH OF COL. REINF. INDIVIDUAL BARS	
		90°	180°	135°	TENSION BAR		COMP. BAR			W/ TIES	W/ SPIRAL
					TOP BAR	OTHERS	TOP BAR	OTHERS			
10	0.50	0.15	0.13	0.10	0.42	0.30	0.42	0.30	0.617	0.30	0.30
12	0.50	0.20	0.15	0.12	0.42	0.30	0.42	0.30	0.889	0.30	0.30
16	0.60	0.25	0.18	0.14	0.73	0.52	0.87	0.62	1.580	0.52	0.47
20	0.60	0.30	0.20	0.20	0.91	0.65	1.10	0.78	2.469	0.65	0.58
25	0.68	0.40	0.28	0.26	1.15	0.82	1.40	1.00	3.858	0.80	0.73
28	0.86	0.48	0.38	-	1.45	1.03	1.53	1.09	4.840	0.90	0.82
32	1.12	0.56	0.43	-	1.90	1.35	1.74	1.24	6.327	1.03	0.93
36	1.43	0.61	0.48	-	2.40	1.70	2.00	1.40	8.000	1.20	1.05

NOTES:

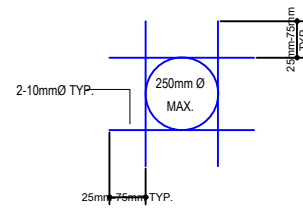
- 1. ACI SECTION 12.4 STATES THAT DEVELOPMENT LENGTH OF INDIVIDUAL BARS W/IN A BUNDLE, IN TENSION OR COMPRESSION, SHALL BE THAT FOR THE INDIVIDUAL BAR, INCREASED 20% FOR THREE BAR BUNDLE, AND 33% FOR FOUR BAR BUNDLE.
- 2. FOR COLUMNS, AT ANY LEVEL NO MORE THAN ALTERNATE BARS SHOULD BE SPLICED. NOT MORE THAN 33% OF THE BARS SHALL BE SPLICED W/IN THE REQUIRED LAP LENGTH. MINIMUM DISTANCE BETWEEN TWO ADJACENT BAR SPLICES SHALL BE 600mm.
- 3. TOP BARS ARE HORIZONTAL BARS W/ MORE THAN 300mm DEPTH OF CONCRETE CAST BELOW THE REINFORCEMENT.
- 4. AS MUCH AS POSSIBLE, SPLICES SUBJECTED TO TENSILE STRESSES ARE DISCOURAGE, THESE SHOULD BE AVOIDED OR PROVIDED W/ STANDARD HOOKS.





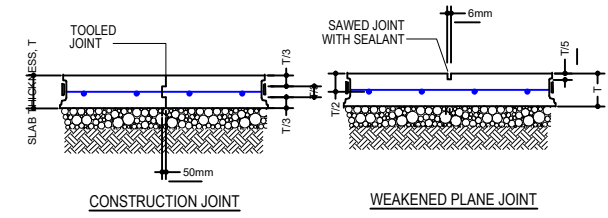
1
S-2 SCALE NTS
DEPRESSED SLAB & SLAB EDGE DETAILS

STANDARD DETAIL CONNECTION



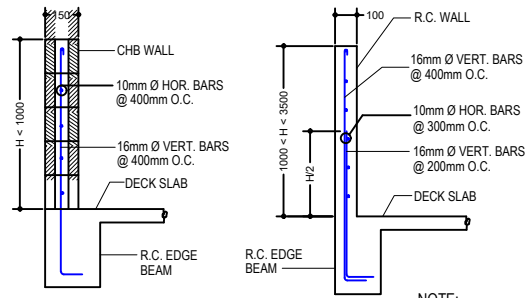
NOTE:
1. REINF. TO BE SAME BAR SIZE AND SPACING AS ADJACENT REINF. BARS ON SLABS.
2. FOR CLOSURE SLABS AT OPENINGS AND BLOCKS OUT, REBARS TO BE THE SAME SIZE, AND 2/3 THE SPACING OF BARS AS ADJACENT SLABS.

2
S-2 SCALE NTS
TYP. PIPE SLEEVE OPENING FOR SLABS



NOTE:
1. CONTROL JOINTS CAN BE EITHER CONSTRUCTION JOINTS OR WEAKENED PLANE JOINTS.

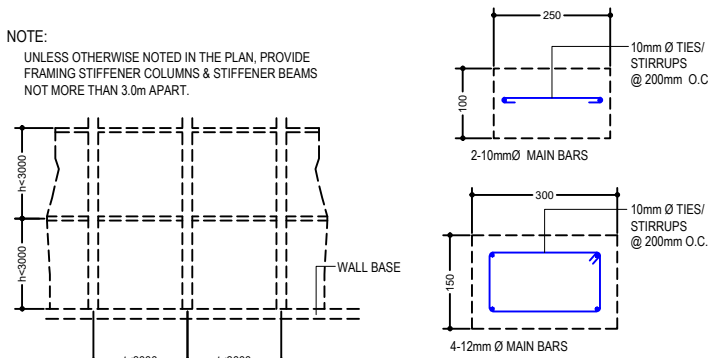
3
S-2 SCALE NTS
CONTROL JOINTS FOR SLAB-ON GRADE



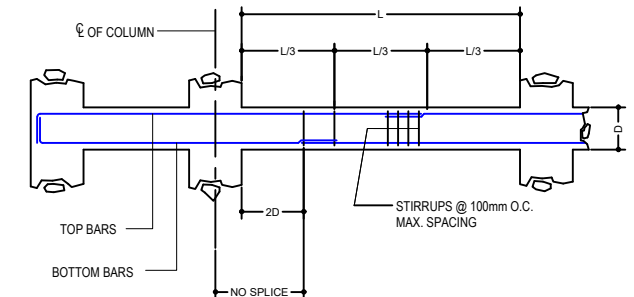
NOTE:
(UNLESS OTHERWISE NOTED ON PLANS)

4
S-2 SCALE NTS
TYPICAL DETAIL SECTION OF PARAPET

NOTE:
UNLESS OTHERWISE NOTED IN THE PLAN, PROVIDE FRAMING STIFFENER COLUMNS & STIFFENER BEAMS NOT MORE THAN 3.0m APART.

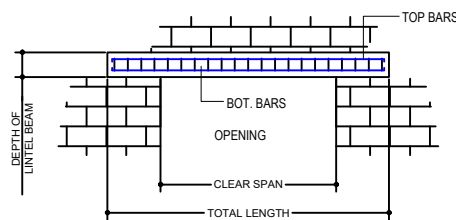


5
S-2 SCALE NTS
TYPICAL DETAIL OF STIFFENER BEAMS & COLUMNS

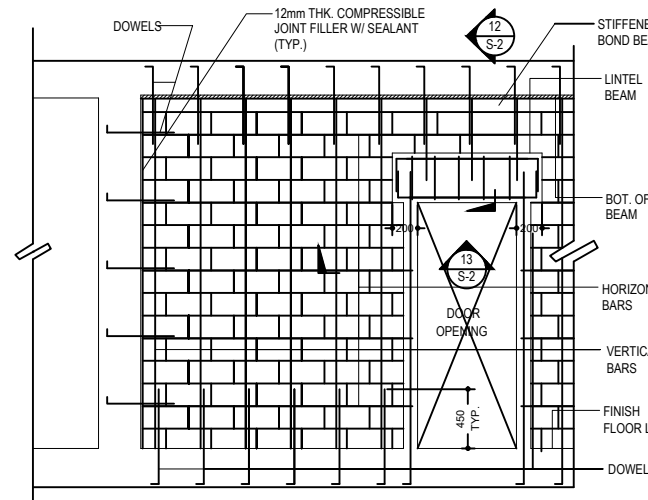


6
S-2 SCALE MTS
TYP. SPLICE DETAILS FOR BEAMS FRAMING INTO COLUMN

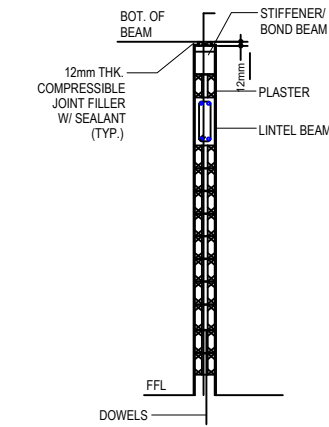
LINTEL IN BLOCK WALLS (SAME THICKNESS AS CMU)						
CLEAR SPAN L (mm)	TOTAL LENGTH m	MIN. f _c Mpa	HEIGHT OF LINTEL BEAM (mm)	REINFORCEMENT		STIRRUPS
				BOTTOM	TOP	
1200	1800	13.8	200	2-10mm Ø	2-10mm Ø	10mm Ø @ 200
1500	2100	13.8	225	2-12mm Ø	2-12mm Ø	10mm Ø @ 200
1800	2400	13.8	250	2-16mm Ø	2-16mm Ø	10mm Ø @ 200
2100	2700	17.2	250	2-16mm Ø	2-16mm Ø	10mm Ø @ 200
2400	3000	17.2	300	2-16mm Ø	2-16mm Ø	10mm Ø @ 200
2700	3300	17.2	300	2-16mm Ø	2-16mm Ø	10mm Ø @ 200
3000	3800	17.2	350	3-16mm Ø	2-16mm Ø	10mm Ø @ 200
3300	4100	17.2	400	3-16mm Ø	2-16mm Ø	10mm Ø @ 200
3600	4400	17.2	450	4-16mm Ø	2-16mm Ø	10mm Ø @ 200



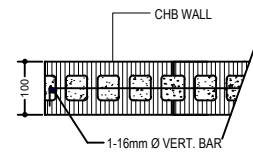
7
S-2 SCALE MTS
REINF. CONCRETE LINTEL BEAM IN CHB WALLS



8
S-2 SCALE MTS
TYP. CHB WALL ELEVATION



9
S-2 SCALE MTS
SECTION



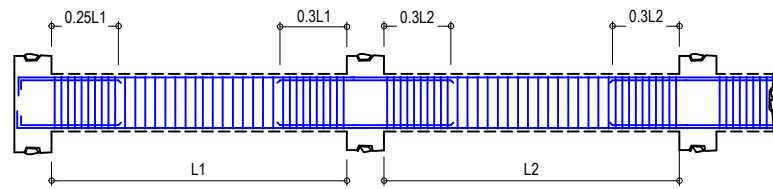
10
S-2 SCALE MTS
SECTION

SCHEDULE OF FOOTINGS

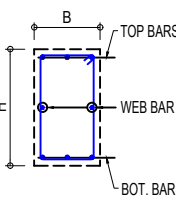
MARK	D (DEPTH) mm	t (THICK.) mm	L (LENGTH) mm	W (WIDTH) mm	REINFORCEMENT				REMARKS
					TOP		BOTTOM		
					"A"	"B"	"C"	"D"	
F1	700	300	1800	1800	-	-	9-20mm Ø	9-20mm Ø	ISOLATED FOOTING
F2	700	300	2000	2000	-	-	9-20mm Ø	9-20mm Ø	ISOLATED FOOTING
F3	700	300	2000	2000	-	-	9-20mm Ø	9-20mm Ø	ISOLATED FOOTING
F4	700	300	2500	2500	-	-	15-20mm Ø	15-20mm Ø	ISOLATED FOOTING

SCHEDULE OF FOOTING TIE BEAMS (FTB)

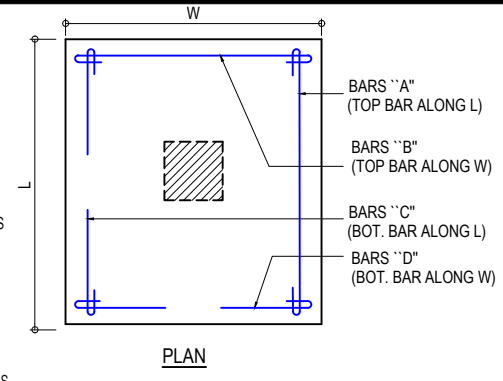
MARK	SIZES (mm)	REINFORCING BARS				ARRANGEMENT			STIRRUPS SIZE SPACING	REMARKS
		AT SUPPORT		AT MID-SPAN		AT EXT. SUPP.	AT MID SPAN	AT INT. SUPP.		
		TOP	BOTTOM	TOP	BOTTOM					
FTB1	250x350	4-20mm Ø	4-20mm Ø	3-20mm Ø	3-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 3@150mm, REST@ 200mm O.C.	
FTB2	300x450	5-20mm Ø	5-20mm Ø	3-20mm Ø	3-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 5@150mm, REST@ 200mm O.C.	



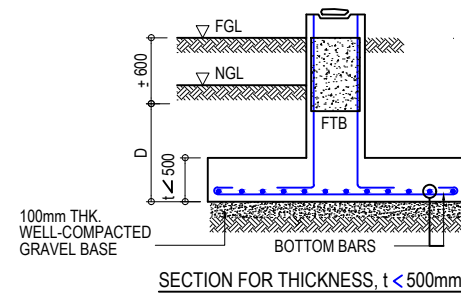
ELEVATION



SECTION



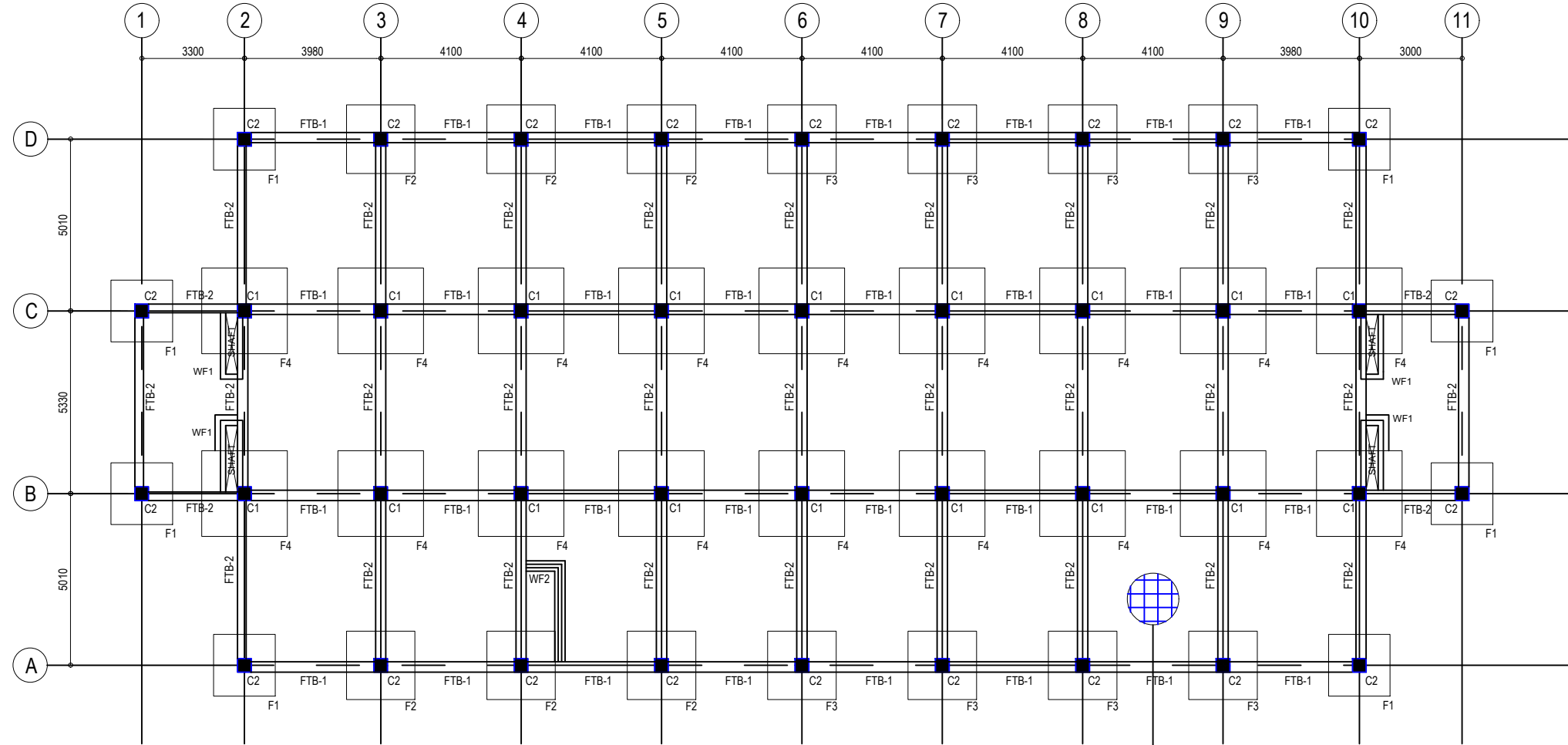
PLAN



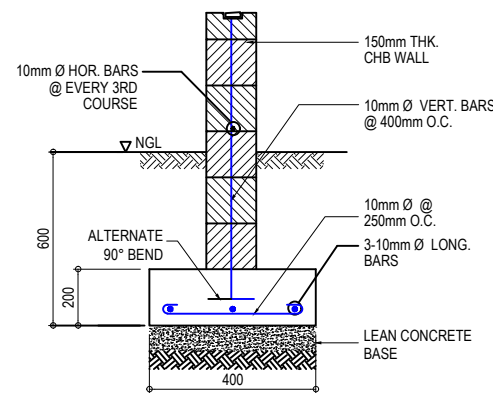
SECTION FOR THICKNESS, t < 500mm

6 TYPICAL FOOTING TIE BEAM DETAIL
ST-3 NOT TO SCALE

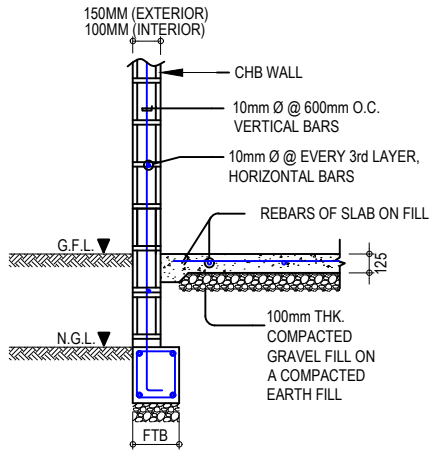
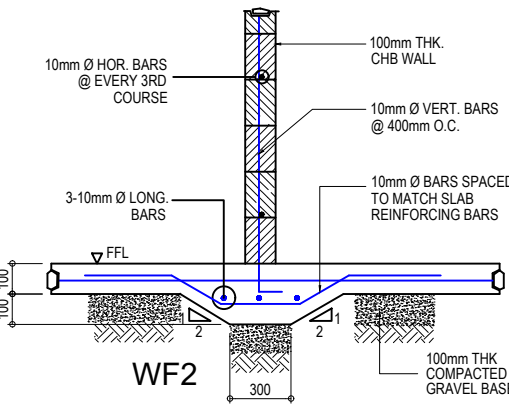
2 DETAIL REFERENCE OF FOOTINGS
ST-3 NOT TO SCALE



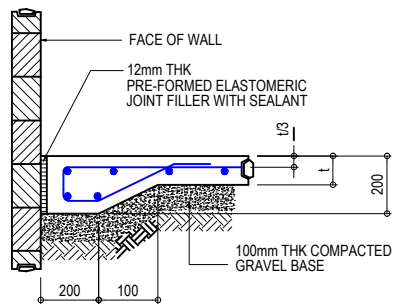
1 LOWER GROUND FOUNDATION & FRAMING PLAN
ST-3 SCALE 1:100 M.



3 WALL FOOTING DETAIL
ST-3 NOT TO SCALE



4 WALL ON FOOTING TIE BEAM
ST-3 NOT TO SCALE

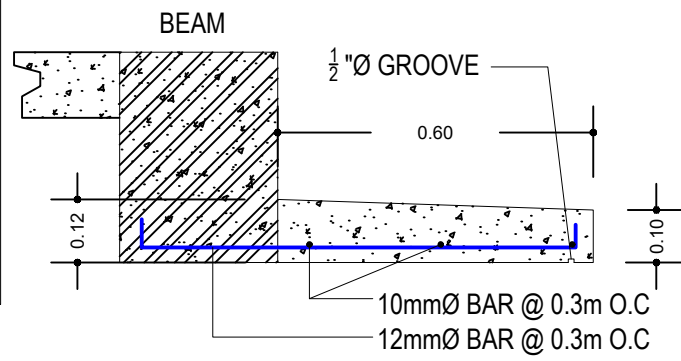


5 TYPICAL SLAB ON GRADE DET.
ST-3 NOT TO SCALE

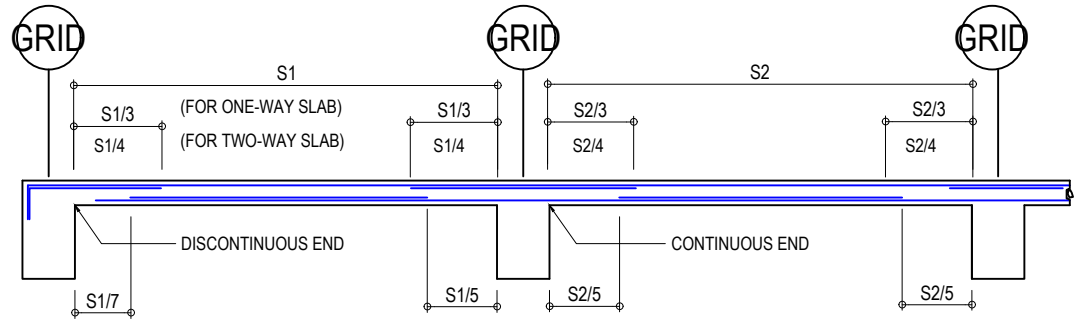
USE: 125mm THK SLAB ON FILL WITH 10mm Ø BARS SPACED @ 250mm O.C. BOTHWAYS

SCHEDULE OF SLABS

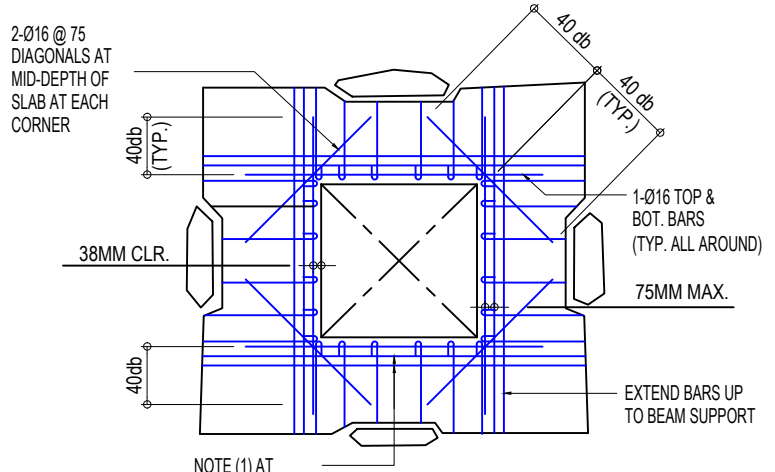
FLOOR LEVEL	MARK	THICKNESS (mm)	BAR LOCATION	BAR DIA.	REINFORCING BARS				REMARKS
					SHORT SPAN		LONG SPAN		
					END	MIDDLE	END	MIDDLE	
ALL	S-1	125	TOP	Ø10	200	200	200	200	TWO-WAY
			BOT.	Ø12	300	300	300	300	



5 TYPICAL CANOPY DETAIL
ST-4 NOT TO SCALE

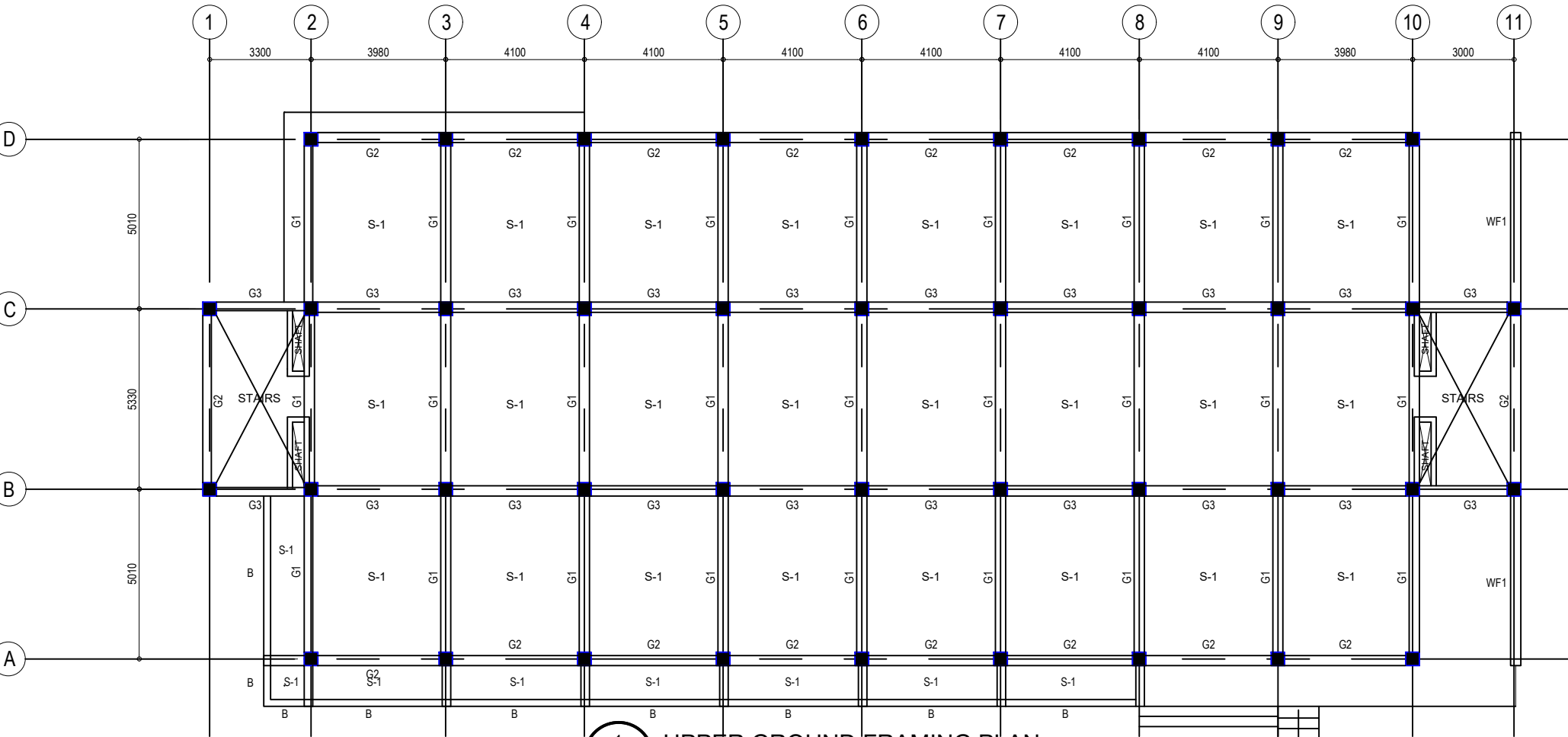


2 TYPICAL SLAB DETAIL
ST-4 NOT TO SCALE

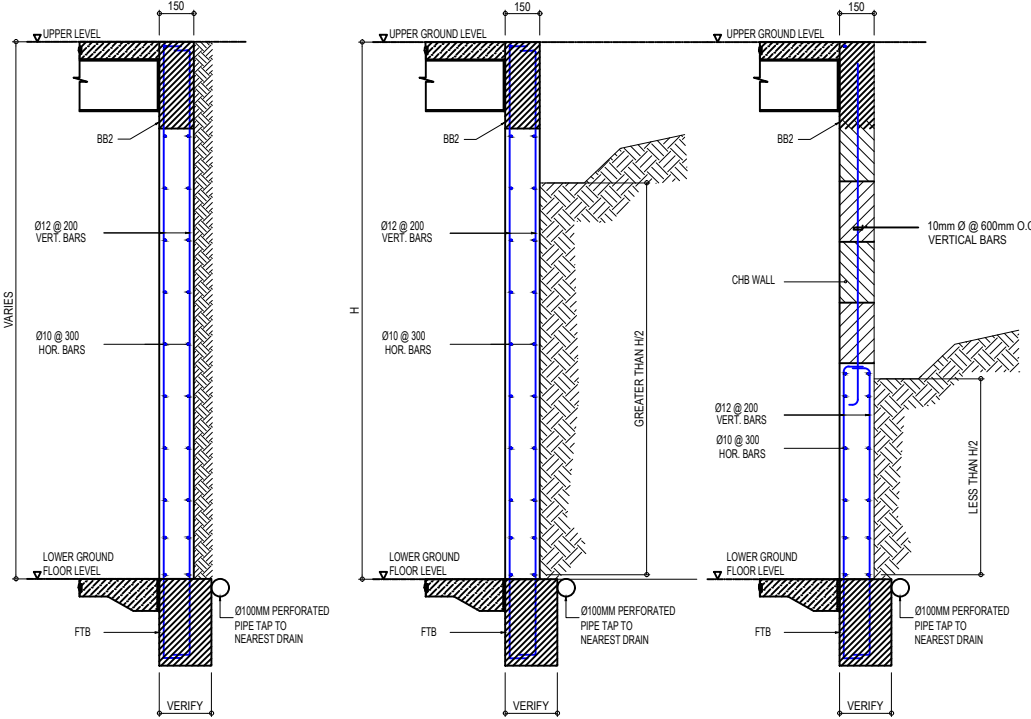


- NOTES:
- ALL TOP AND BOTTOM SLAB BARS INTERRUPTED BY OPENING SHALL BE REPLACED BY ADDITIONAL REINFORCING EQUAL TO THAT INTERRUPTED. PLACE HALF OF THE ADDITIONAL REINFORCING ON EACH SIDE OF OPENING AND EXTEND SAME LENGTH AS REQUIRED OR BAR LAP OF INTERRUPTED REINFORCING.
 - SEE ARCHITECTURAL & MECHANICAL PLANS FOR SLAB OPENING LOCATION.
 - OMIT TRIMMER BARS WHERE OPENING IS FRAMED BY BEAMS.
 - BOXED OUT OPENINGS, RECESSES AND PIPE SLEEVE CLUSTERS SHALL BE TREATED AS FRAMED SLAB OPENING.
 - MAXIMUM DIMENSION FOR EACH SIDE OF OPENING SHALL BE 1200MM. OPENINGS BEYOND THE SAID DIMENSION ARE SUBJECT TO THE APPROVAL OF THE ENGINEER.

3 TYPICAL SLAB OPENING DETAIL
ST-4 NOT TO SCALE



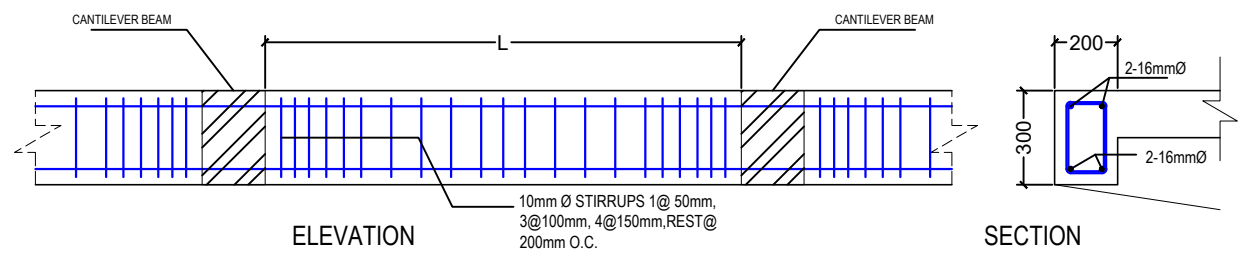
1 UPPER GROUND FRAMING PLAN
ST-4 SCALE 1:100 M.



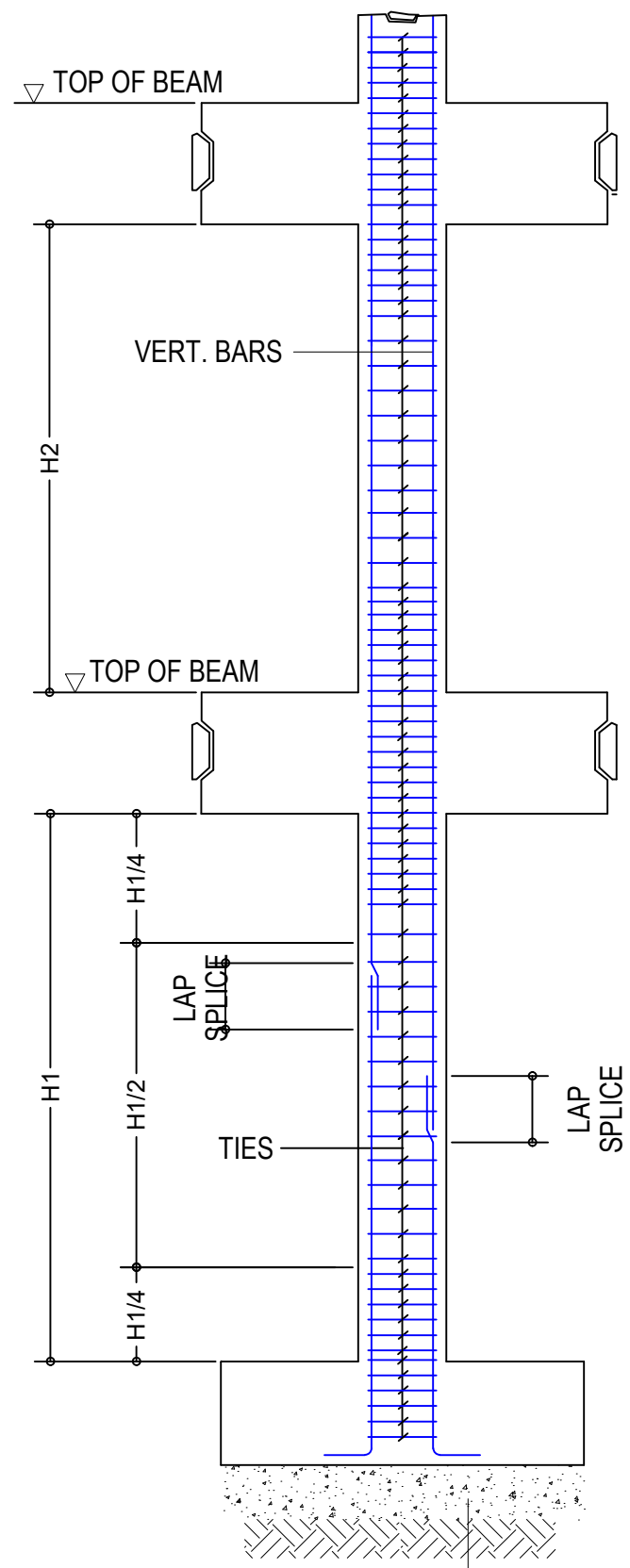
4 TYPICAL RETAINING WALL DETAIL
ST-4 NOT TO SCALE

SCHEDULE OF COLUMNS

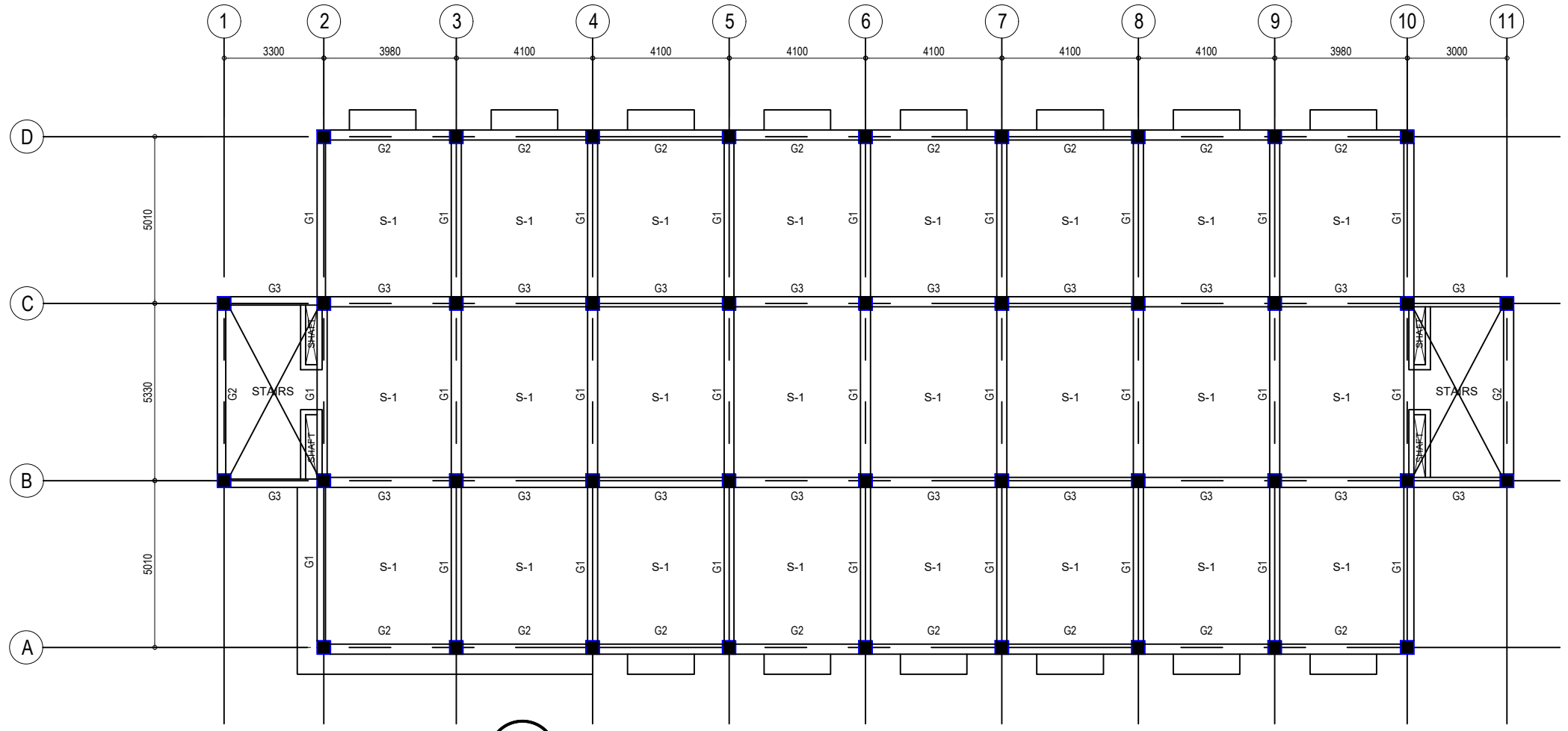
COL. MARK	C1	C2	COL. MARK	C1	C2
FOUNDATION TO SECOND FLOOR			THIRD FLOOR TO ROOF BEAM		
SIZE (mm)	400X400	350X350	SIZE (mm)	300X300	300X300
VERT. REINF.	4-25mm Ø & 4-20mm Ø	8-20mm Ø	VERT. REINF.	8-16mm Ø	8-16mm Ø
TIES	1@50mm, 2@100mm, 3@150mm, rest @ 200mm		TIES	1@50mm, 2@100mm, 3@150mm, rest @ 200mm	
SECOND FLOOR TO THIRD FLOOR					
SIZE (mm)	350X350	300X300			
VERT. REINF.	8-20mm Ø	8-20mm Ø			
TIES	1@50mm, 2@100mm, 3@150mm, rest @ 200mm				



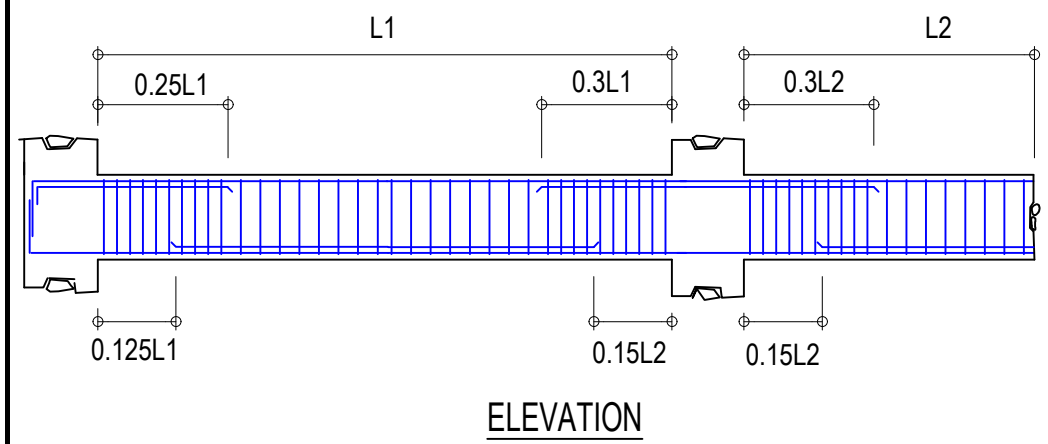
3 TYPICAL BEAM DETAIL (B)
 ST-5 NOT TO SCALE



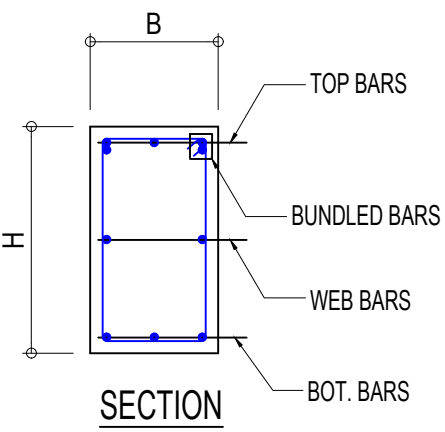
2 TYPICAL COLUMN DETAIL
 ST-5 NOT TO SCALE
 100mm THK COMPACTED GRAVEL BASE



1 TYPICAL SECOND & THIRD FLOOR FRAMING PLAN
 ST-5 SCALE 1:100 M.

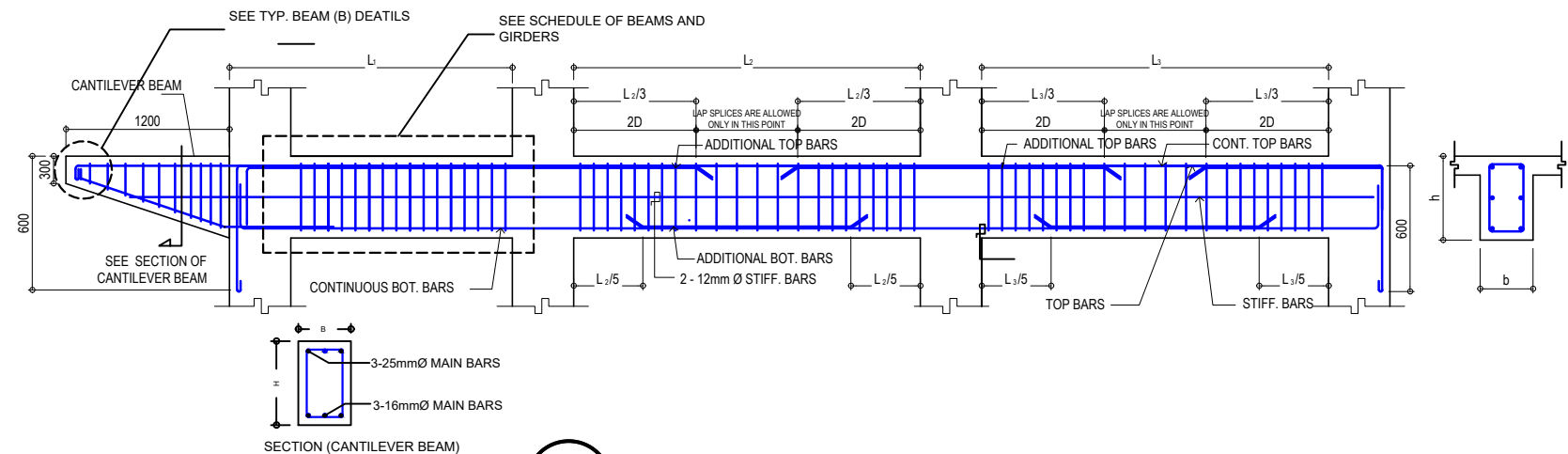


ELEVATION



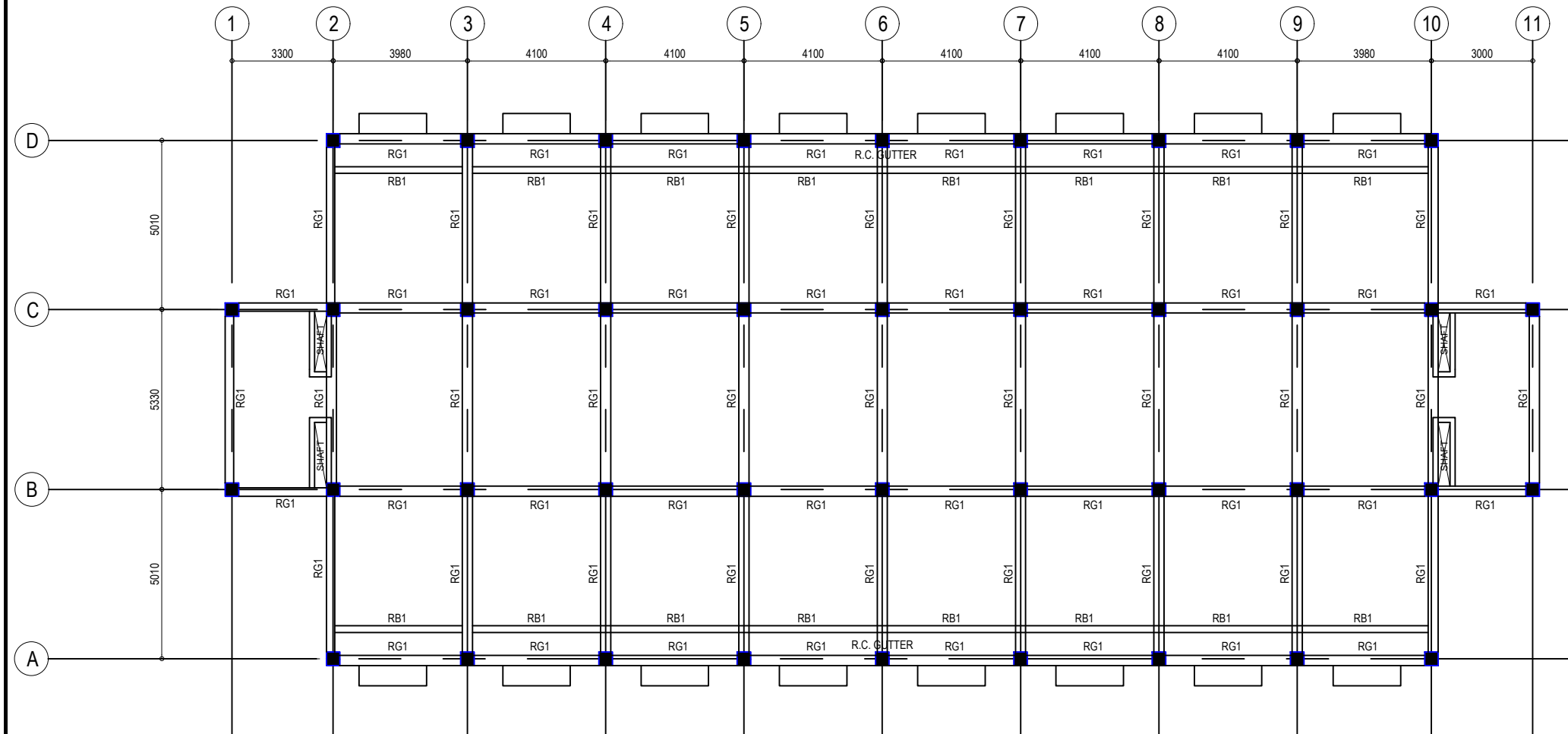
SECTION

2 TYPICAL BEAM DETAIL
ST-6 NOT TO SCALE



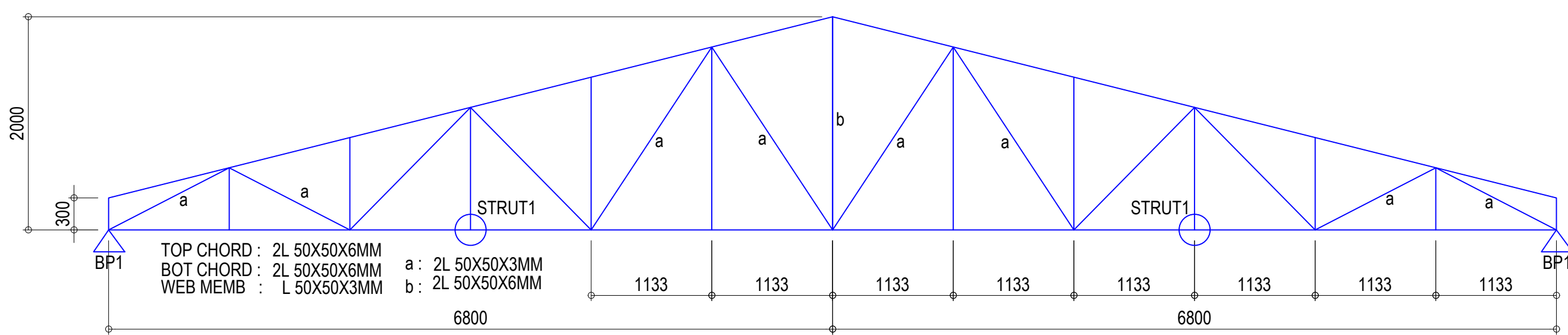
SECTION (CANTILEVER BEAM)

3 TYPICAL BEAM DETAIL WITH CUT-OFF BARS
ST-6 NOT TO SCALE

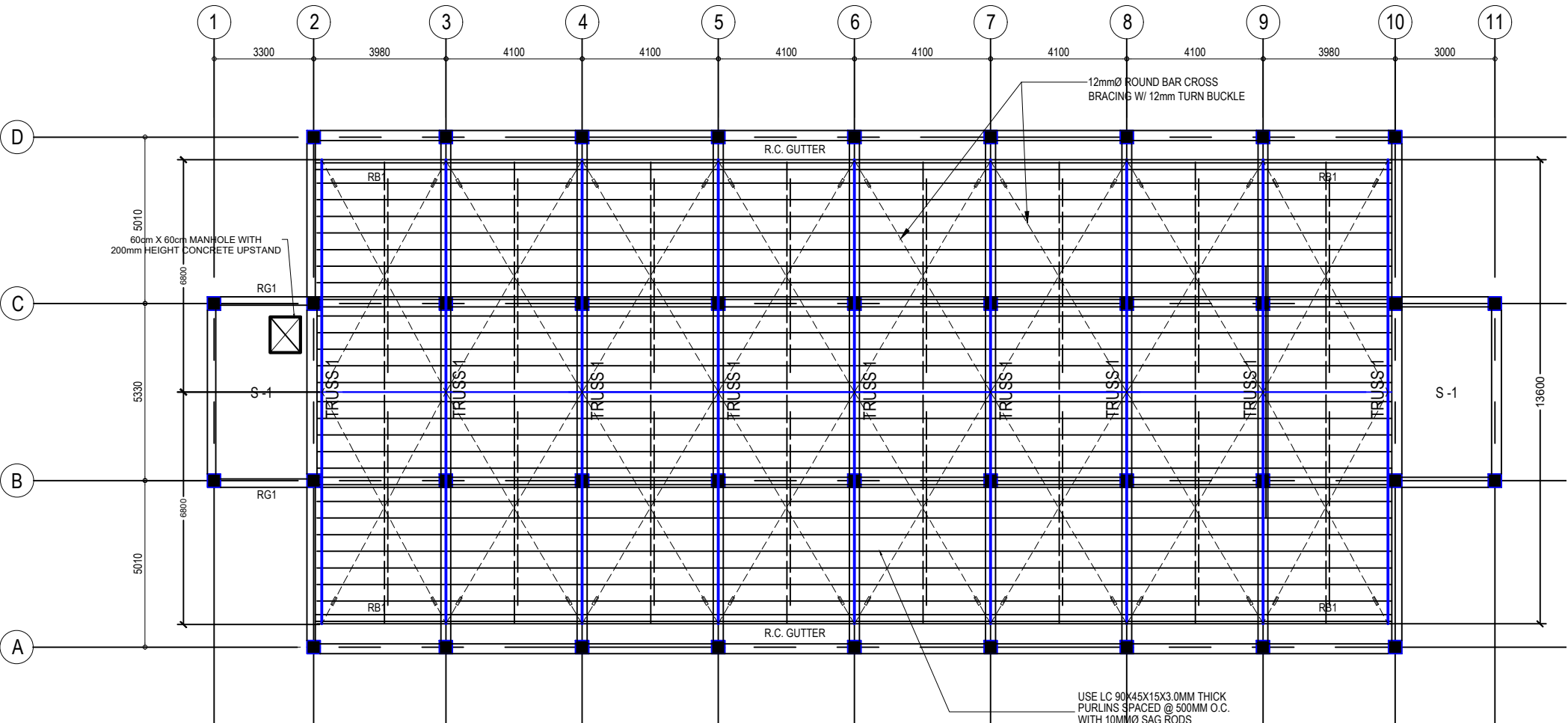


1 ROOF BEAM FRAMING PLAN
ST-6 SCALE 1:100 M.

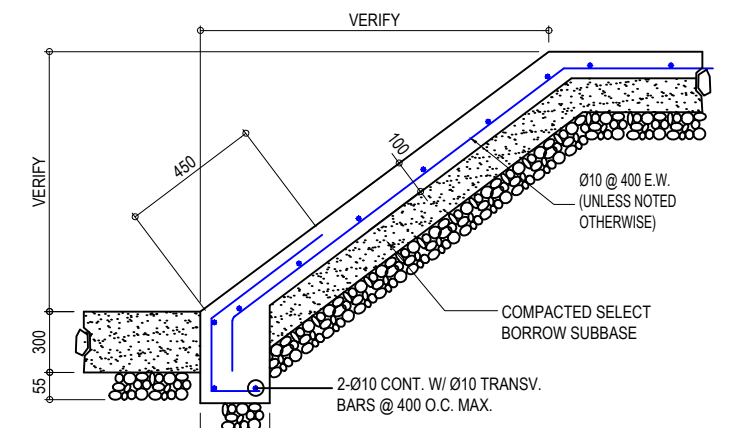
SCHEDULE OF BEAMS AND GIRDERS										
MARK	SIZES (mm)	REINFORCING BARS				ARRANGEMENT			STIRRUPS SIZE SPACING	REMARKS
		AT SUPPORT		AT MID - SPAN		AT EXT. SUPP.	AT MID SPAN	AT INT. SUPP.		
		TOP	BOTTOM	TOP	BOTTOM					
GROUND FLOOR										
G1	350X450	5-25mm Ø	3-25mm Ø	3-25mm Ø	3-25mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G2	300X400	4-20mm Ø	2-20mm Ø	2-20mm Ø	3-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G3	350X450	5-20mm Ø	3-20mm Ø	3-20mm Ø	4-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
SECOND FLOOR										
G1	350X450	5-25mm Ø	3-25mm Ø	3-25mm Ø	3-25mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G2	300X400	4-20mm Ø	2-20mm Ø	2-20mm Ø	3-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G3	350X450	5-20mm Ø	3-20mm Ø	3-20mm Ø	4-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
THIRD FLOOR										
G1	300X400	6-20mm Ø	3-20mm Ø	3-20mm Ø	4-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G2	300X400	4-16mm Ø	3-16mm Ø	2-16mm Ø	3-16mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
G3	300X400	3-20mm Ø	2-20mm Ø	2-20mm Ø	3-20mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
ROOF BEAM LEVEL										
RG1	250X300	3-16mm Ø	2-16mm Ø	2-16mm Ø	3-16mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	
RB1	250X300	2-16mm Ø	2-16mm Ø	2-16mm Ø	3-16mm Ø				10mm Ø STIRRUPS 1@ 50mm, 3@100mm, 4@150mm, REST@ 200mm O.C.	



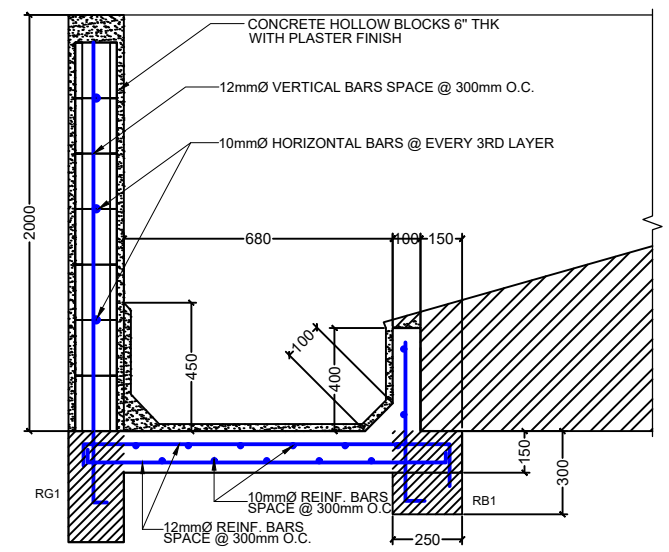
2 TRUSS 1 DETAIL
 ST-7 NOT TO SCALE



1 ROOF FRAMING PLAN
 ST-7 SCALE 1:100 M.



3 RAMP ON-FILL DETAIL
 ST-7 NOT TO SCALE

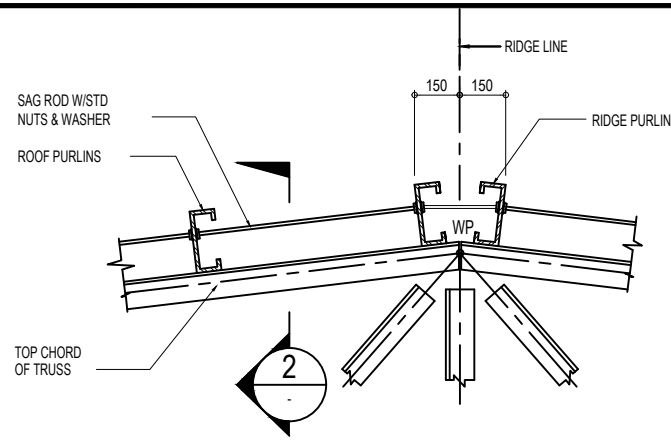
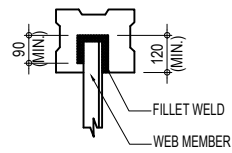


4 TYP. CON. GUTTER DETAILS
 ST-7 NOT TO SCALE

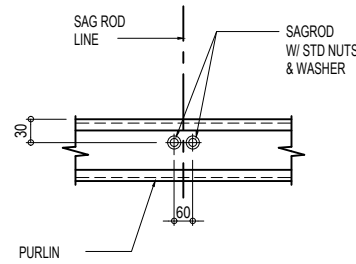
GUSSET PLATE THICKNESS (mm)	MEMBER THICKNESS (mm)	SIZE OF FILLET WELD, t (mm)
6	3.0	3.0
	5.0	3.0
10	6.0	4.5
	8.0	6.0

NOTE:

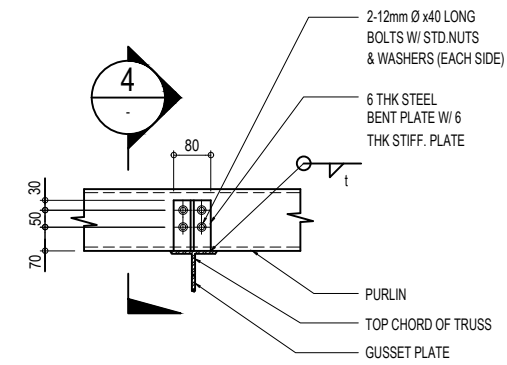
- GUSSET PLATE DIMENSION (WHERE REQ'D.) SHALL BE DICTATED BY THE MINIMUM REQUIRED LENGTH OF WELD.
- COLUMN JOINT GUSSET AND CONTINUITY PLATES SHALL HAVE 100% ULTRASONIC INSPECTION FOR DELAMINATION BEFORE AND AFTER WELDING.



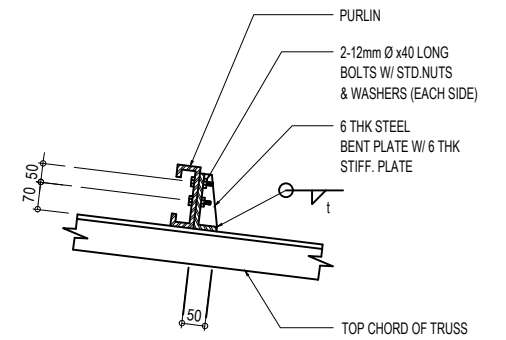
1 TYPICAL SAGROD CONNECTION DETAIL
S- SCALE NTS



2 SECTION
S- SCALE NTS

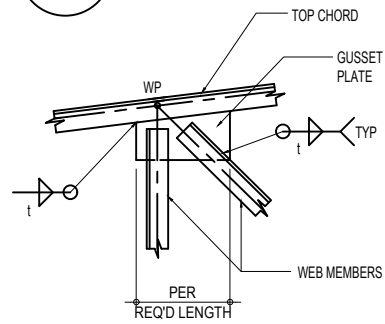


3 TYPICAL PURLIN CONNECTION DETAIL
S- SCALE NTS

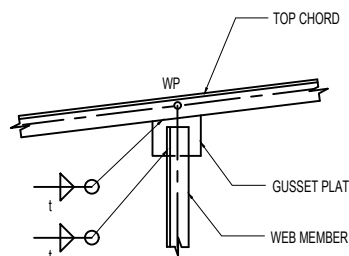


4 SECTION
S- SCALE NTS

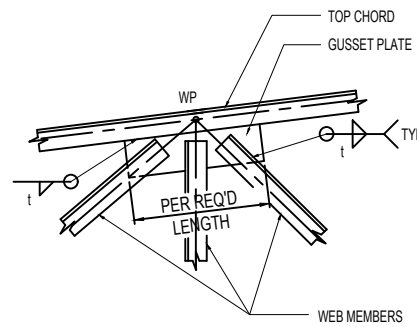
1 SCHEDULE OF WELDS
S-12 SCALE NTS



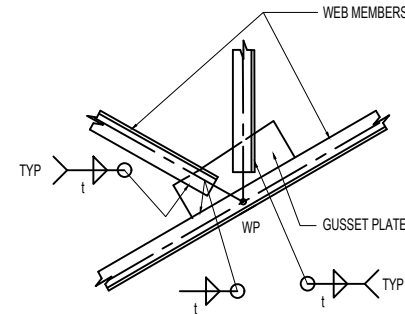
5 DETAIL
S- SCALE NTS



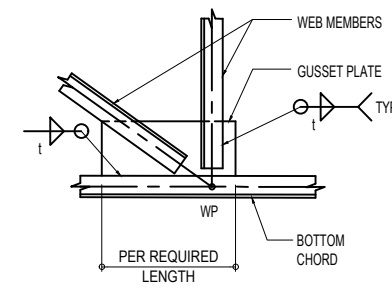
6 DETAIL
S- SCALE NTS



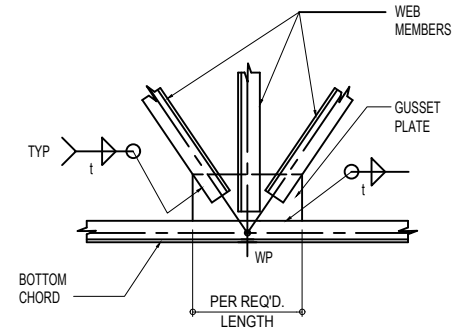
7 DETAIL
S- SCALE NTS



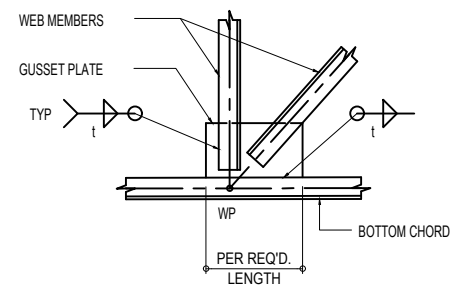
8 DETAIL
S- SCALE NTS



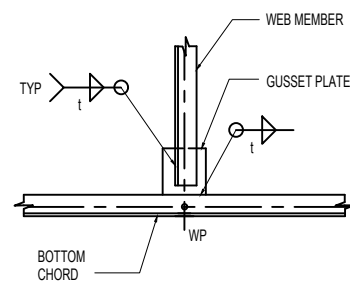
9 DETAIL
S- SCALE NTS



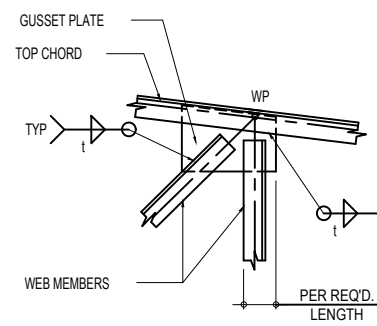
10 DETAIL
S- SCALE NTS



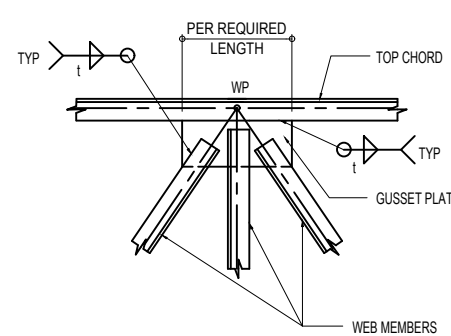
11 DETAIL
S- SCALE NTS



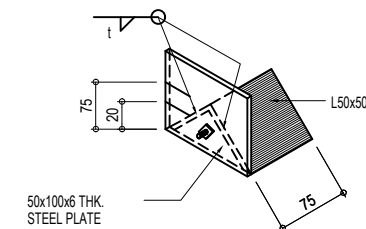
12 DETAIL
S- SCALE NTS



13 DETAIL
S- SCALE NTS

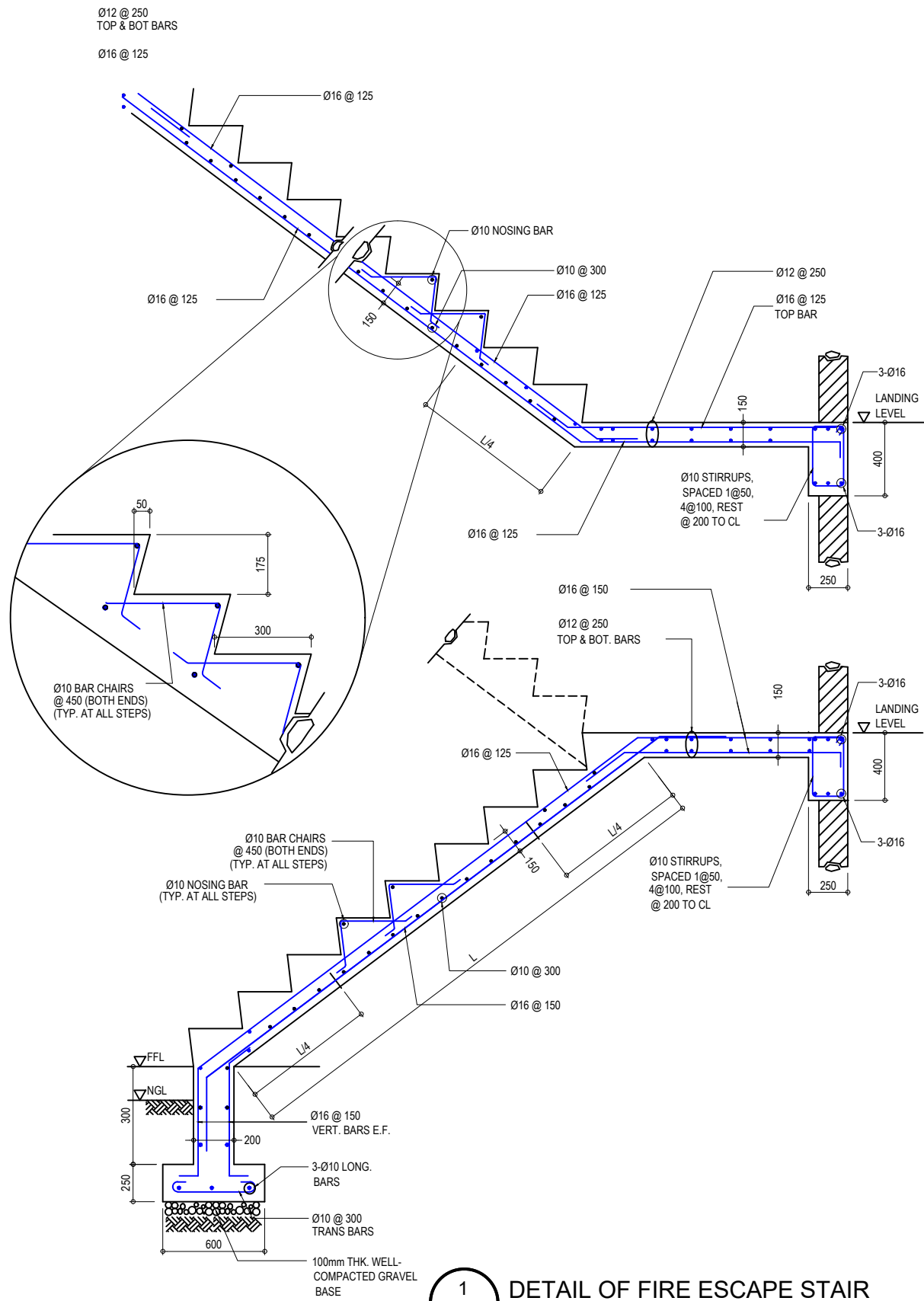


14 DETAIL
S- SCALE NTS

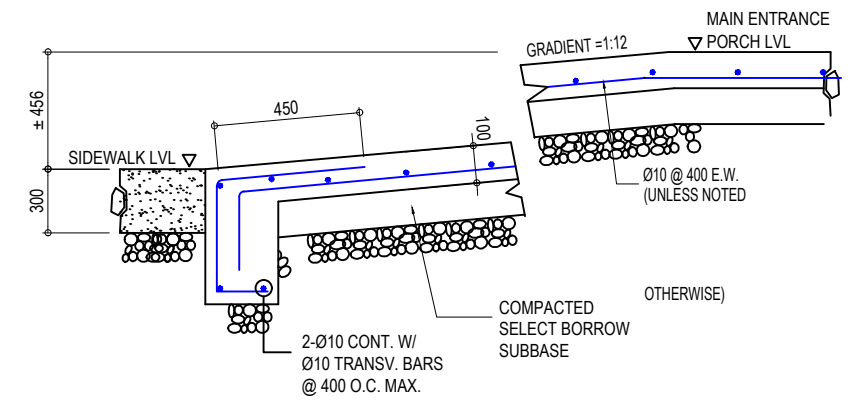


15 ANGULAR BUCKLE DETAIL
S- SCALE NTS

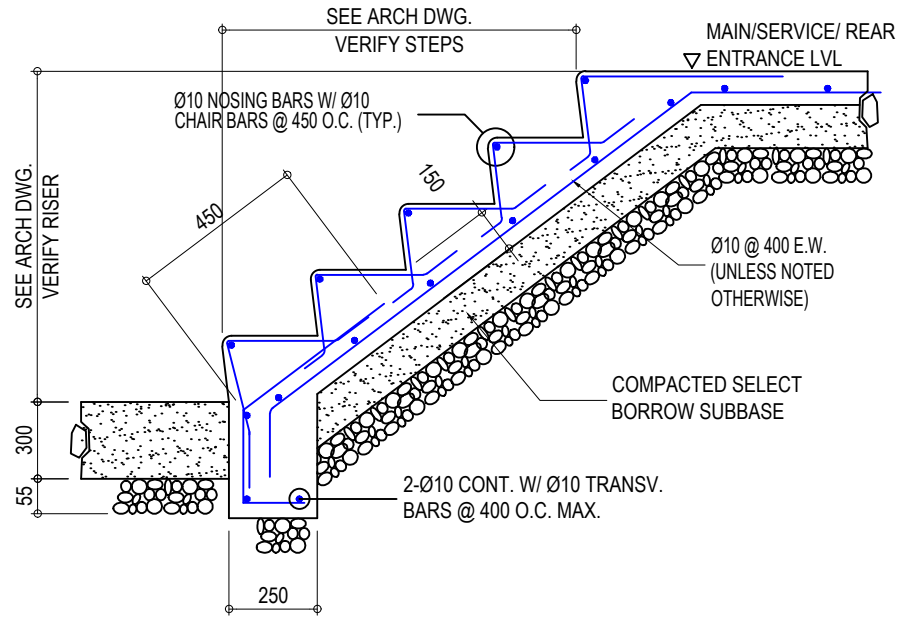
1 TRUSS CONNECTION DETAIL
ST-8 NOT TO SCALE



1 DETAIL OF FIRE ESCAPE STAIR
 ST-9 NOT TO SCALE



2 DETAIL SECTION OF PWD RAMP
 ST-9 NOT TO SCALE



3 DETAIL OF STAIR ON-FILL
 ST-9 NOT TO SCALE

ELECTRICAL PLAN

GENERAL NOTES :

- ALL ELECTRICAL WORKS AND INSTALLATIONS SHALL CONFORM WITH THE LATEST EDITION OF THE PHILIPPINE ELECTRICAL CODE, NATIONAL ELECTRICAL CODE RULES AND REGULATIONS OF THE ENFORCING AUTHORITY AND POWER COMPANY.
- SERVICE ENTRANCE SHALL BE SINGLE - PHASE , 60 HZ. SYSTEM
- ALL CONDUITS SHALL BE IN POLYVINYL CHLORIDE (PVC) EXCEPT FOR MAIN SERVICE ENTRANCE WHICH IS RSC PIPE
- ALL WIRINGS SHALL BE INSTALLED IN CONDUIT PIPES EMBEDDED INSIDE HOLLOW BLOCK STRUCTURES, SLABS, WALLS, COLUMNS, PARTITIONS AND /OR RUN CONCEALED BETWEEN DOUBLE WALL WOODEN PARTITIONS AND INSIDE THE CEILING SPACES WHERE THE USE OF CONCEALED CONDUIT WIRING IS IMPRACTICABLE, SURFACE METAL WIRING MAY BE USED.
- UNLESS OTHERWISE SPECIFIED, THE SMALLEST WIRE AND CONDUIT PIPE TO BE USED SHALL BE NO. 3.5 MM² THW AND 20 MM² DIA. PVC, RESPECTIVELY.

- WHEREVER REQUIRED AND NECESSARY, JUNCTION BOXES AND FULL BOXES OF PROPER SIZES SHALL BE INSTALLED AT CONVENIENT AND INCONSPICUOUS LOCATION, ALTHOUGH SUCH BOXES ARE NOT SHOWN IN THE PLANS NOR MENTIONED IN THE SPECIFICATIONS.

- ALL WALL OUTLETS SHALL BE INSTALLED AT THE FOLLOWING HEIGHTS ABOVE THE FINISHED FLOOR LINE, UNLESS OTHERWISE NOTED :

WALL SWITCHES	1200 MM.
DUPLEX CONVENIENCE OUTLET	300 MM. OR 150 MM ABOVE WORKTABLE
AIRCONDITIONING UNIT OUTLET	AT CONV. HEIGHT NEAR THE EQPT.
TEL. & CABLE TV OUTLET	300 MM. OR 150 MM. ABOVE WORKTABLE
WATERHEATER OUTLET	AT CONV. HEIGHT NEAR THE EQPT.
PANEL BOARD	1800 MM. FROM CENTER OF PANEL TO F.F.L

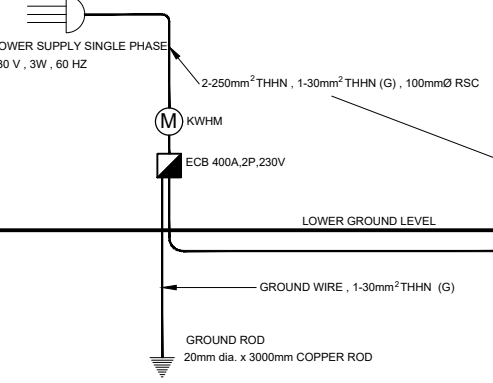
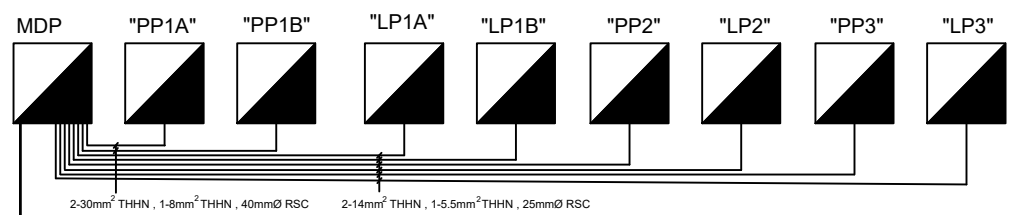
- ALL WORKS AND INSTALLATIONS SHALL BE DONE UNDER CLOSE SUPERVISION OF A REGISTERED ELECTRICAL ENGINEER.

ELECTRICAL SYMBOLS :

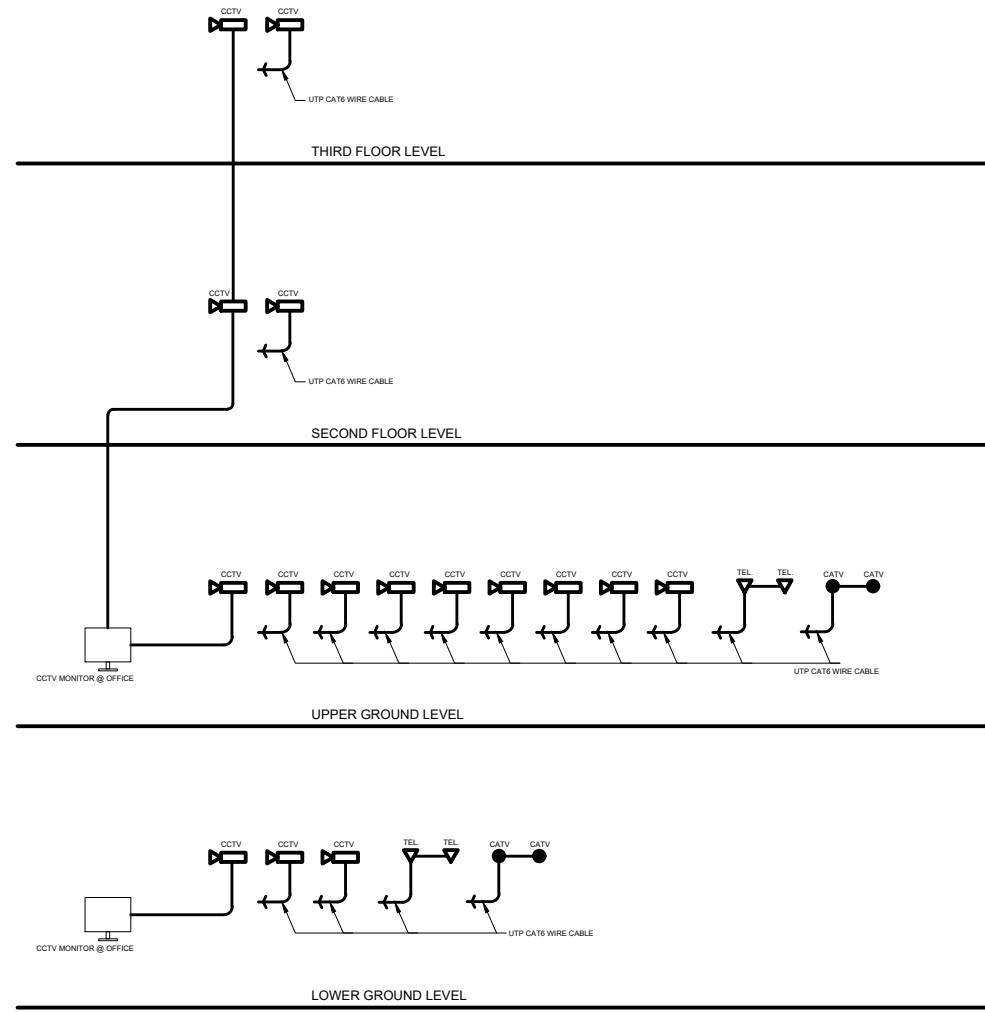
- KILOWATT HOUR METER
- SERVICE ENTRANCE
- BRANCH CIRCUIT HOMERUN TO PANELBOARD
- "LP"
- PANELBOARD
- PORCELAIN RECEPTACLE WITH 9 WATTS LED BULB
- PINLIGHT WITH LED BULB (5 WATTS)
- ENCLOSED AIR CIRCUIT BREAKER (RATED AS INDICATED ON THE PLANS)
- DUPLEX CONVENIENCE OUTLET
- AIRCONDITIONING OUTLET
- WEATHER PROOF OUTLET
- RANGE OUTLET
- REFRIGERATOR OUTLET
- WALL FAN OUTLET
- SWITCHES (LETTERS DENOTES NO. OF GANG)
- CTV CABLE TV OUTLET
- TELEPHONE OUTLET
- F.M. FLOOR MOUNTED CONDUIT OUTLET
- WP WEATHERPROOF OUTLET
- R RANGE OUTLET
- REF REFRIGERATOR OUTLET
- HD HAND DRYER
- EMBEDDED CONDUIT
- CONCEALED CONDUIT
- WL WALL LAMP
- EX CEILING MOUNTED EXHAUST FAN
- CCTV MONITOR
- P.B - PULL BOX / SQUARE BOX
- F.B - EXHAUST FAN
- C.F. - CEILING FAN (ORBIT TYPE)
- T5 CONCEALED FLOURESCENT

THIRD FLOOR LEVEL

SECOND FLOOR LEVEL



1 RISER DIAGRAM
EE-1 NOT TO SCALE



2 TELEPHONE, CATV & CCTV DIAGRAM
EE-1 NOT TO SCALE

SCHEDULE OF LOADS : MDP

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	PP1A	15760	230	100	2	100	2 - 30 mm ² THHN +1-8mm ² THHN (G) , 40 mm Ø PVC
2	PP1B	18440	230	100	2	100	2 - 30 mm ² THHN +1-8mm ² THHN (G) , 40 mm Ø PVC
3	LP1A	9600	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
4	LP1B	10700	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
5	LP2	14800	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
6	LP3	14800	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
7	PP2	10240	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
8	PP3	10240	230	60	2	100	2 - 14 mm ² THHN +1-5.5mm ² THHN (G) , 25 mm Ø PVC
TOTAL		104580					

TOTAL CONNECTED LOAD = 104580VA USE : 2 - 250 mm²THHN, 1-30 mm² THHN (G) IN 75 mmØ RSC.
 I @ 80 % D. F. = $\frac{104580(.80)}{230}$ = 363.76 AMPS. MCCB : 400AT, 2P, 230V, 400AF Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : LIGHTING "LP1A"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	LIGHTING OUTLET	1700	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1700					↓
3	↓	1000					↓
4	↓	1200					↓
5	SPARE	1000					—
6	SPARE	1500					—
7	SPARE	1500					—
TOTAL		9600					

TOTAL CONNECTED LOAD = 9600 VA USE : 2 - 14 mm²THHN, 1-5.5 mm² THHN (G) IN 32 mmØ RSC.
 I @ 80 % D. F. = $\frac{9600(.80)}{230}$ = 33.39 AMPS. MCCB : 60AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : LIGHTING "LP1B"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	LIGHTING OUTLET	1600	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1600					↓
3	↓	1400					↓
4	↓	1700					↓
5	↓	1400					↓
6	↓	1500					↓
7	SPARE	1500					—
TOTAL		10700					

TOTAL CONNECTED LOAD = 10700 VA USE : 2 - 14 mm²THHN, 1-5.5 mm² THHN (G) IN 32 mmØ RSC.
 I @ 80 % D. F. = $\frac{10700(.80)}{230}$ = 37.22 AMPS. MCCB : 60AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : TYPICAL LIGHTING "LP2" & "LP3"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	LIGHTING OUTLET	1600	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1600					↓
3	↓	1600					↓
4	↓	1600					↓
5	↓	1600					↓
6	↓	1600					↓
7	↓	1600					↓
8	↓	1600					↓
9	↓	1000					↓
10	SPARE	1000					—
TOTAL		14800					

TOTAL CONNECTED LOAD = 14800 VA USE : 2 - 14 mm²THHN, 1-5.5 mm² THHN (G) IN 32 mmØ RSC.
 I @ 80 % D. F. = $\frac{14800(.80)}{230}$ = 51.48 AMPS. MCCB : 60AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : POWER "PP1A"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	CONVENIENCE OUTLET	1620	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1260					↓
3	↓	1260					↓
4	EXHAUST FAN FULL BOX	1000					↓
5	CEILING FAN	600					↓
6	CEILING FAN	800					↓
7	SPLIT TYPE (1.5 TR)	3220				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
8	MOTOR PUMP	3000				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
9	MOTOR PUMP	3000				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
10	SPARE						—
11	SPARE						—
TOTAL		15760					

TOTAL CONNECTED LOAD = 15760 VA USE : 2 - 30 mm²THHN, 1-8 mm² THHN (G) IN 40 mmØ RSC.
 I @ 80 % D. F. = $\frac{15760(.80)}{230}$ +.25 (14) = 58.32 AMPS. MCCB : 100AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : POWER "PP1B"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	CONVENIENCE OUTLET	1620	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1620					↓
3	↓	1260					↓
4	↓	1080					↓
5	↓	1080					↓
6	↓	720					↓
7	SPLIT TYPE (1.5 TR)	3220				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
8	SPLIT TYPE (1.5 TR)	3220				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
9	SPLIT TYPE (1.5 TR)	3220				30	2 - 5.5 mm ² THHN, 1-3.5mm ² THHN, 25 mm ØC
10	CEILING FAN	700				20	—
11	CEILING FAN	700				20	—
12	SPARE						—
TOTAL		18440					

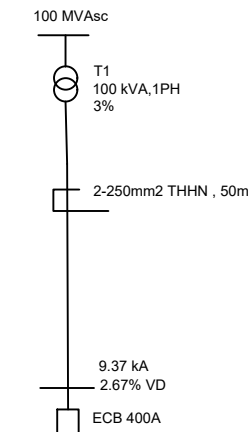
TOTAL CONNECTED LOAD = 18440 VA USE : 2 - 30 mm²THHN, 1-8 mm² THHN (G) IN 40 mmØ RSC.
 I @ 80 % D. F. = $\frac{18440(.80)}{230}$ +.25 (14) = 67.64 AMPS. MCCB : 100AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

SCHEDULE OF LOADS : TYPICAL POWER "PP2" & "PP3"

CKT. NO.	LOAD DESCRIPTION	VA PER CKT.	VOLTS	BRANCH / CKT. BREAKER			SIZE OF HOMERUN (WIRES & CONDUITS)
				AF	P	AT	
1	CONVENIENCE OUTLET	1620	230	50	2	20	2 - 3.5 mm ² THHN, 20 mm ØC PVC
2	↓	1620					↓
3	↓	1080					↓
4	↓	1620					↓
5	↓	1620					↓
6	↓	1080					↓
7	CEILING FAN	800					↓
8	CEILING FAN	800					↓
9	SPARE						—
TOTAL		10240					

TOTAL CONNECTED LOAD = 10240VA USE : 2 - 14 mm²THHN, 1-5.5 mm² THHN (G) IN 32 mmØ RSC.
 I @ 80 % D. F. = $\frac{10240(.80)}{230}$ +.25 (14) = 39.12 AMPS. MCCB : 60AT, 2P, 230V, 100AF, BOLT ON TYPE Use minimum of 10kAIC for all MCCB

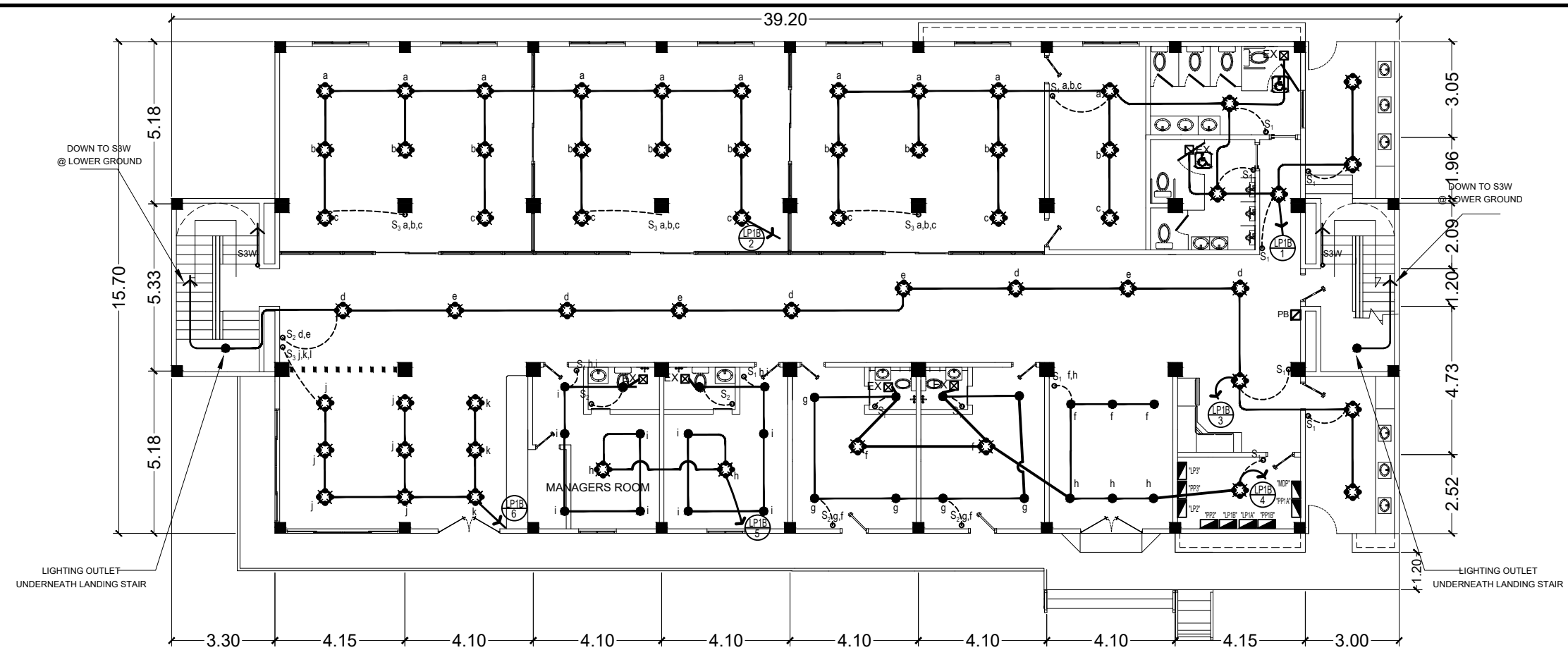
VOLTAGE DROP & SHORT CIRCUIT CALCULATION



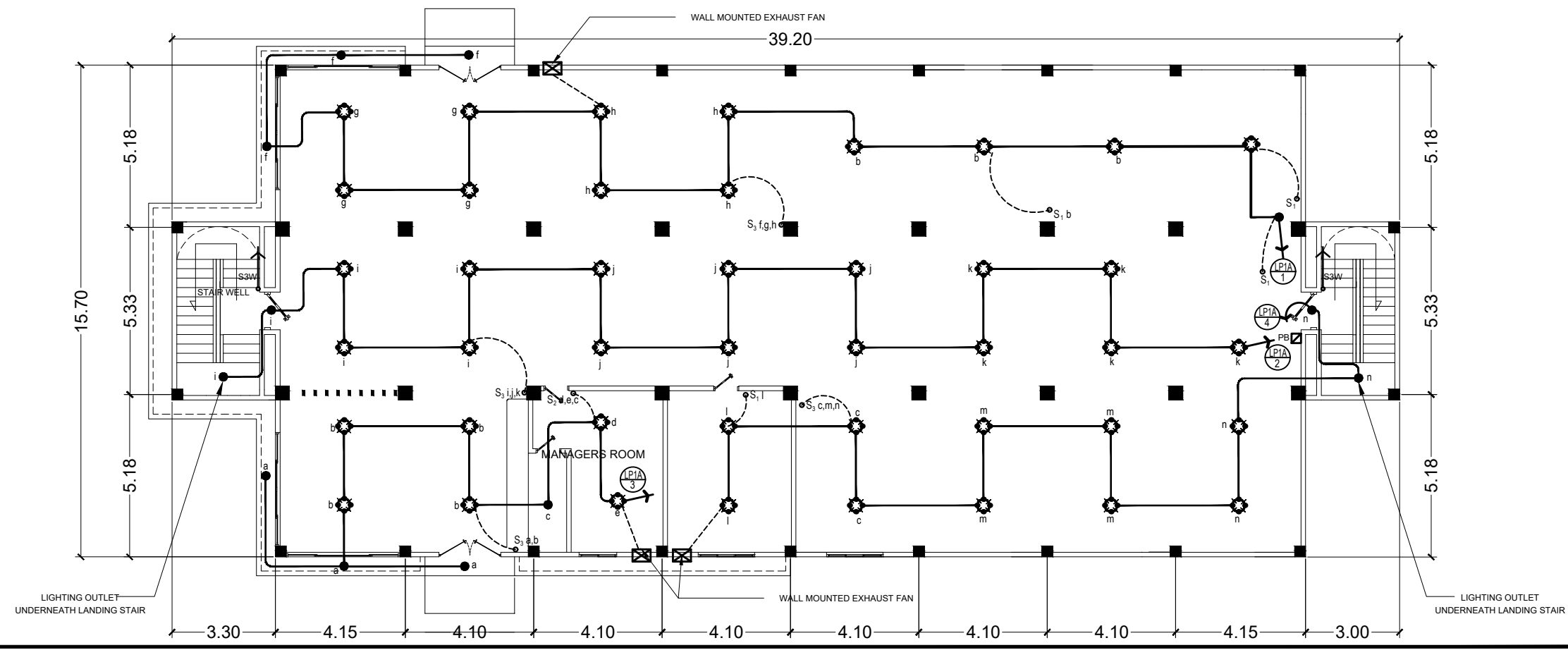
SHORT CIRCUIT CALCULATION

MVA_b = 100
 Calculate Short Circuit Fault at ECB:
 $X_u = \frac{MVA_b}{MVA_{sc}} = \frac{100}{100} = 1 \text{ p.u.}$
 $X_{T1} = \%Z_{T1} \times \frac{MVA_b}{MVA_{T1}} = 0.03 \times \frac{100}{0.10} = 30 \text{ p.u.}$
 $X_c = Z_c/305m \times L \times \frac{MVA_b}{kV^2} = 0.05/305 \times 50 \times \frac{100}{0.23^2} = 15.4 \text{ p.u.}$
 $Z_{th} = X_u + X_{T1} + X_c = 1 + 30 + 15.4 = 46.4 \text{ p.u.}$
 $I_{fsc} = \frac{MVA_b \times 10^6}{V \times Z_{th}} = \frac{100 \times 10^6}{230 \times 46.4} = 9,370 \text{ Amps or } 9.37 \text{ kA}$
 Calculate Votage Drop at ECB:
 $E = IR$
 $I = 363 \text{ Amp.}$
 Conductor : 250 mm² , Z = 0.050/305m (Table 9.1.1.9 PEC)
 Length - 50 m
 $R = 0.050/305m \times 50m = 0.0082 \text{ ohm}$
 $VD = 2 IR = 2 \times 374 \times 0.0082 = 6.13 \text{ volts}$
 $\%VD = \frac{6.13 \times 100}{230} = 2.67\%$

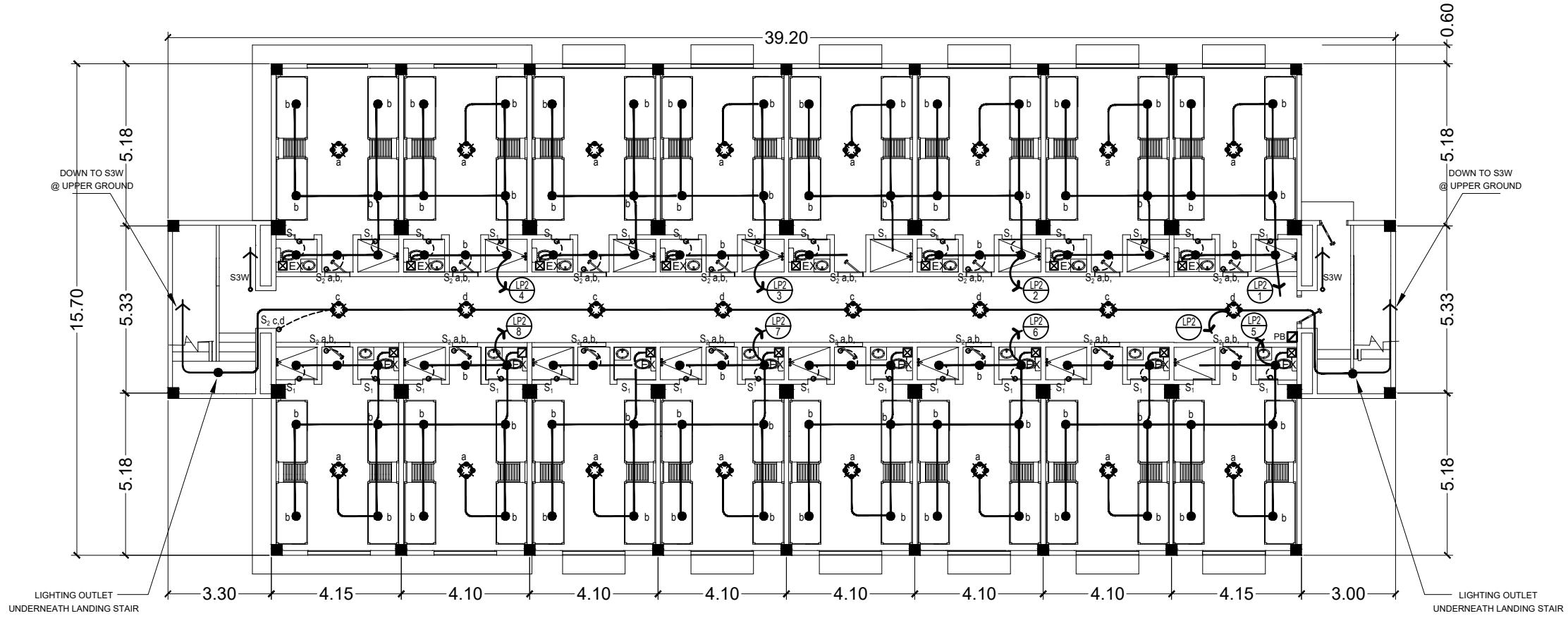
2 UPPER GROUND FLOOR LIGHTING LAYOUT
 EE-3 SCALE 1:100 M.



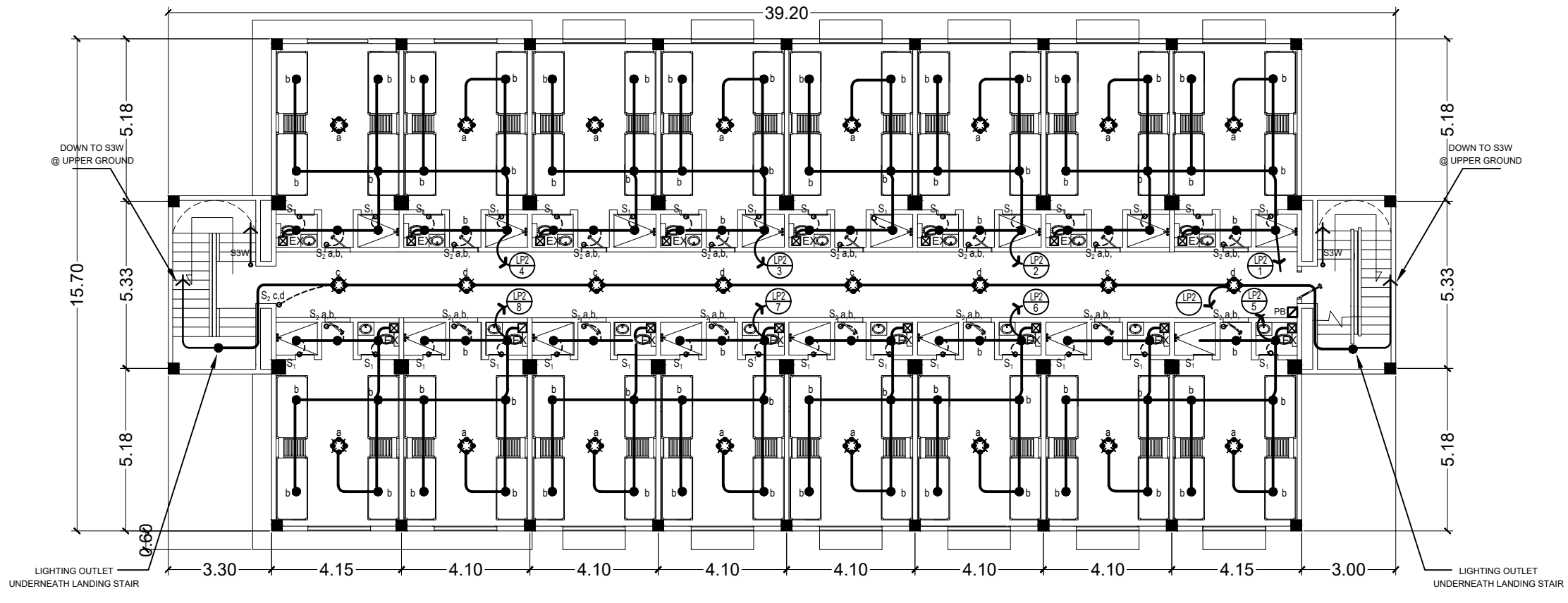
1 LOWER GROUND FLOOR LIGHTING LAYOUT
 EE-3 SCALE 1:100 M.



2 THIRD FLOOR LIGHTING LAYOUT
 EE-4 SCALE 1:100 M.

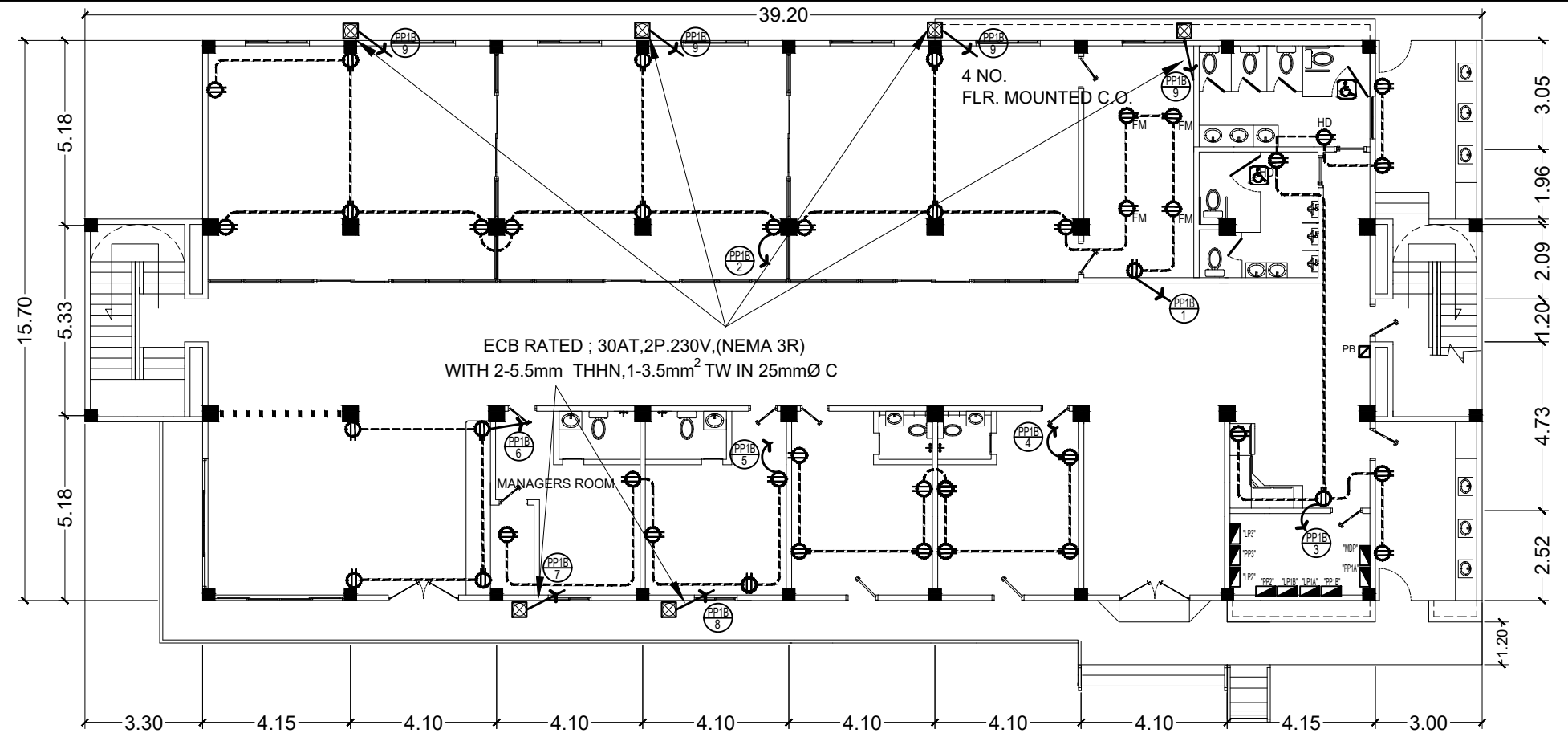


1 SECOND FLOOR LIGHTING LAYOUT
 EE-4 SCALE 1:100 M.

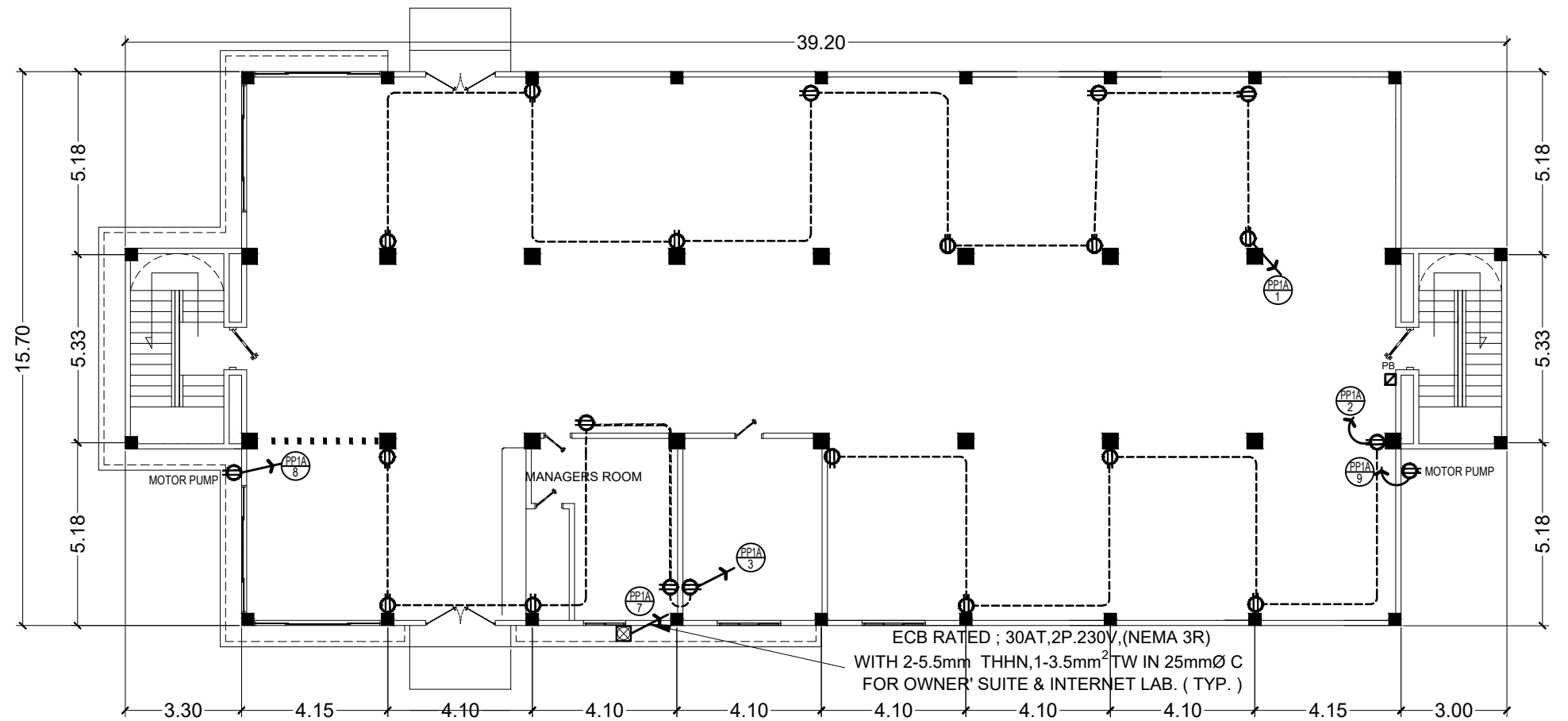


NOTES :

- IN EVERY BUNKBEDS AT THE DORMERS' ROOM(TWO OUTLETS),
1 @ THE STUDY TABLE AND 1 @ THE BED AREA.



2 UPPER GROUND FLOOR POWER LAYOUT
SCALE 1:100 M.
EE-5

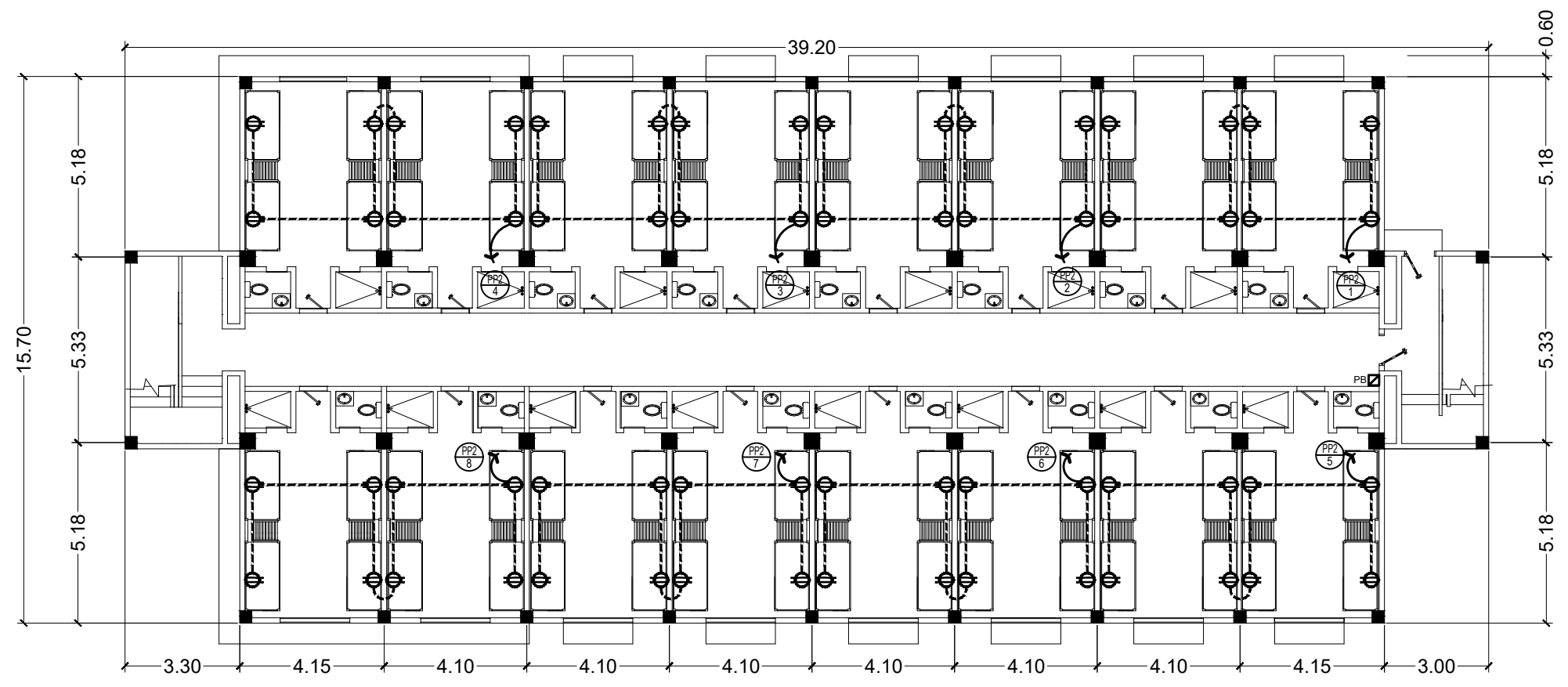


1 LOWER GROUND FLOOR POWER LAYOUT
SCALE 1:100 M.
EE-5

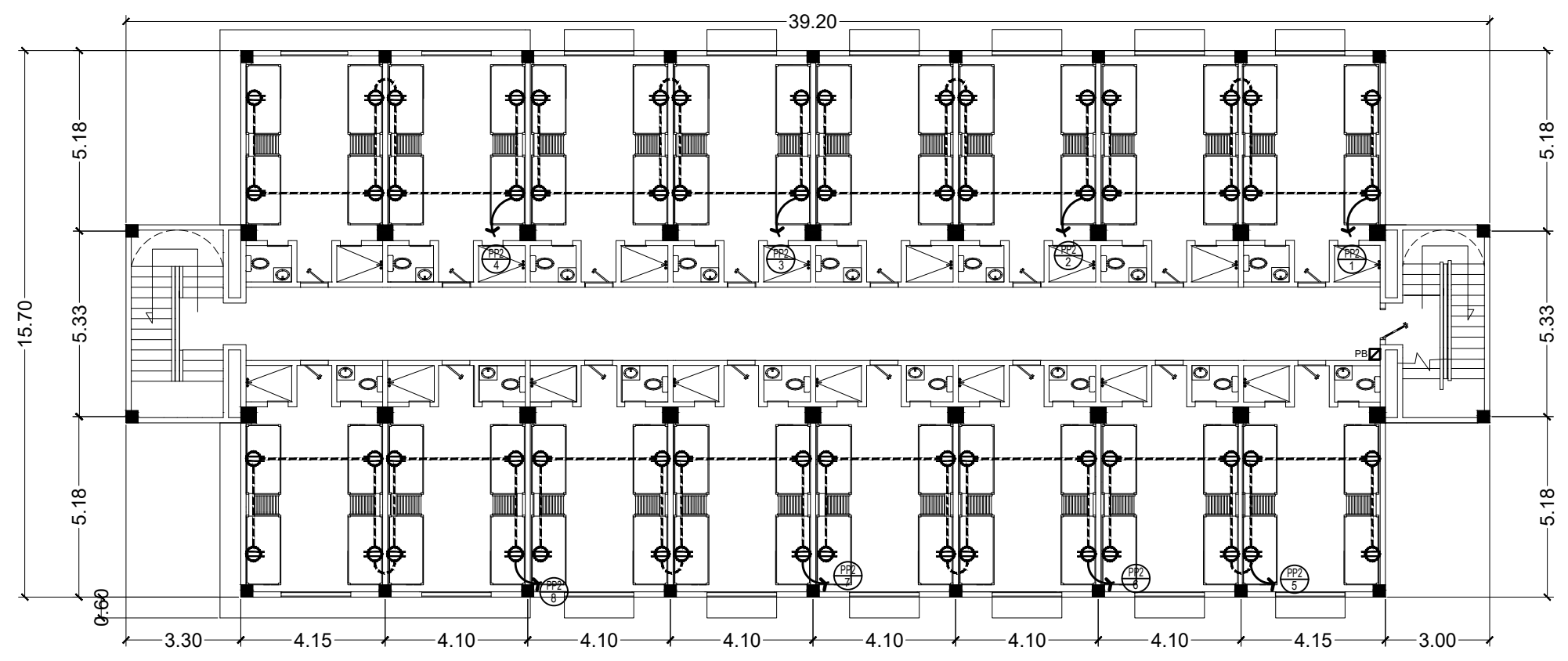
NOTES :

- IN EVERY BUNKBEDS AT THE DORMERS' ROOM(TWO OUTLETS),
1 @ THE STUDY TABLE AND 1 @ THE BED AREA.

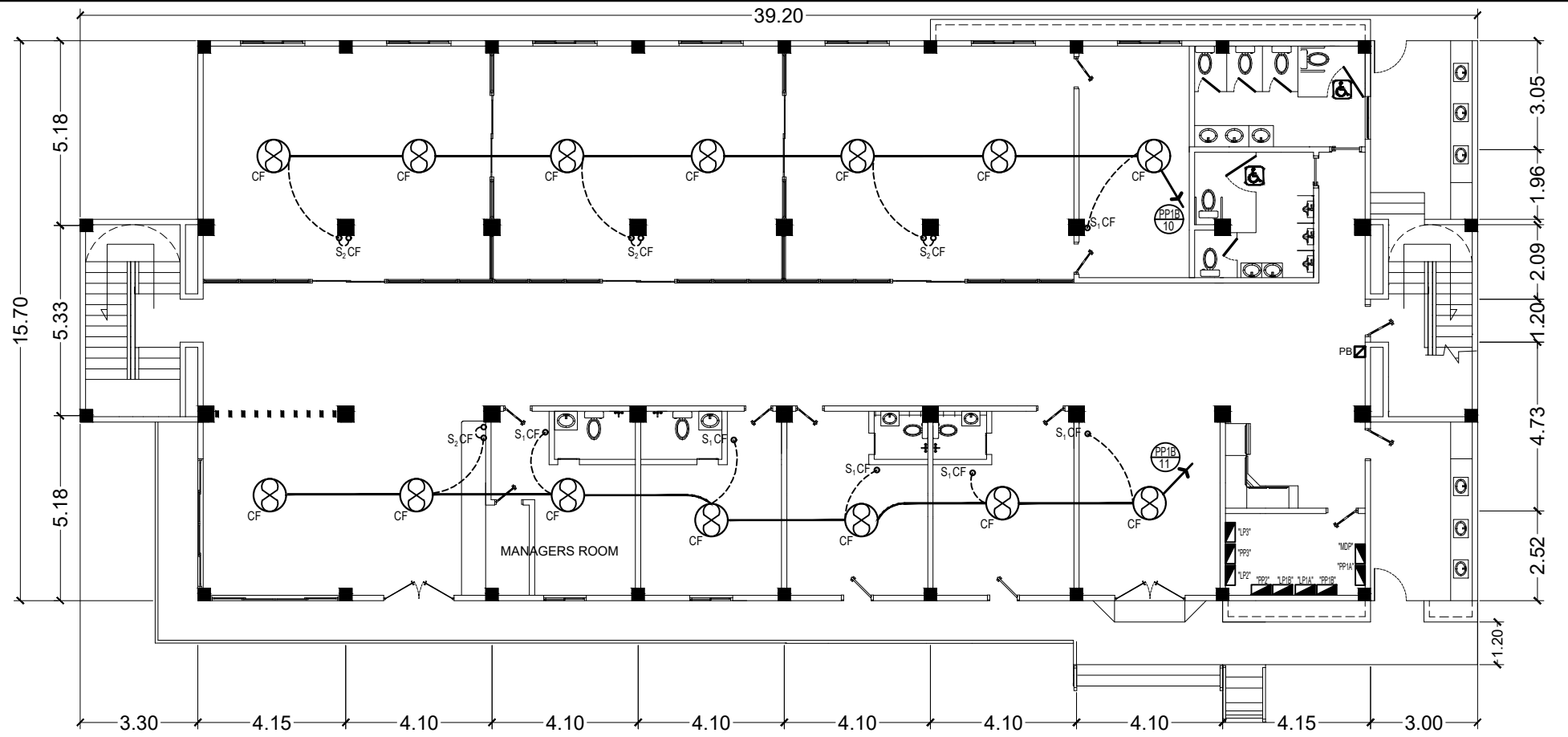
2 THIRD FLOOR POWER LAYOUT
EE-6 SCALE 1:100 M.



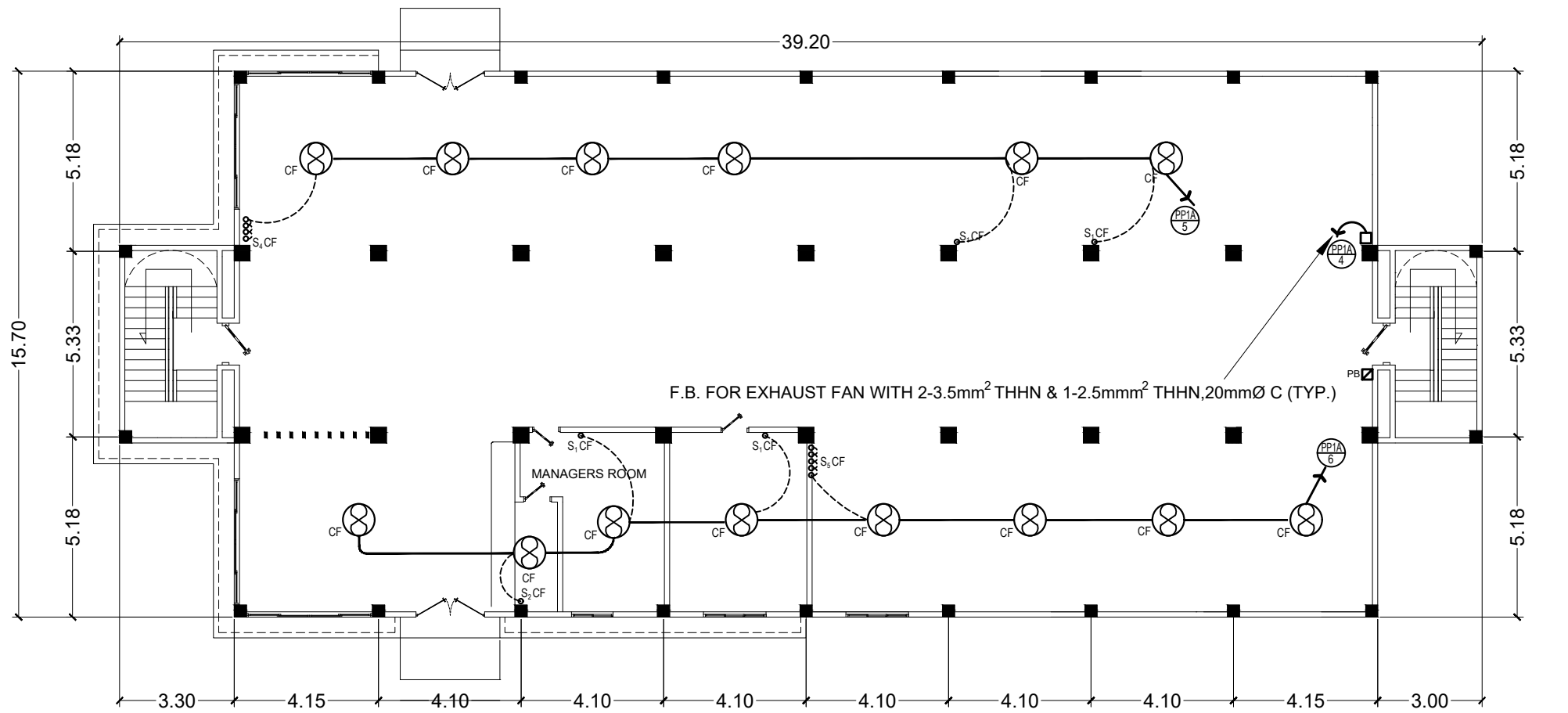
1 SECOND FLOOR POWER LAYOUT
EE-6 SCALE 1:100 M.



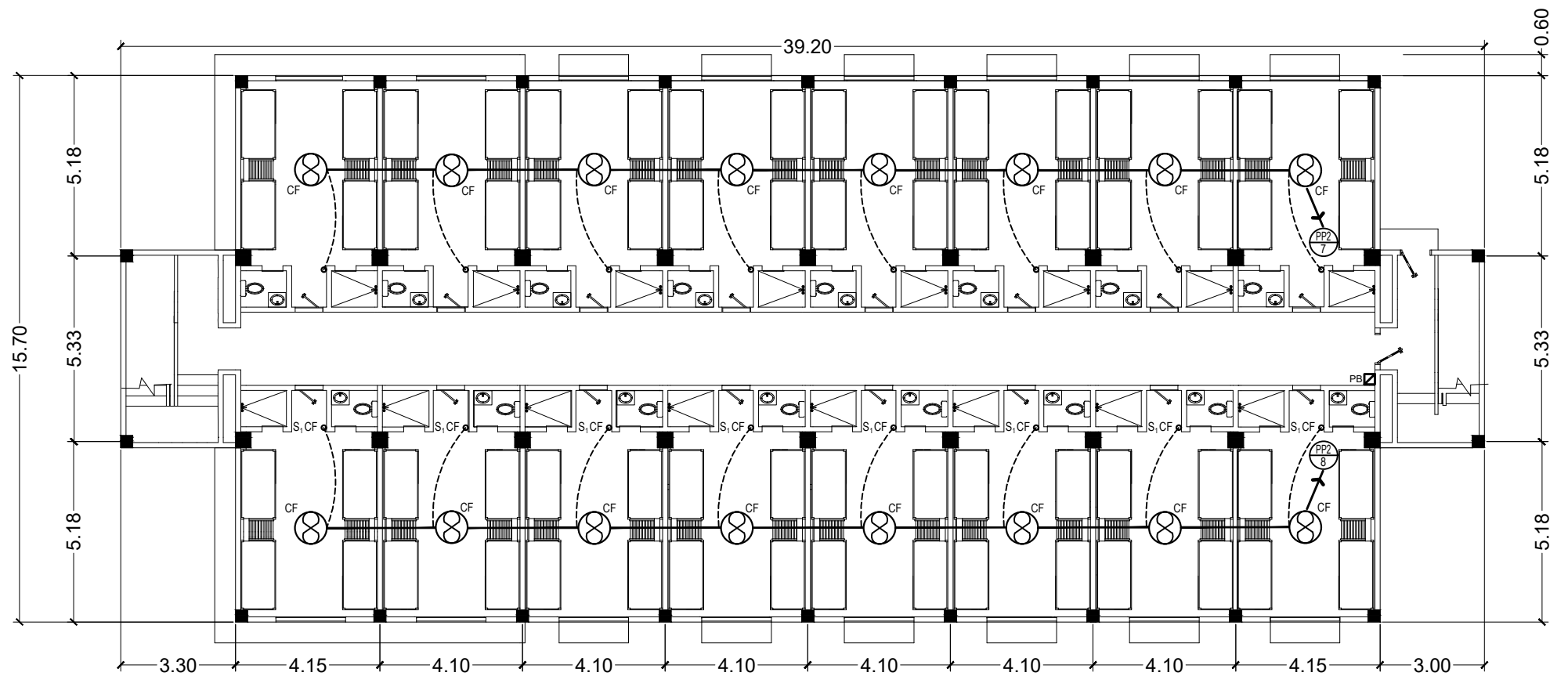
2 UPPER GROUND FLOOR CEILING FAN LAYOUT
 EE-7 SCALE 1:100 M.



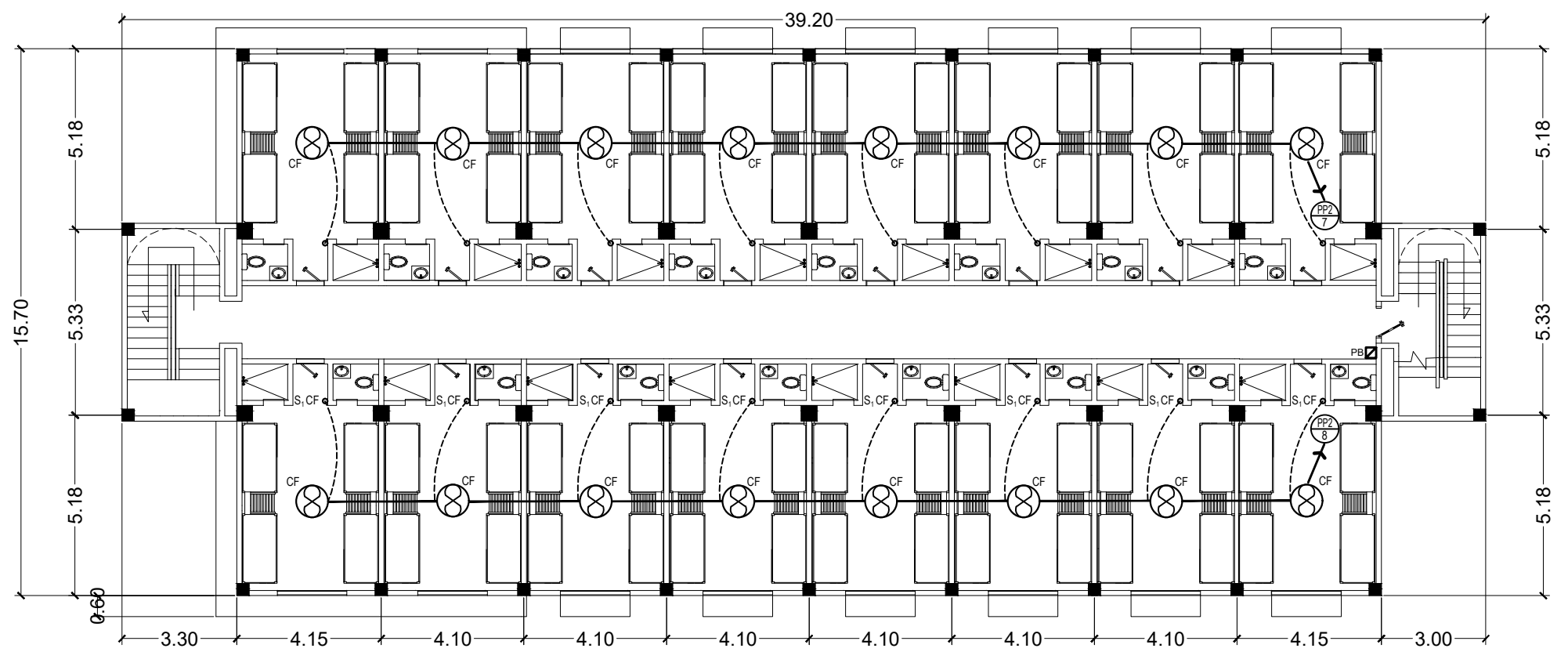
1 LOWER GROUND FLOOR CEILING FAN LAYOUT
 EE-7 SCALE 1:100 M.



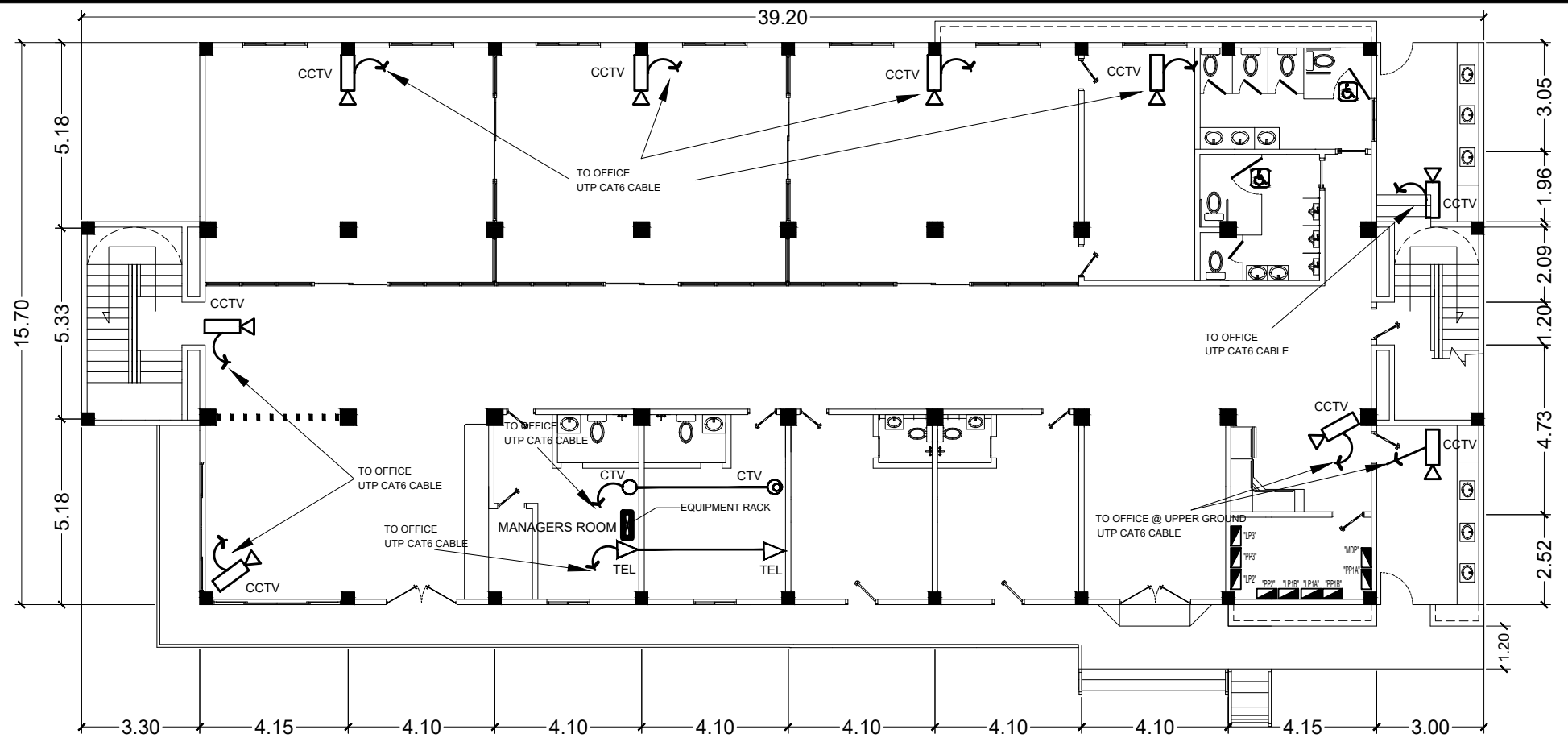
2 THIRD FLOOR CEILING FAN LAYOUT
 EE-8 SCALE 1:100 M.



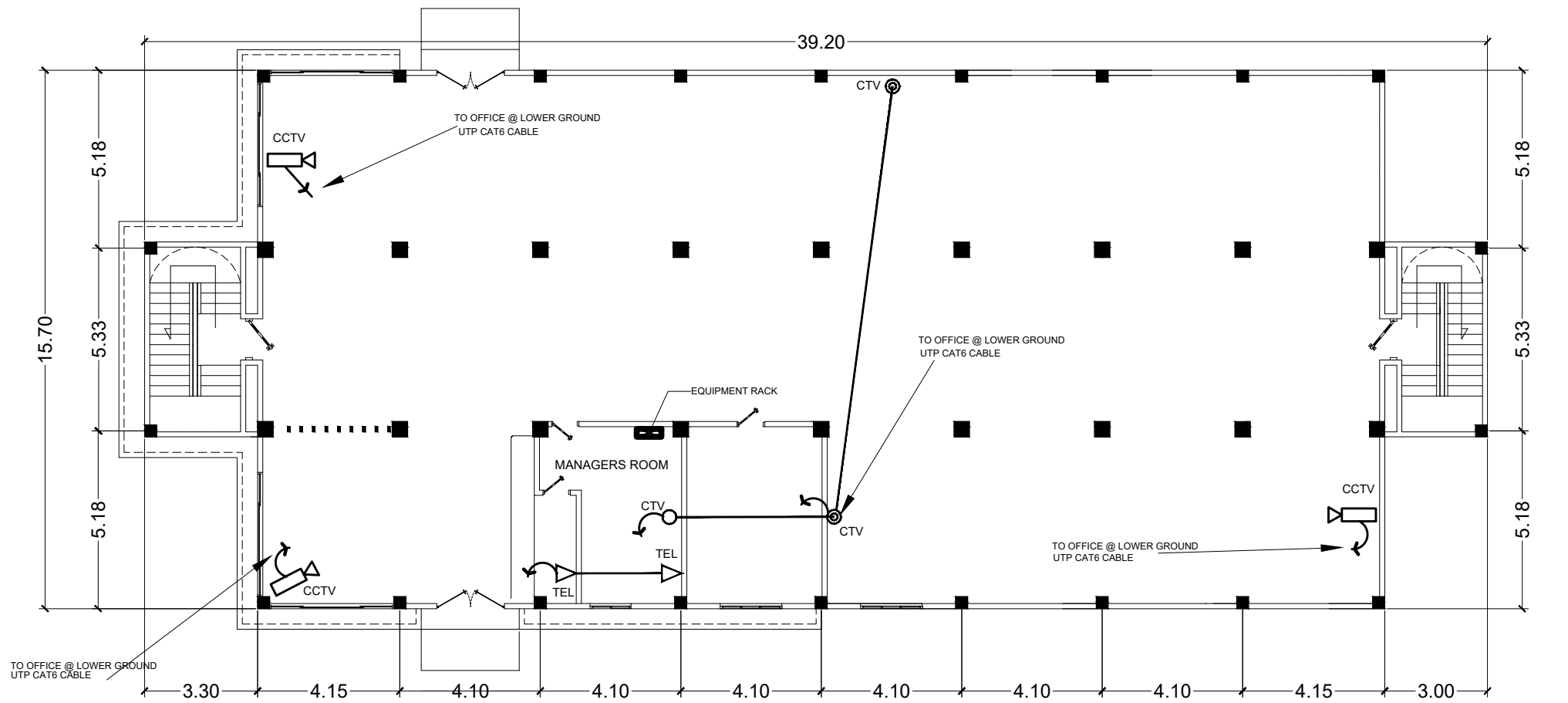
1 SECOND FLOOR CEILING FAN LAYOUT
 EE-8 SCALE 1:100 M.



NOTE:
 ●USE UTP CAT6 TO ALL CONNECTION CABLE.

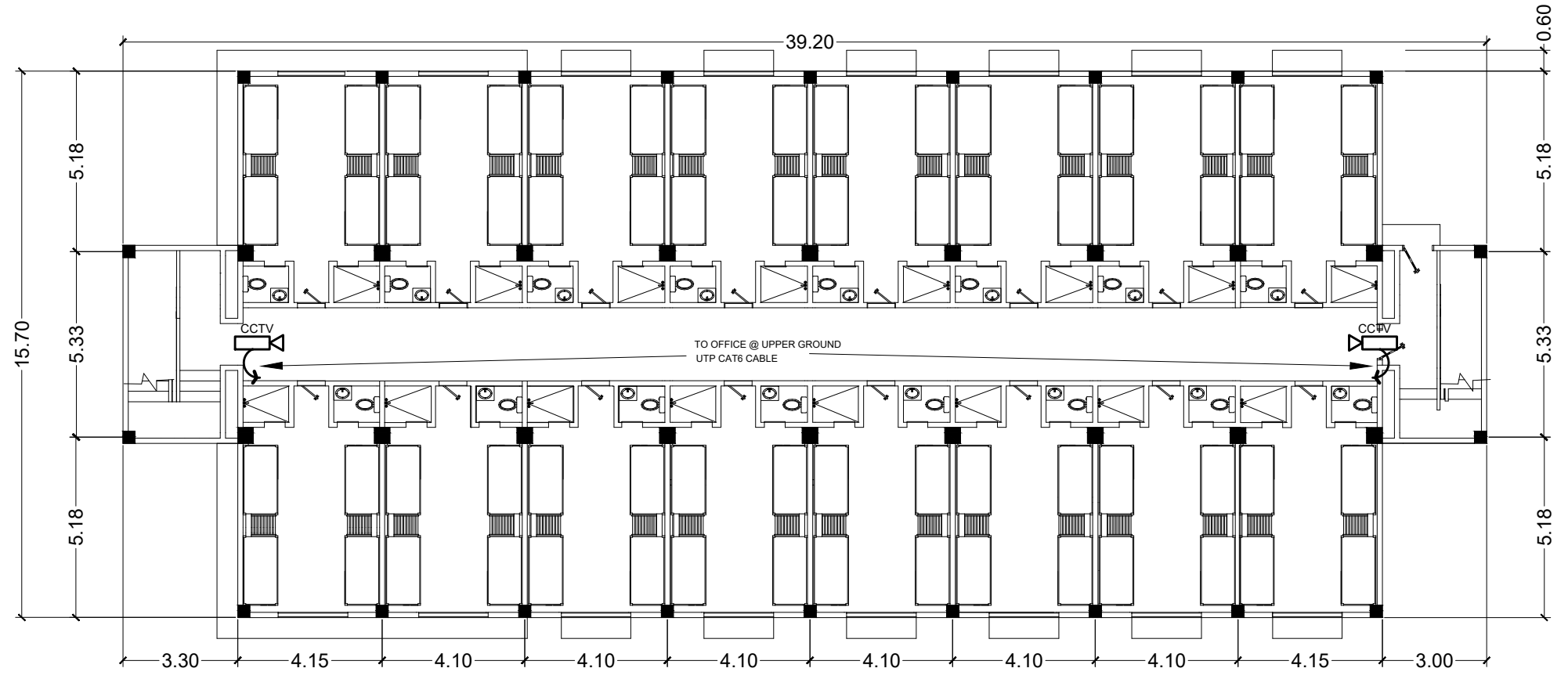


2 UPPER GROUND FLOOR TEL.,CATV & CCTV LAYOUT
 AUX-1 SCALE 1:100 M.

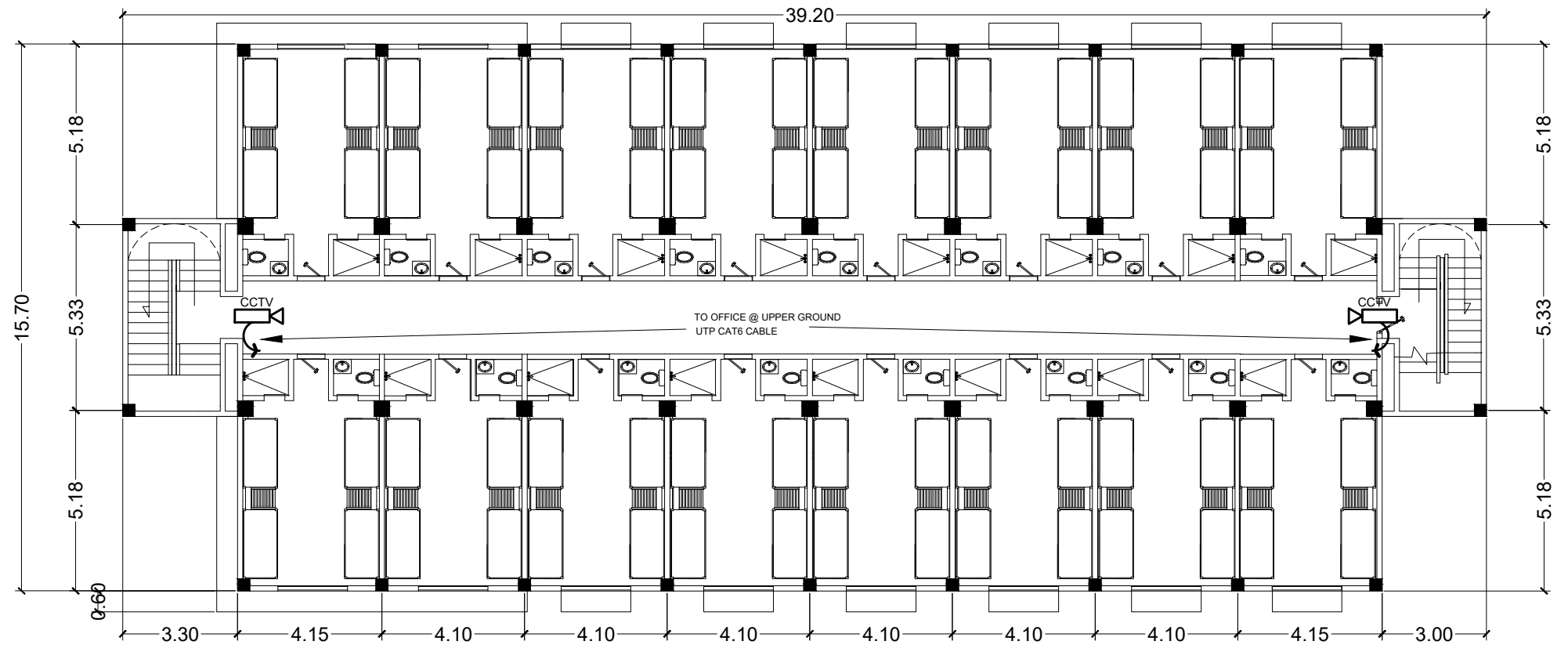


1 LOWER GROUND FLOOR TEL.,CATV & CCTV LAYOUT
 AUX-1 SCALE 1:100 M.

NOTE:
● USE UTP CAT6 TO ALL CONNECTION CABLE.










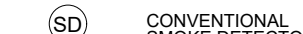



2 THIRD FLOOR TEL., CATV & CCTV LAYOUT
AUX-2 SCALE 1:100 M.



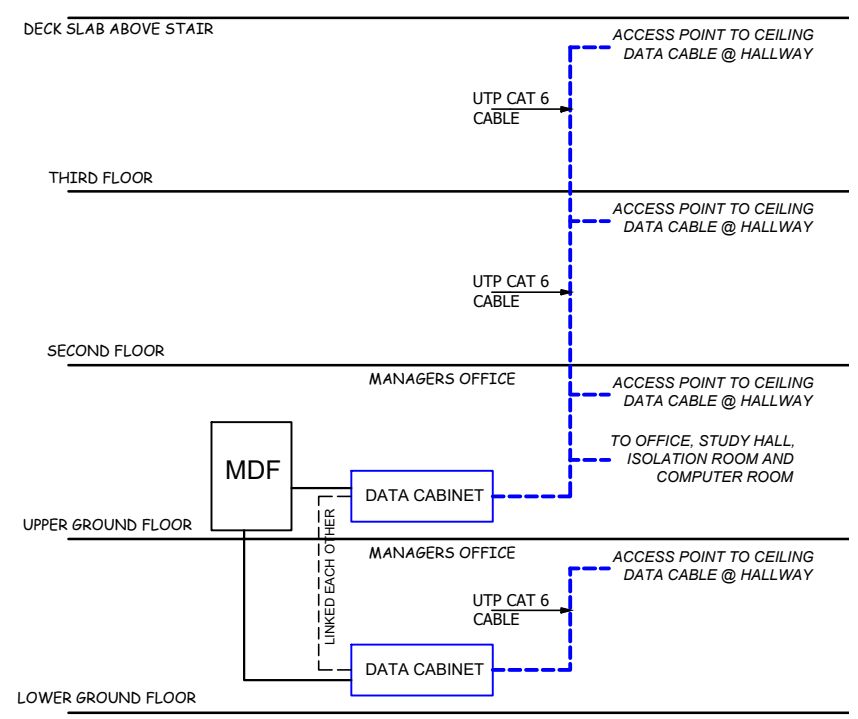
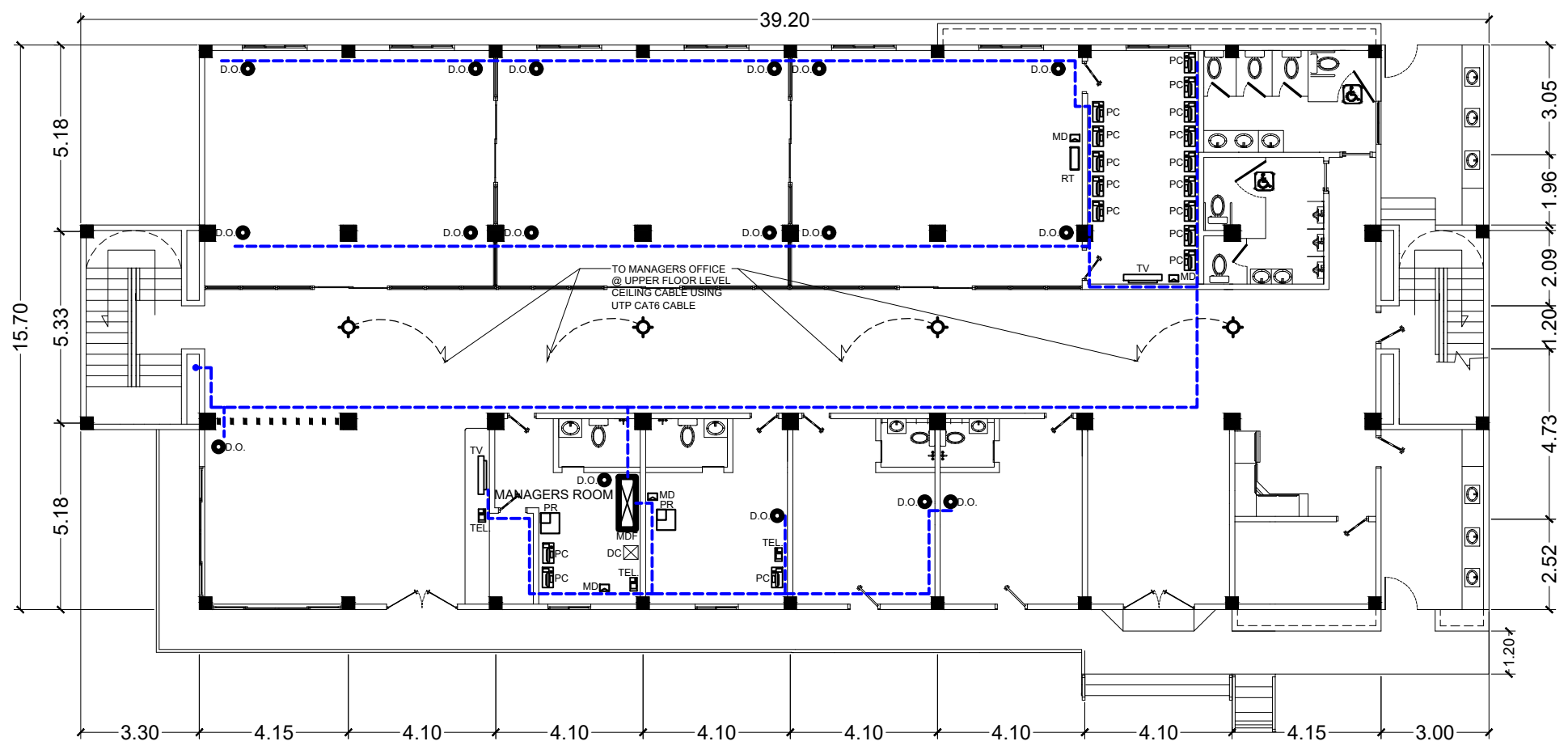
1 SECOND FLOOR TEL., CATV & CCTV LAYOUT
AUX-2 SCALE 1:100 M.

LEGEND:

-  MDF MAIN DISTRIBUTION FRAME
-  DC DATA CABINET
-  D.O DUPLEX OUTLET
-  RT ROUTER
-  PR PRINTER
-  PC PERSONAL COMPUTER
-  MD MODEM
-  TV TELEVISION
-  ACCESS POINT
-  UTP CAT6 CABLE
-  CONVENTIONAL SMOKE DETECTOR

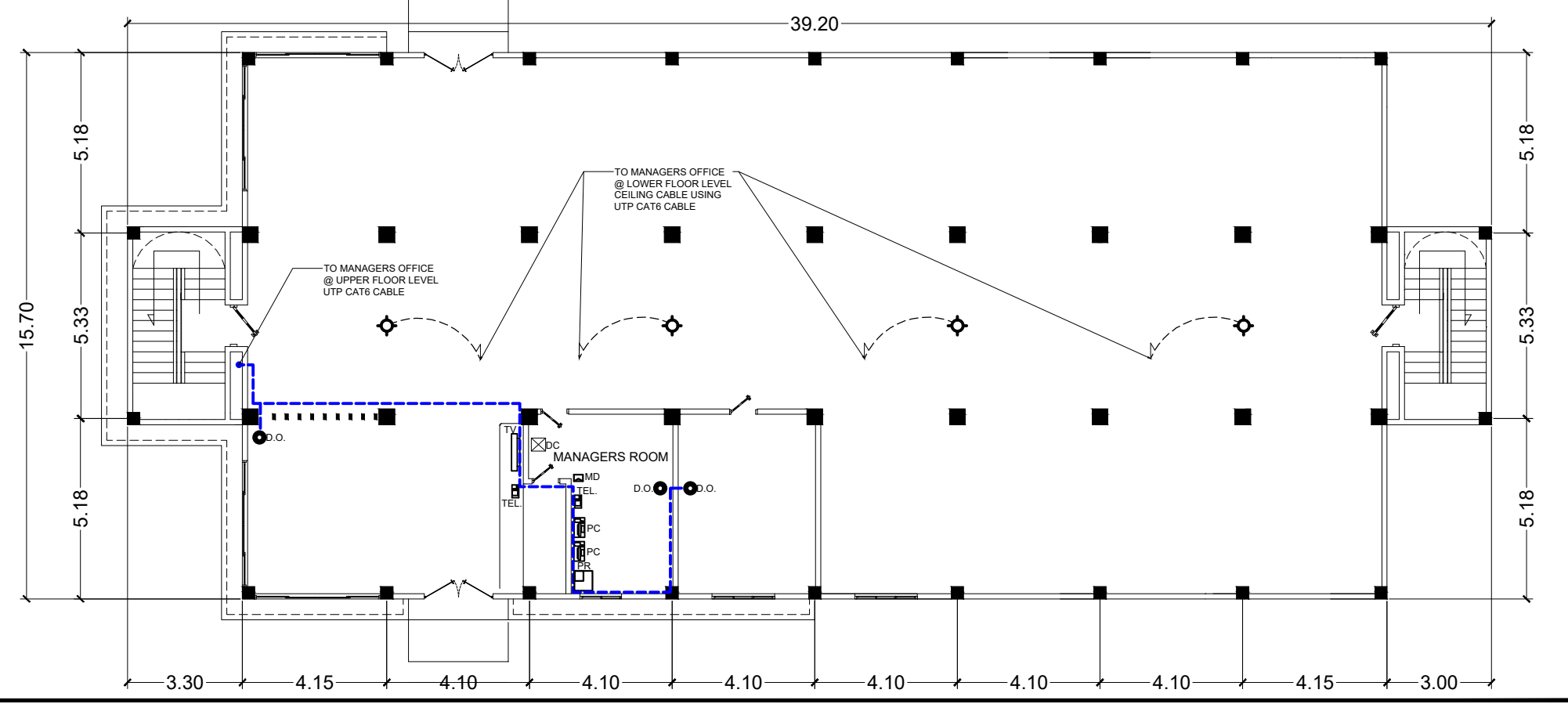
NOTE:
 ● USE UTP CAT6 TO ALL CONNECTION CABLE.

2 UPPER GROUND FLOOR NETWORK COMMUNICATION LAYOUT
 SCALE 1:100 M.














3 NETWORK COMMUNICATION DIAGRAM
 SCALE N.D.T.S.

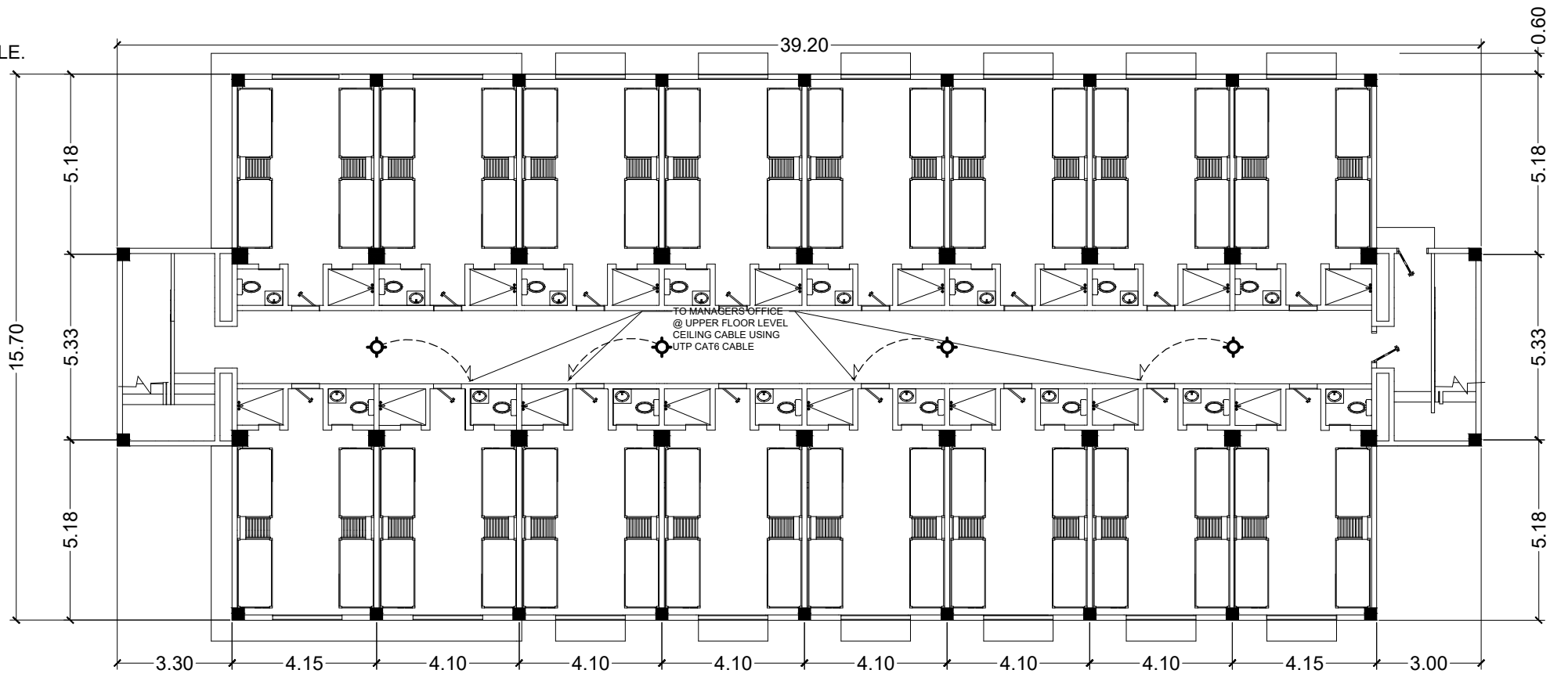
1 LOWER GROUND FLOOR NETWORK COMMUNICATION LAYOUT
 SCALE 1:100 M.



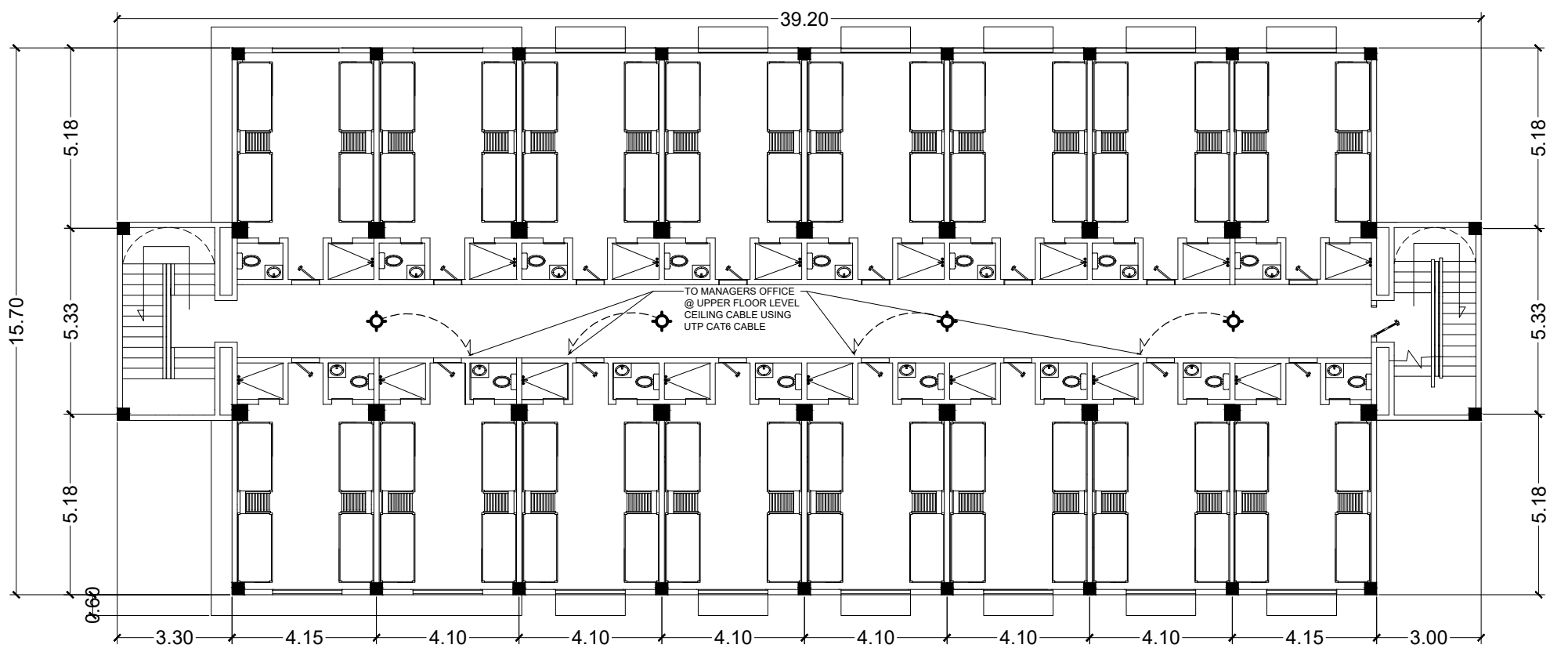
LEGEND:

-  MDF MAIN DISTRIBUTION FRAME
-  DC DATA CABINET
-  D.O DUPLEX OUTLET
-  RT ROUTER
-  PR PRINTER
-  PC PERSONAL COMPUTER
-  MD MODEM
-  TV TELEVISION
-  ACCESS POINT
-  UTP CAT6 CABLE
-  CONVENTIONAL SMOKE DETECTOR

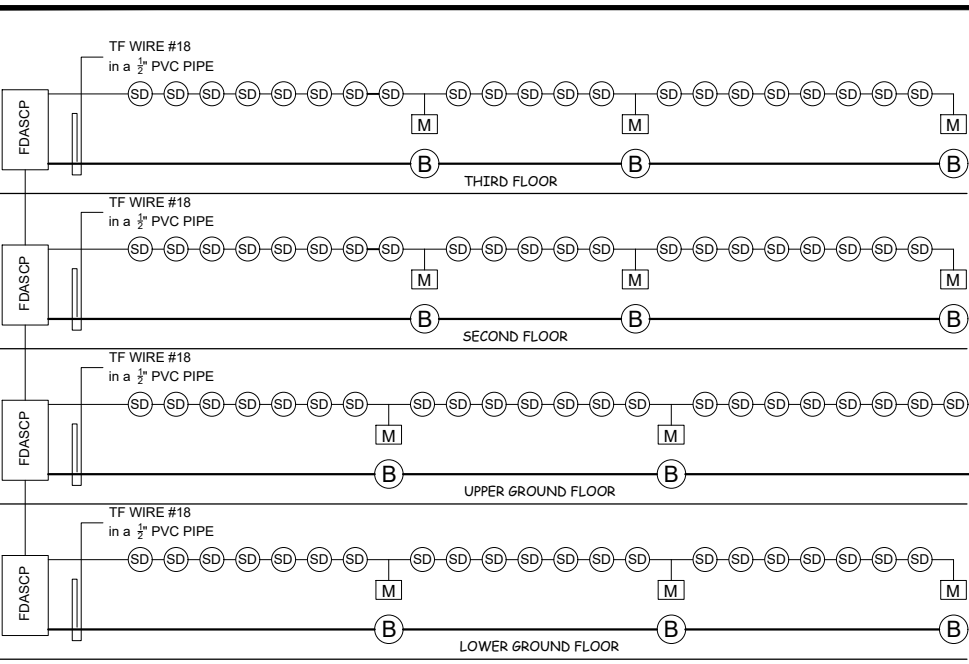
NOTE:
 ● USE UTP CAT6 TO ALL CONNECTION CABLE.



1 SECOND FLOOR NETWORK COMMUNICATION LAYOUT
 AUX-4 SCALE 1:100 M.



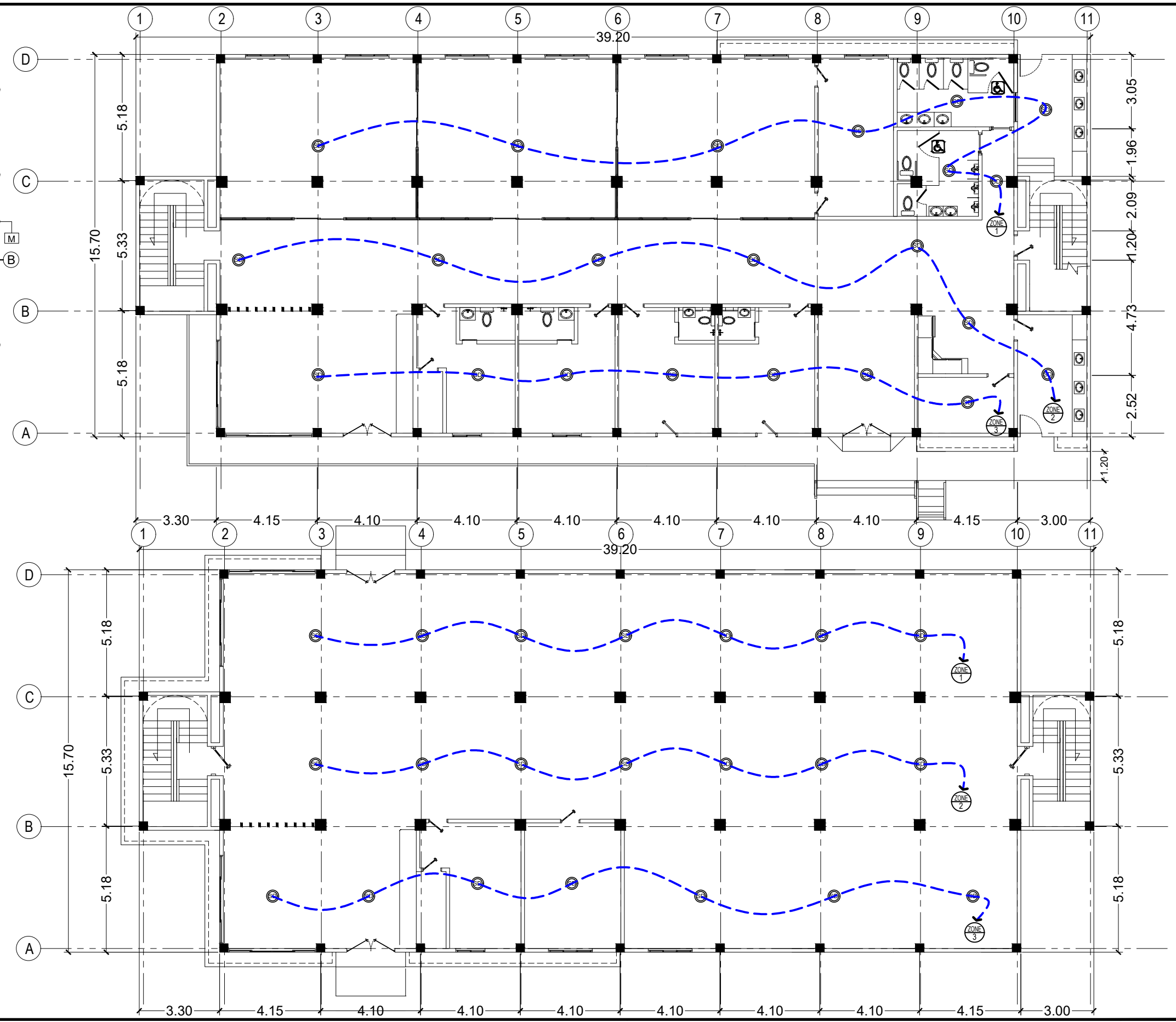
1 SECOND FLOOR NETWORK COMMUNICATION LAYOUT
 AUX-4 SCALE 1:100 M.



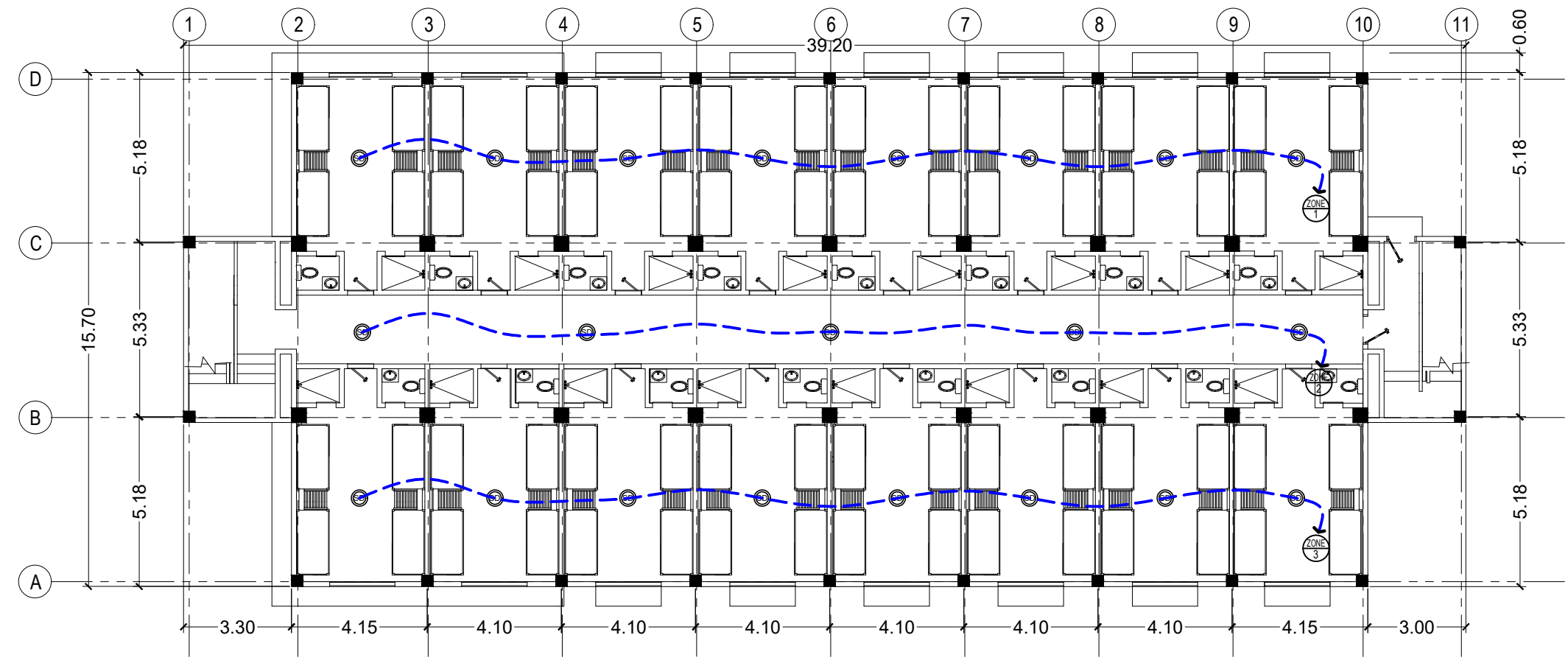
3 (FDAS) SINGLE LINE DIAGRAM
 AUX-5 SCALE NDTs

2 UPPER GROUND FLOOR LAYOUT (FDAS)
 AUX-5 SCALE 1:100 M.

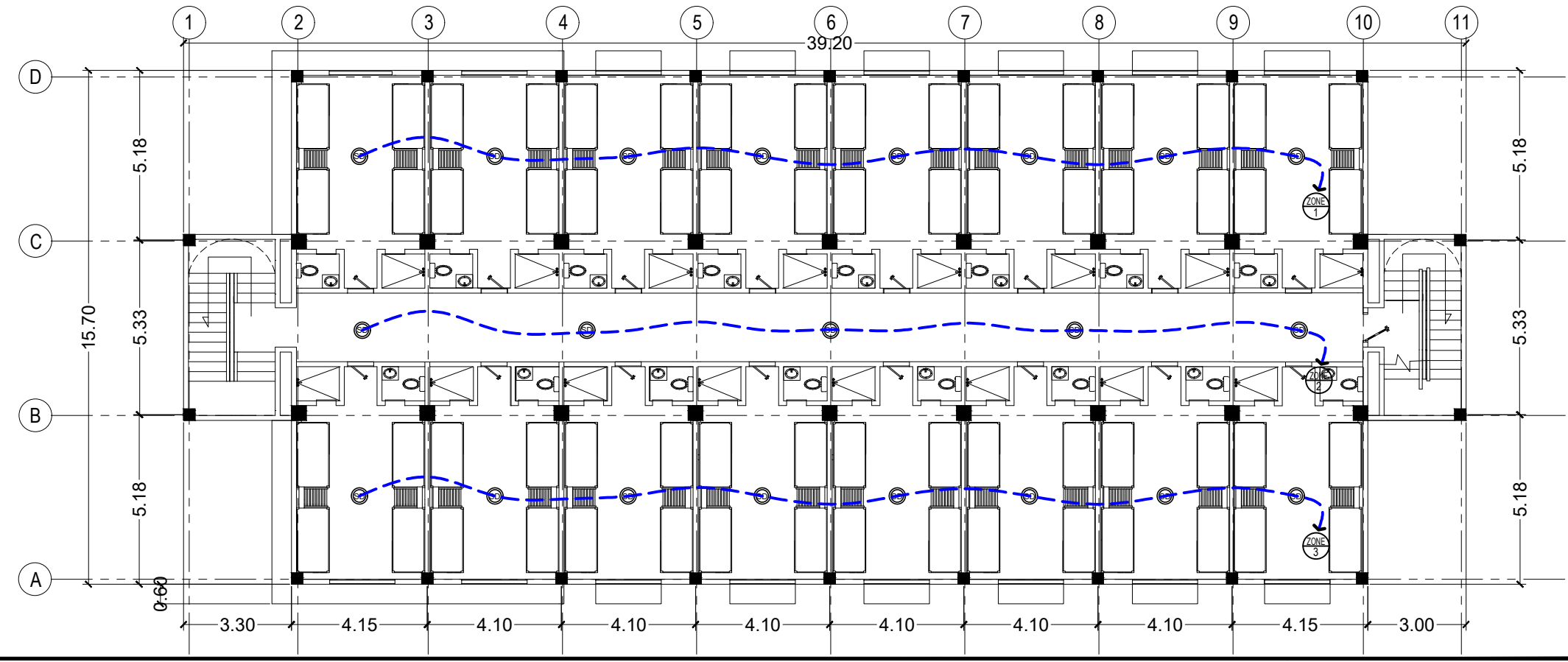
1 LOWER GROUND FLOOR LAYOUT (FDAS)
 AUX-5 SCALE 1:100 M.



2 THIRD FLOOR LAYOUT (FDAS)
 AUX-6 SCALE 1:100 M.



1 SECOND FLOOR LAYOUT (FDAS)
 AUX-6 SCALE 1:100 M.



PLUMBING PLAN

PLUMBING NOTES

- ALL PLUMBING WORKS SHALL BE EXECUTED IN ACCORDANCE WITH THE LATEST PROVISION OF THE PHILIPPINE PLUMBING CODE, THE UNIFORM PLUMBING CODE, THE NATIONAL BUILDING CODE, AND THE RULES AND REGULATIONS OF THE MUNICIPALITY.
- PROPOSED SANITARY UTILITIES SHALL CONFORM TO THE ACTUAL LOCATIONS, DEPTHS AND INVERT ELEVATIONS OF ALL EXISTING PIPES AND STRUCTURES.
- MINIMUM PIPE SLOPES:
 - SANITARY LINES SHALL MAINTAIN A ONE PERCENT (0.01) SLOPE
 - STORM DRAINAGE LINES SHALL MAINTAIN A ONE-HALF PERCENT (0.005) SLOPE
- MATERIALS:
 - COLD WATER SUPPLY - MOLDEX BLUE uPVC PIPES & FITTING
 - SANITARY & STORM DRAINAGE - SANIMOLD EXTRA uPVC PIPES AND FITTINGS
 - ALL WATER AND DRAINAGE PIPE SIZES SHALL CONFORM WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF THE PLUMBING FIXTURES
- ALL GALVANIZED - IRON (G.I) PIPES DIRECTLY BURIED UNDERGROUND SHALL HAVE TWO COATS OF RED - OXIDE PAINT, OR OTHERWISE PROVIDED WITH TWO COATS OF MELTED ASPHALT AND THEN WRAPPED WITH JUTE CLOTH SOAJED IN MELTED ASPHALT.
- SANITARY AND WATER LINES SHALL BE TESTED TO CONFORM WITH THE LATEST REQUIREMENTS OF THE PHILIPPINE PLUMBING CODE, AND THE UNIFORM PLUMBING CODE.

GENERAL NOTES

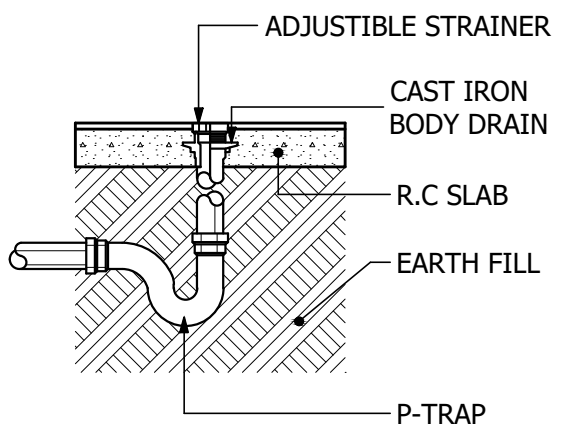
- SEPTIC TANKS SHOULD BE LOCATED NOT LESS THAN 15 METERS AWAY FROM POTABLE WATER TO PREVENT CONTAMINATION.
- WHERE THERE IS PUBLIC SEWER PIPE, SEPTIC TANKS ARE NOT ALLOWED.
- NO SEPTIC TANKS SHOULD BE INSTALLED WITHIN OR UNDER A HOUSE.
- THE INLETS AND OUTLETS ARE SUBMERGED AND ARRANGES SO AS NOT TO DISTURB THE SLUDGE OR SCUM.
- THE BOTTOM OF THE TANK SHOULD SLOPE (1:10) MINIMUM TOWARDS THE MANHOLE IN THE CENTER TO FACILITATE CLEANING.
- THE TOP COVER AND THE MANHOLE ARE USUALLY EXTENDED 15cm ABOVE THE SURFACE OF THE SOIL TO OVERCOME SURFACE INFILTRATION.

PIPE SIZE

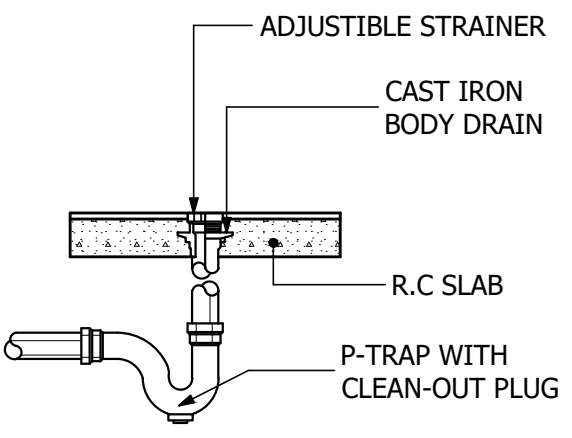
- COLD WATER PIPE - 20mmØ TO 32mmØ
- STORM DRAINAGE PIPE - 50mmØ TO 150mmØ
- SEWER PIPE - 50mmØ TO 150mmØ
- VENTILATION PIPE - 50mmØ TO 150mmØ

PLUMBING LEGEND:

WC	WATER CLOSET	GIP	GALVANIZED IRON PIPE
LAV	LAVATORY	UP	UNION PATENTE
F	FAUCET	GV	GATE VALVE
FD	FLOOR DRAIN	CV	CHECK VALVE
CO	CLEAN OUT	WM	WATER METER
PVC	POLYVINYLCHLORIDE	HB	HOSE BEEB
DP	DRAINAGE PIPE	CB	CATCH BASIN
SP	SOIL PIPE	SV	SEPTIC VAULT
SS	SOIL STACK	MH	MANHOLE
VP	VENT PIPE	DS	DOWNSPOUT
VS	VENT STACK	VSTR	VENTSTACK THRU ROOF



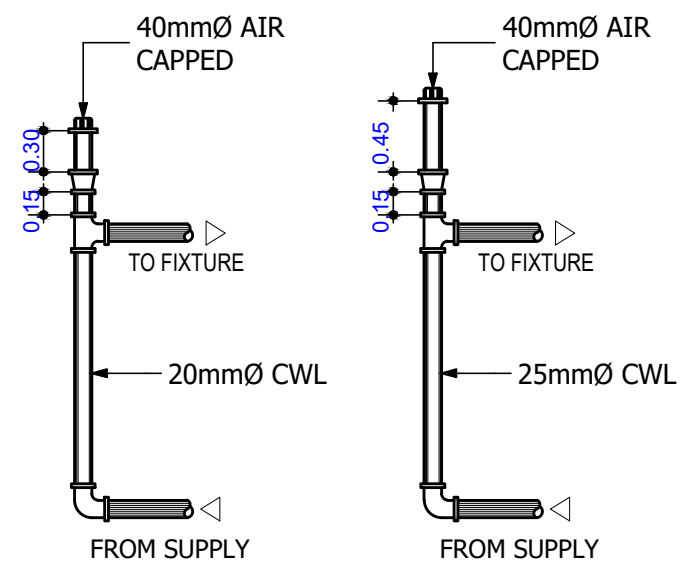
GROUND FLOOR



UPPER FLOOR

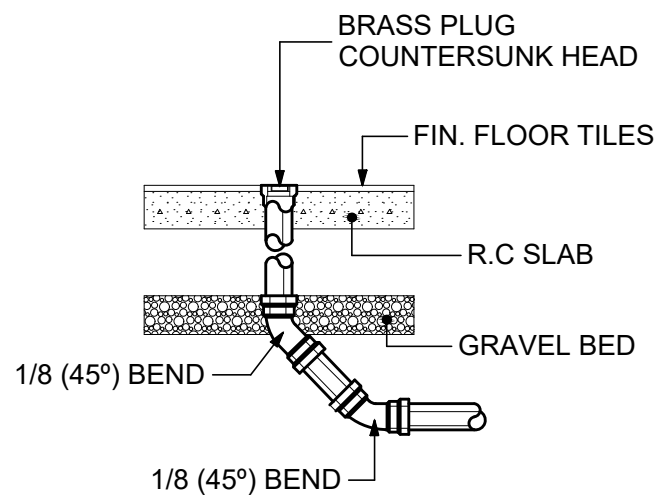
DETAIL OF FLOOR DRAIN

NOT TO SCALE

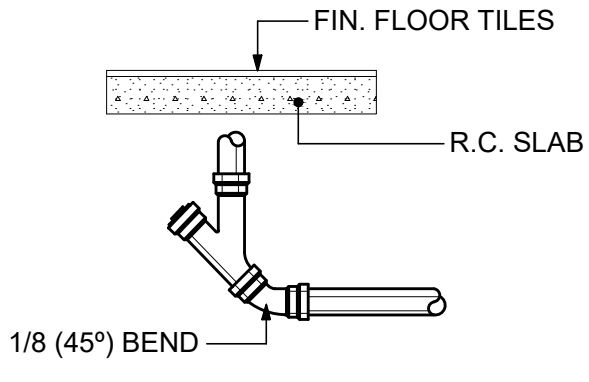


DETAIL OF AIR CHAMBER

NOT TO SCALE



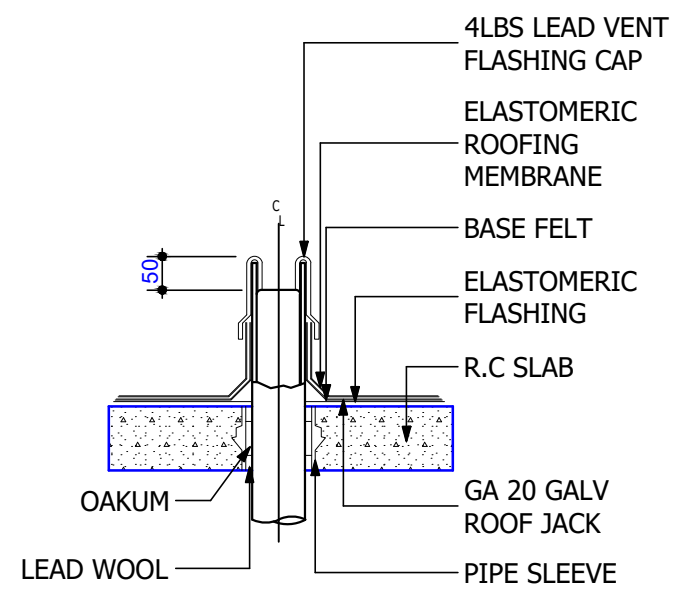
GROUND FLOOR



UPPER FLOOR

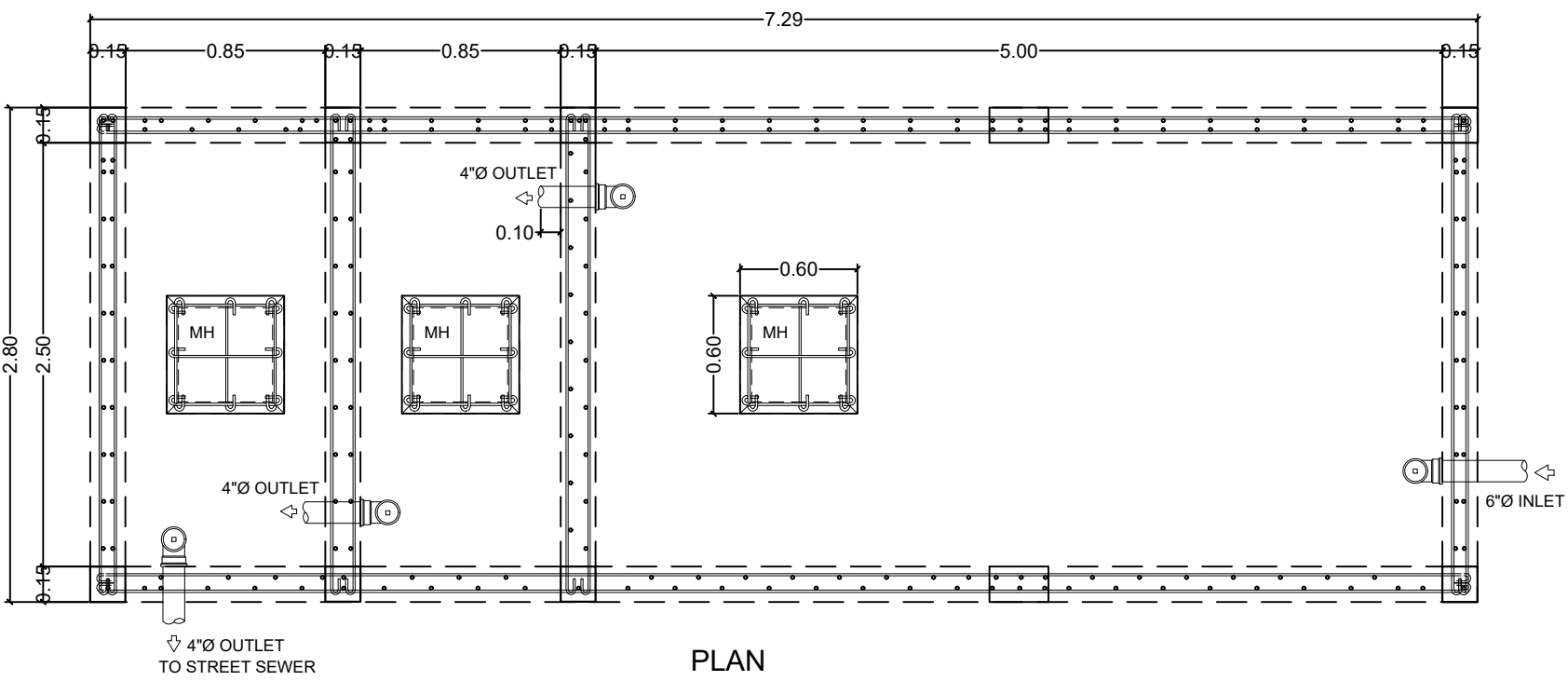
DETAIL OF CLEAN OUT

NOT TO SCALE



DETAIL OF VSTR

NOT TO SCALE

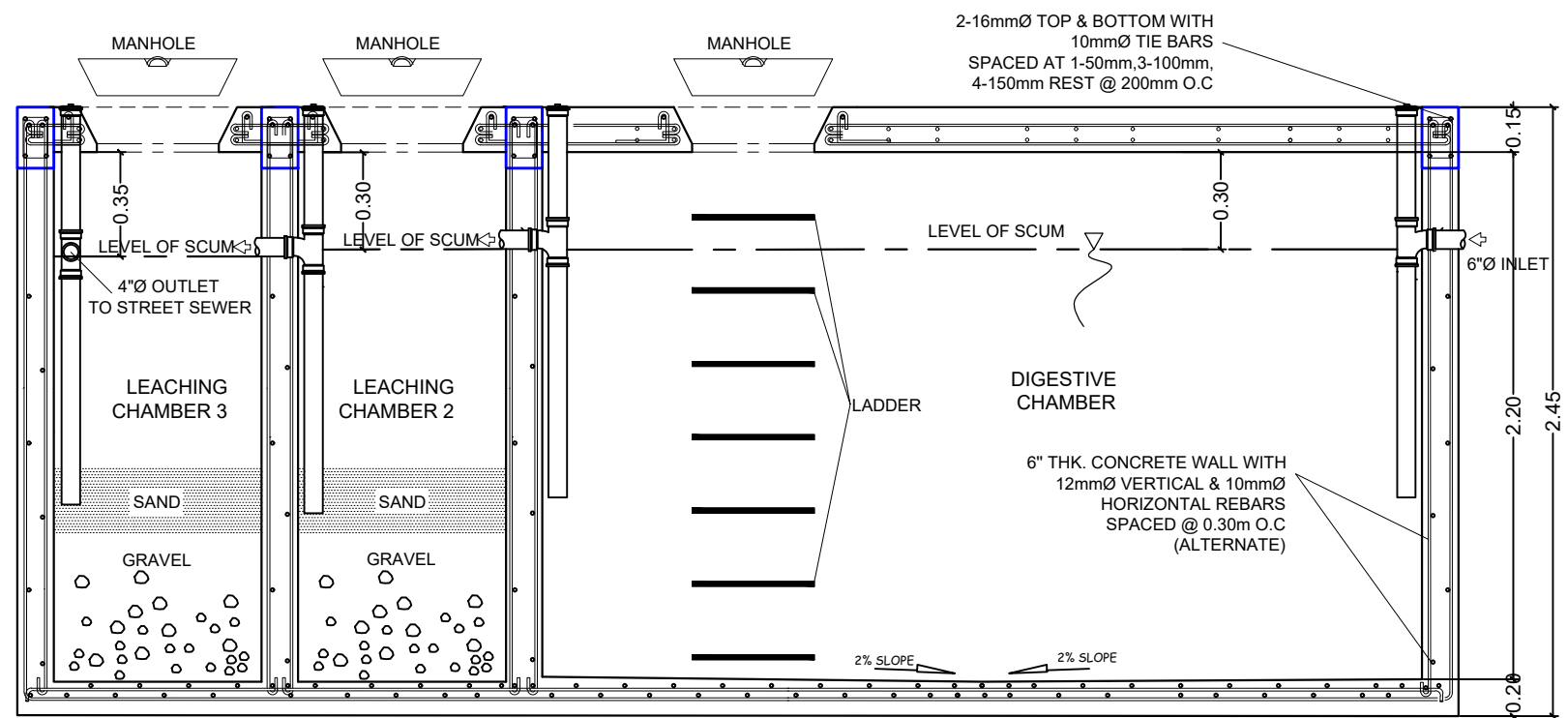


PLAN

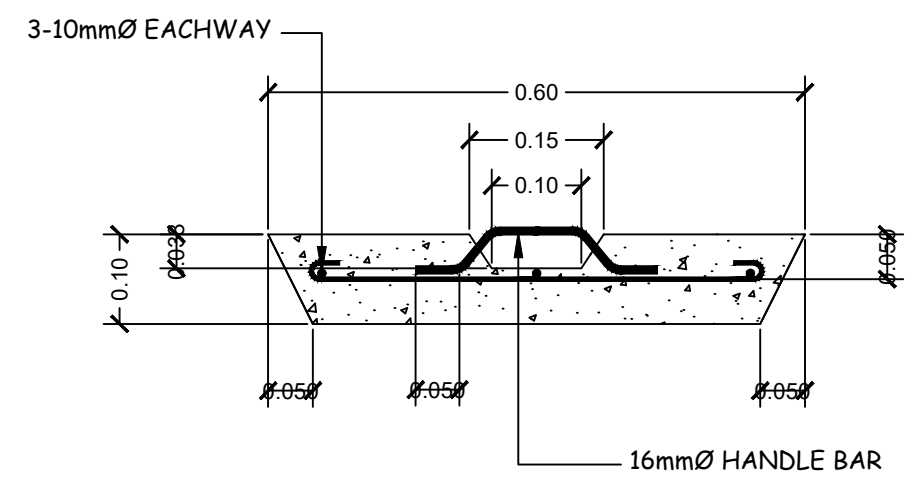
SCHEDULE OF SLAB REINFORCEMENT					
	TOP SLAB		BOTTOM SLAB		REMARKS
	SHORT DIRECTION	LONG DIRECTION	SHORT DIRECTION	LONG DIRECTION	
	12mmØ BARS @220mm O.C. BENT-UP 2 OUT OF 3 @ L/4	-- DO --	12mmØ BARS @150mm O.C. CUT OFF ALTERNATE @ L/5 FROM FACE OF SUPPORT	-- DO --	

DESIGN CRITERIA :

- I. LIVE LOAD 960 Pa
- II. ALLOWABLE STRESSES :
 1. CONCRETE
 - a. For Footings, Beams & Slabs
 $f_c' = 270 \text{ mpa}$; $f_c = 9.315 \text{ Mpa}$, $n=9$
 2. CONCRETE MASONRY UNITS (LOAD BEARING CHB)
 $f_m' = 690 \text{ mpa}$; $f_m = 2.41 \text{ mpa}$
 3. REINFORCING STEEL BARS
 For Bars Smaller than 16mmØ
 $f_y = 230 \text{ mpa}$; $f_{st} = 124 \text{ mpa}$
 $f_{sc} = 91 \text{ mpa}$
 4. ASSUMED ALLOWABLE SOIL BEARING CAPACITY = 95.76 Kpa

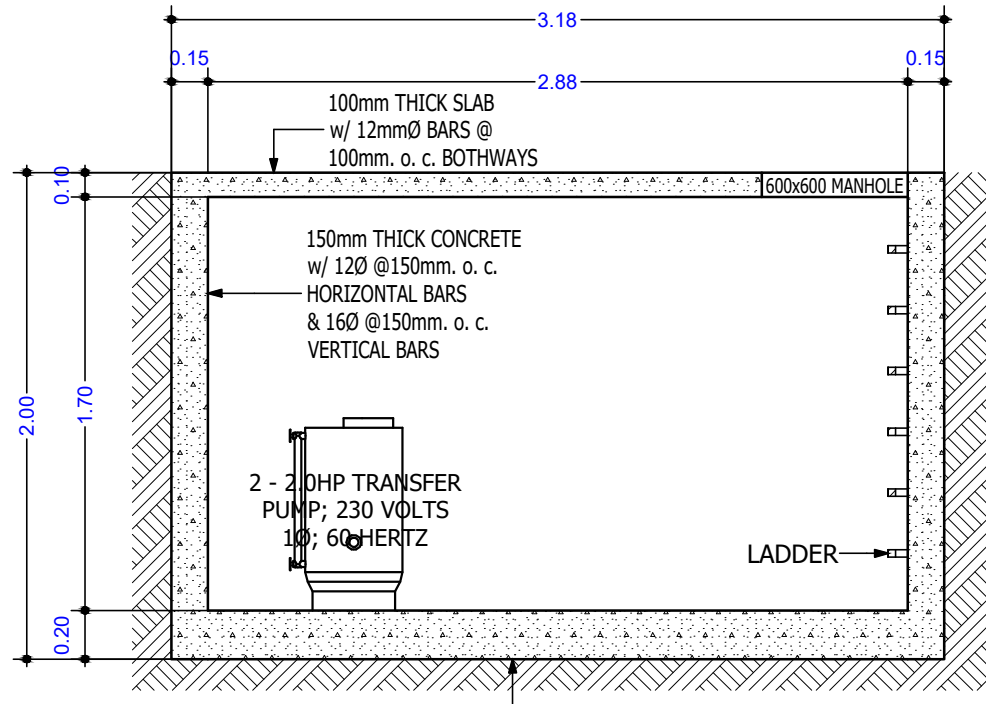


SECTION

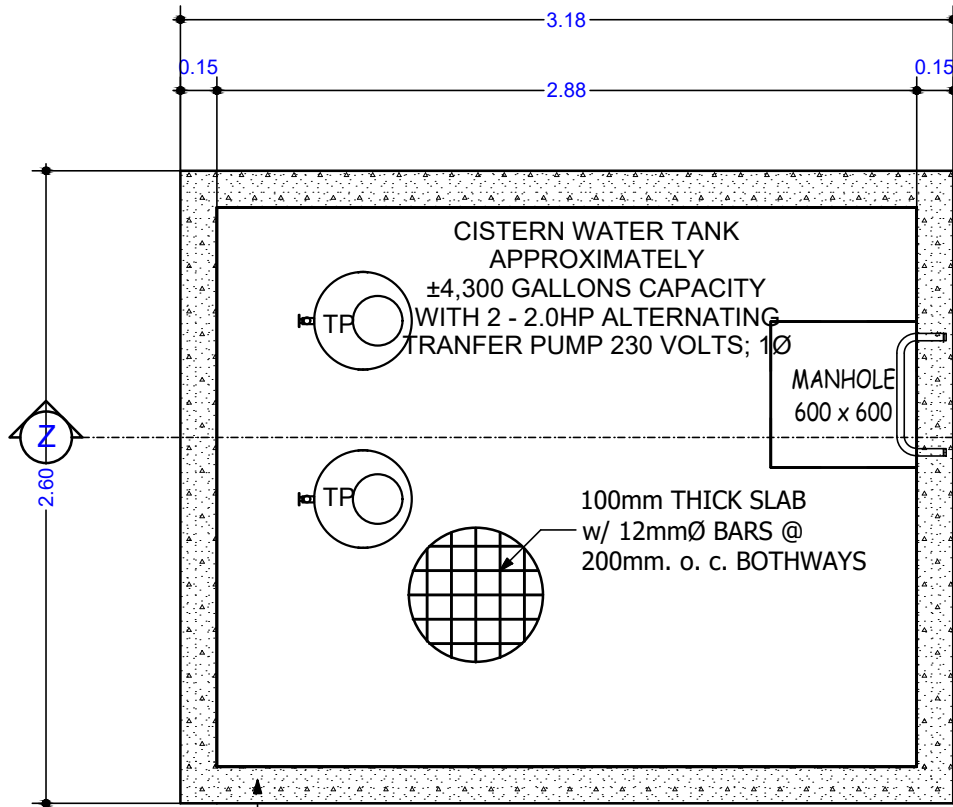


2
PL-2
SCALE 1:10
M.

1
PL-2
SCALE NOT TO SCALE
M.



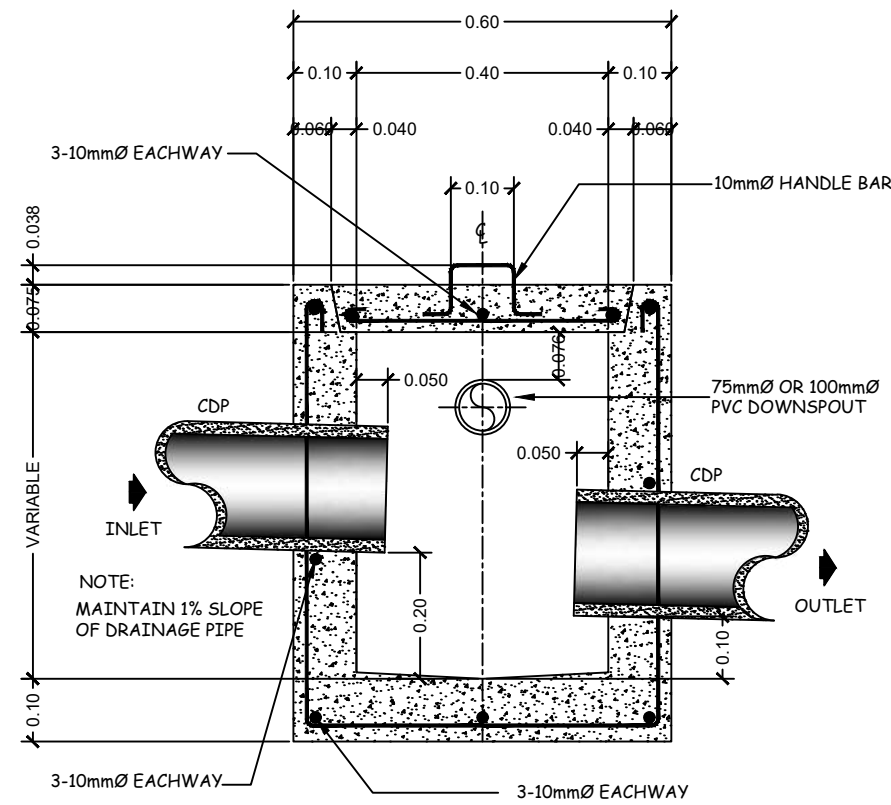
SECTION - Z



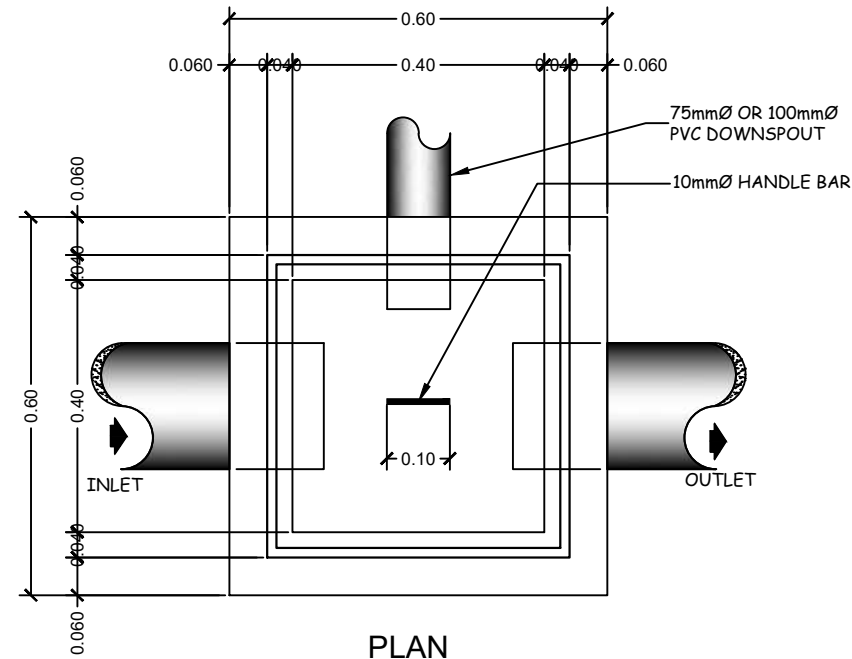
PLAN

150mm THICK CONCRETE
w/ 12Ø @150mm. o. c.
HORIZONTAL BARS
& 16Ø @150mm. o. c.
VERTICAL BARS

1 DETAIL OF CISTERN TANK
SCALE 1:20 M.

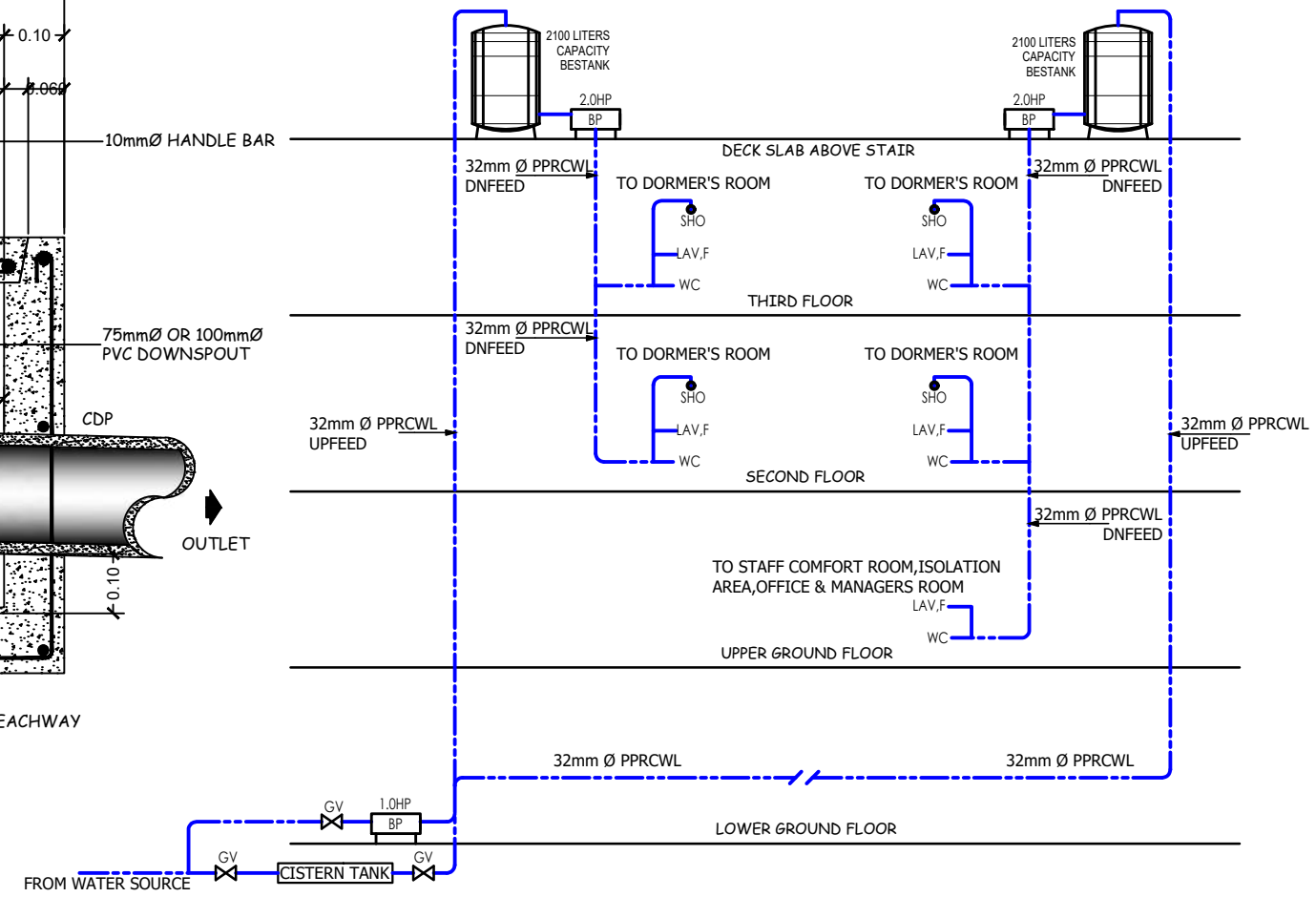


SECTION



PLAN

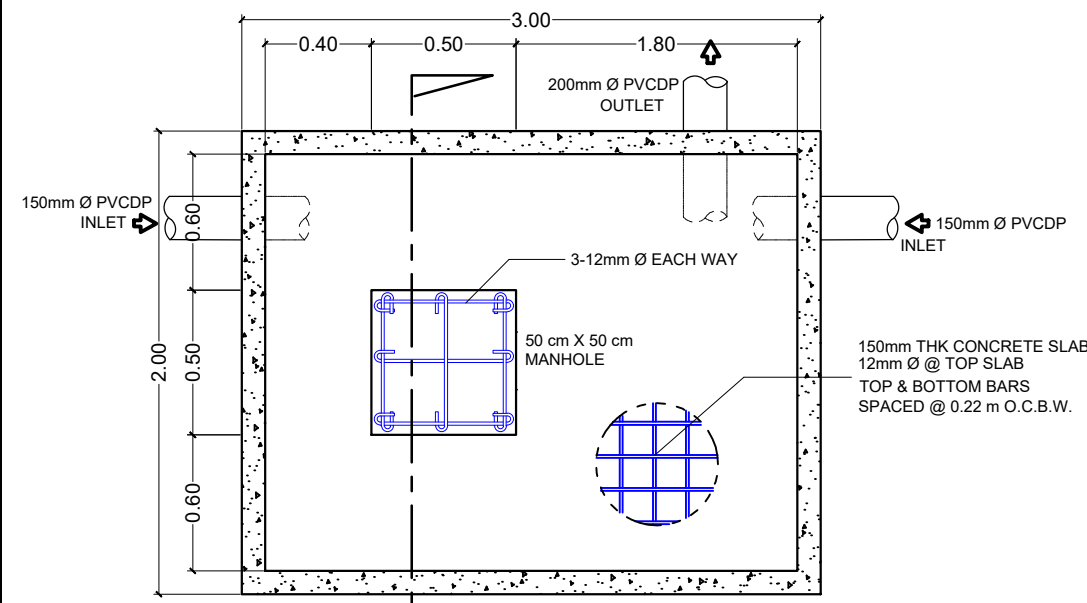
2 DETAIL OF CATCH BASIN
SCALE 1:10 M.



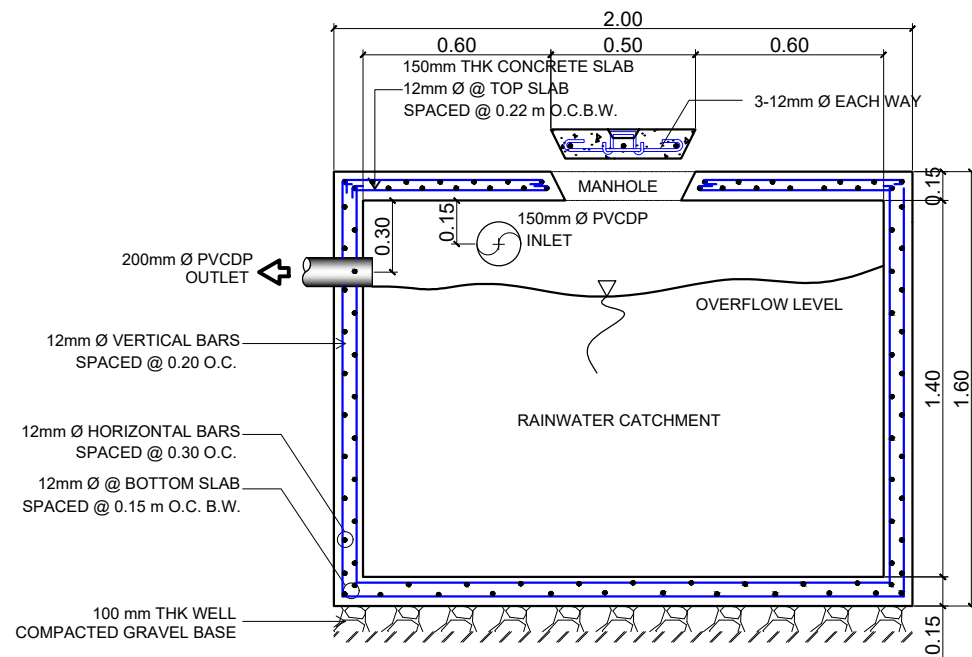
3 WATERLINE DIAGRAM
SCALE

SCHEDULE OF SLAB REINFORCEMENT @ RAIN WATER TANK

TOP SLAB		BOTTOM SLAB		REMARKS
SHORT DIRECTION	LONG DIRECTION	SHORT DIRECTION	LONG DIRECTION	
12mmØ BARS @220mm O.C. BENT-UP 2 OUT OF 3 @ L/4	-- DO --	12mmØ BARS @150mm O.C. CUT OFF ALTERNATE @ L/5 FROM FACE OF SUPPORT	-- DO --	

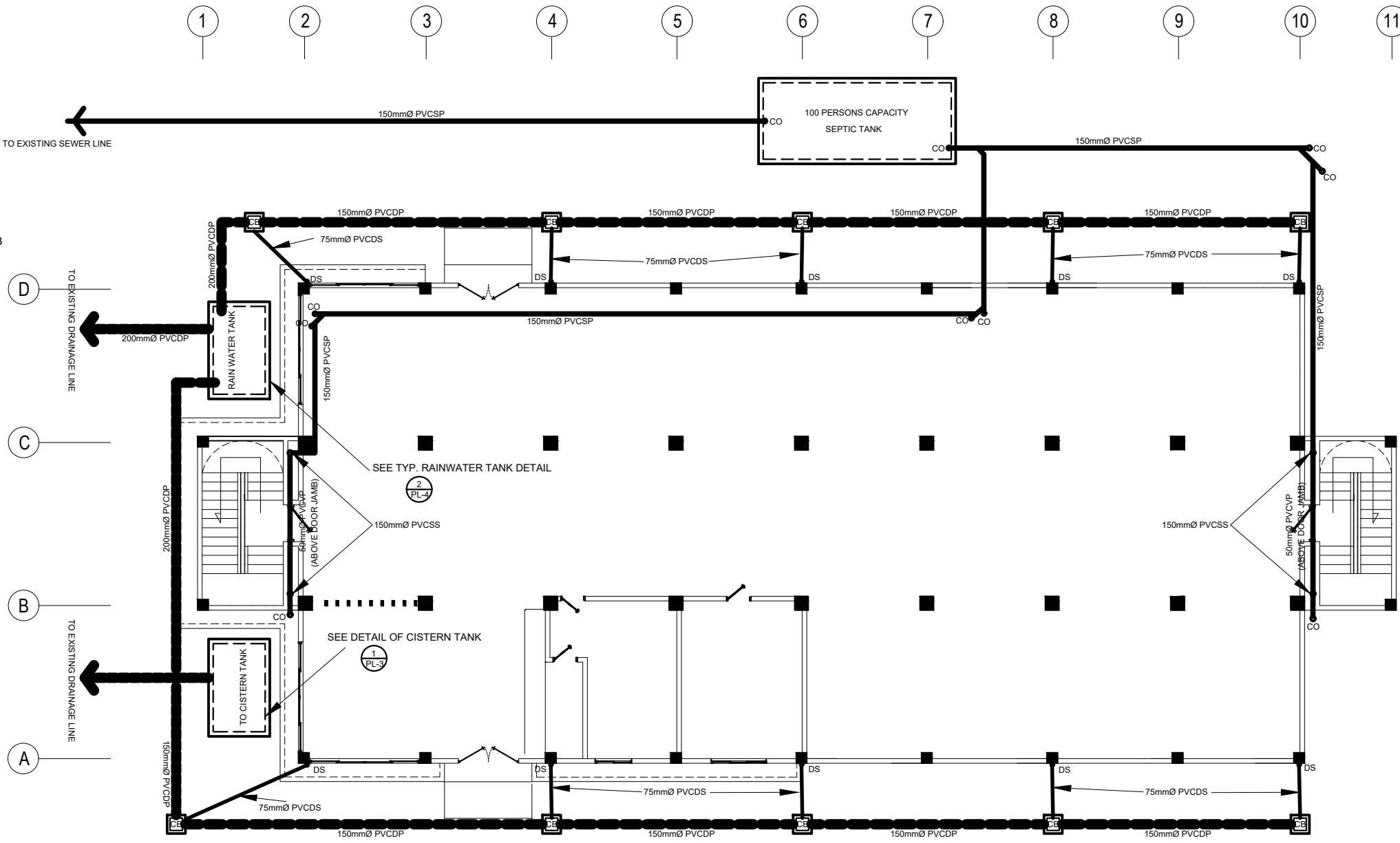


PLAN

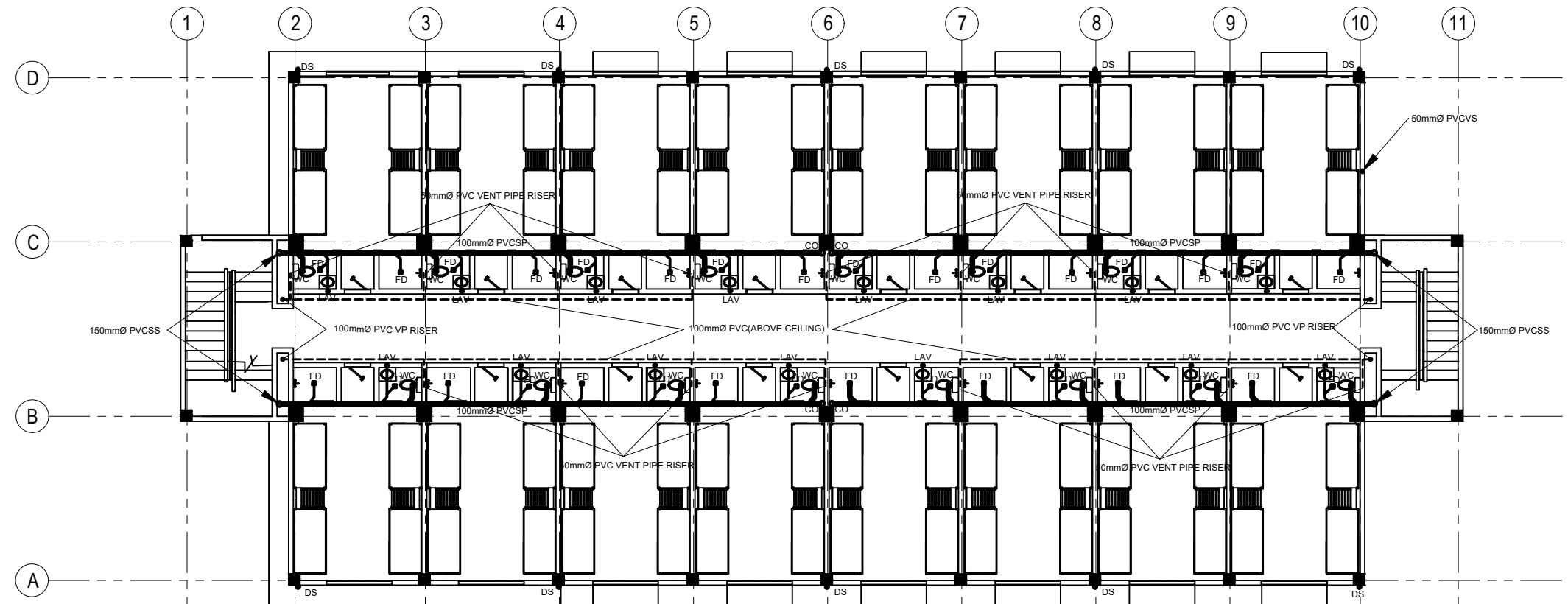


SECTION X

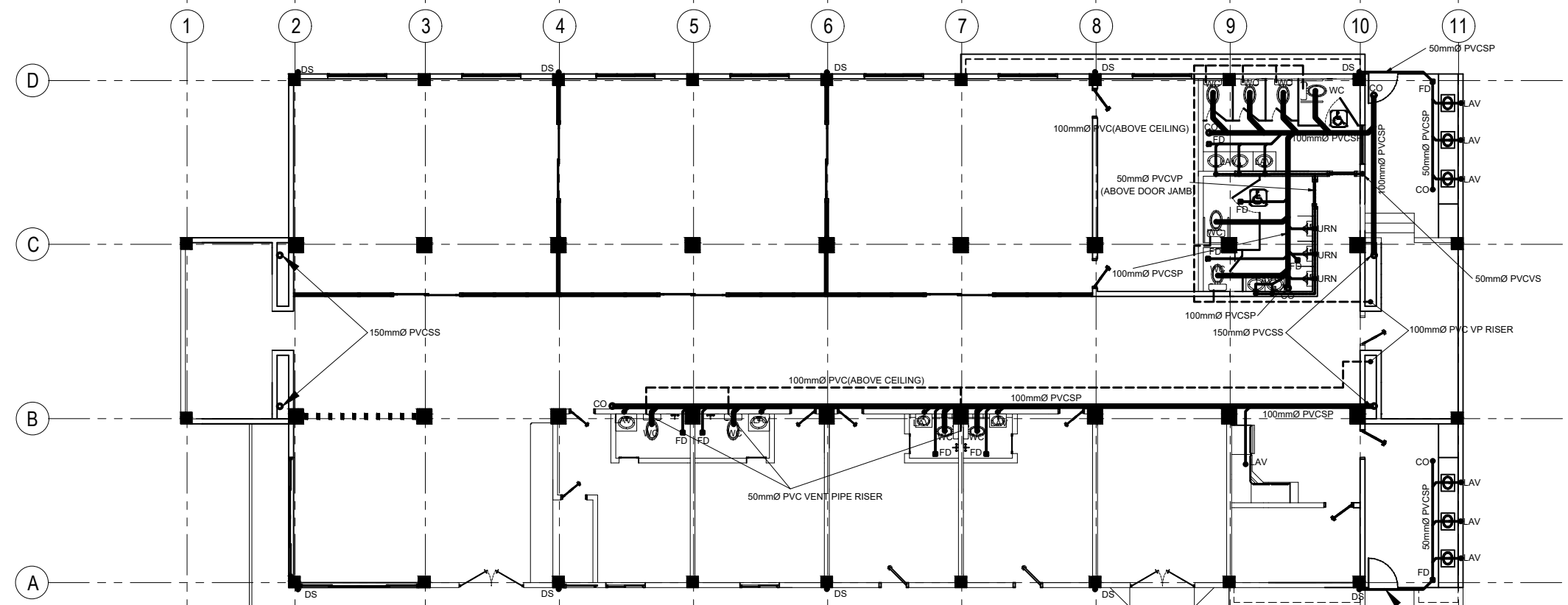
2 TYP. RAINWATER TANK DETAIL
PL-4 NO TO SCALE



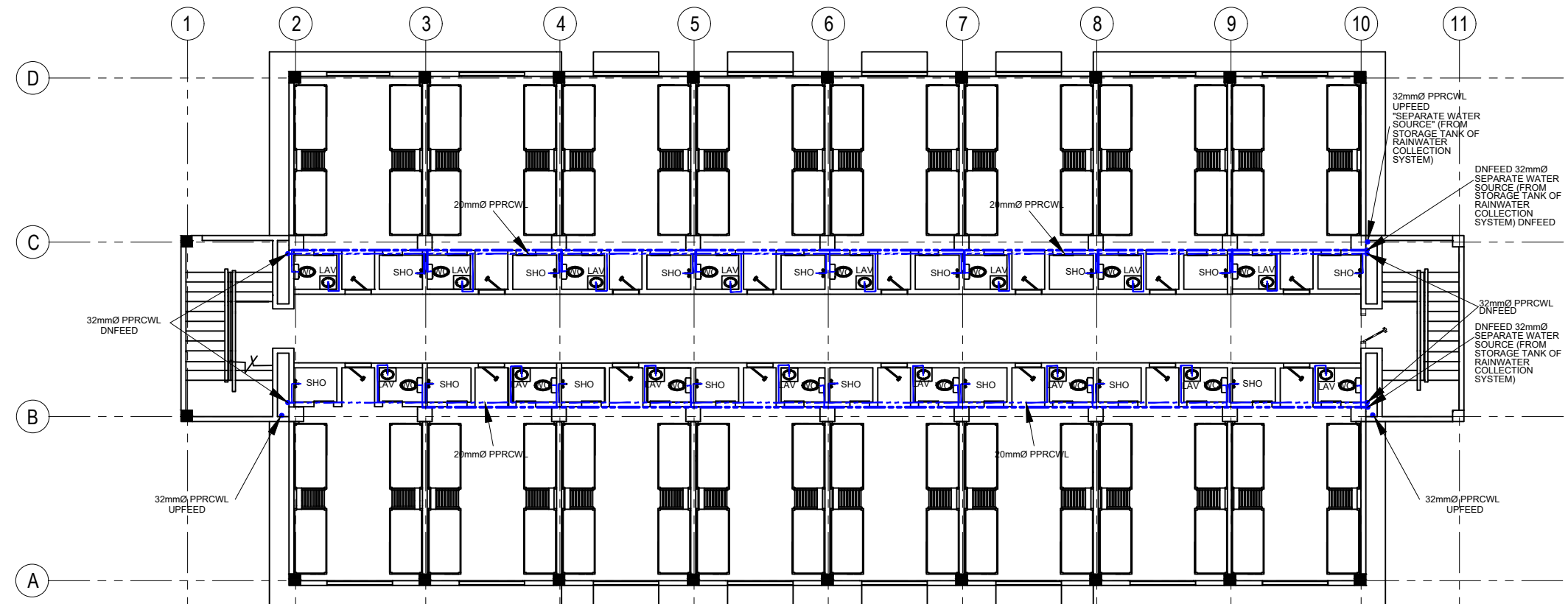
1 LOWER GROUND FLOOR SEWER & DRAINAGE LAYOUT
PL-4 SCALE 1:100 M.



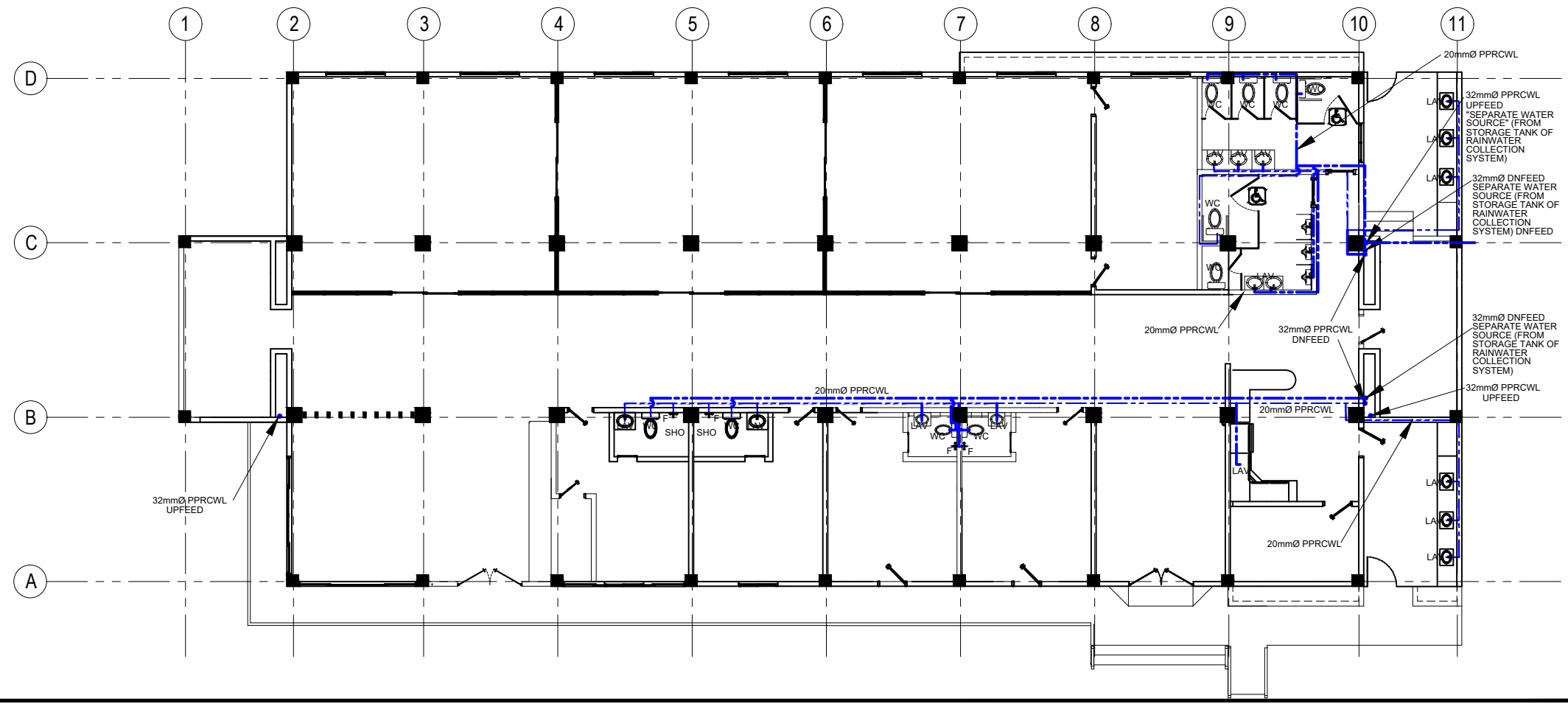
2 SECOND FLOOR SEWER & DRAINAGE LAYOUT
 PL-5 SCALE 1:100 M.



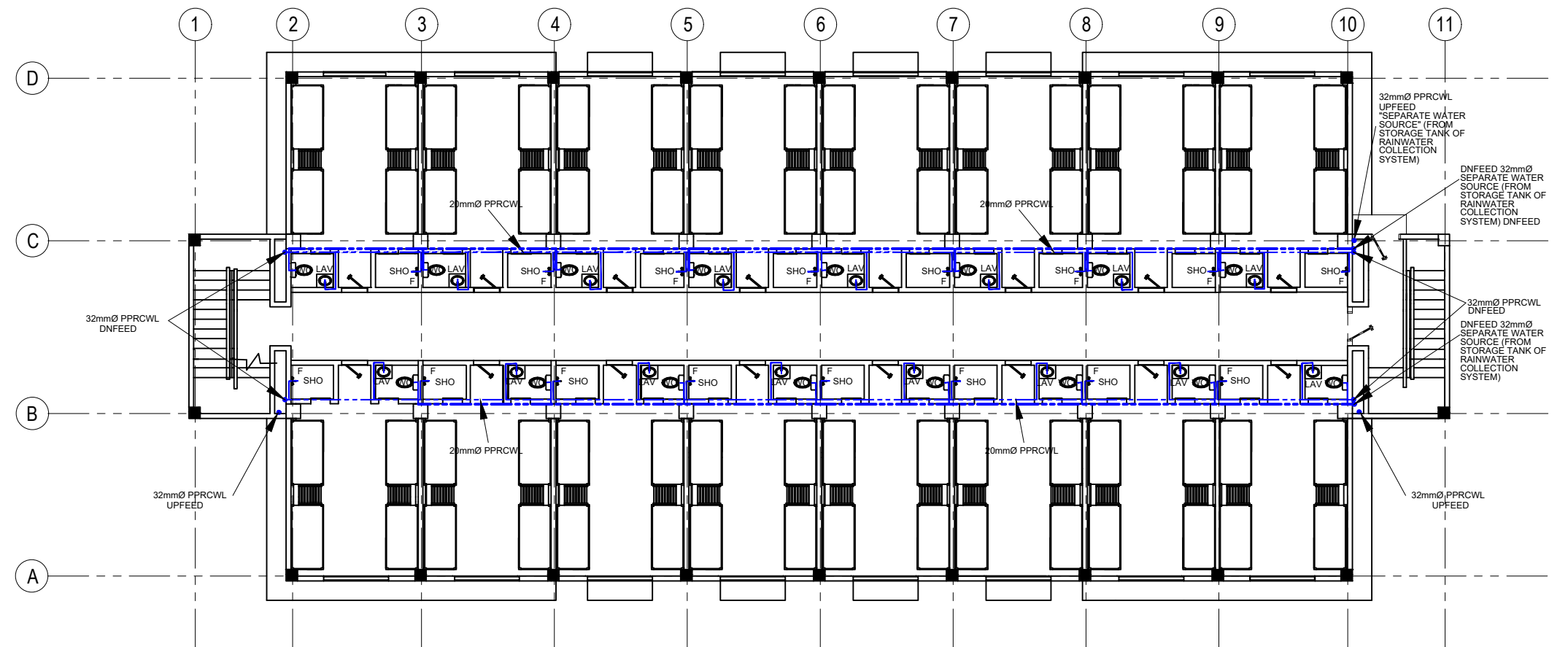
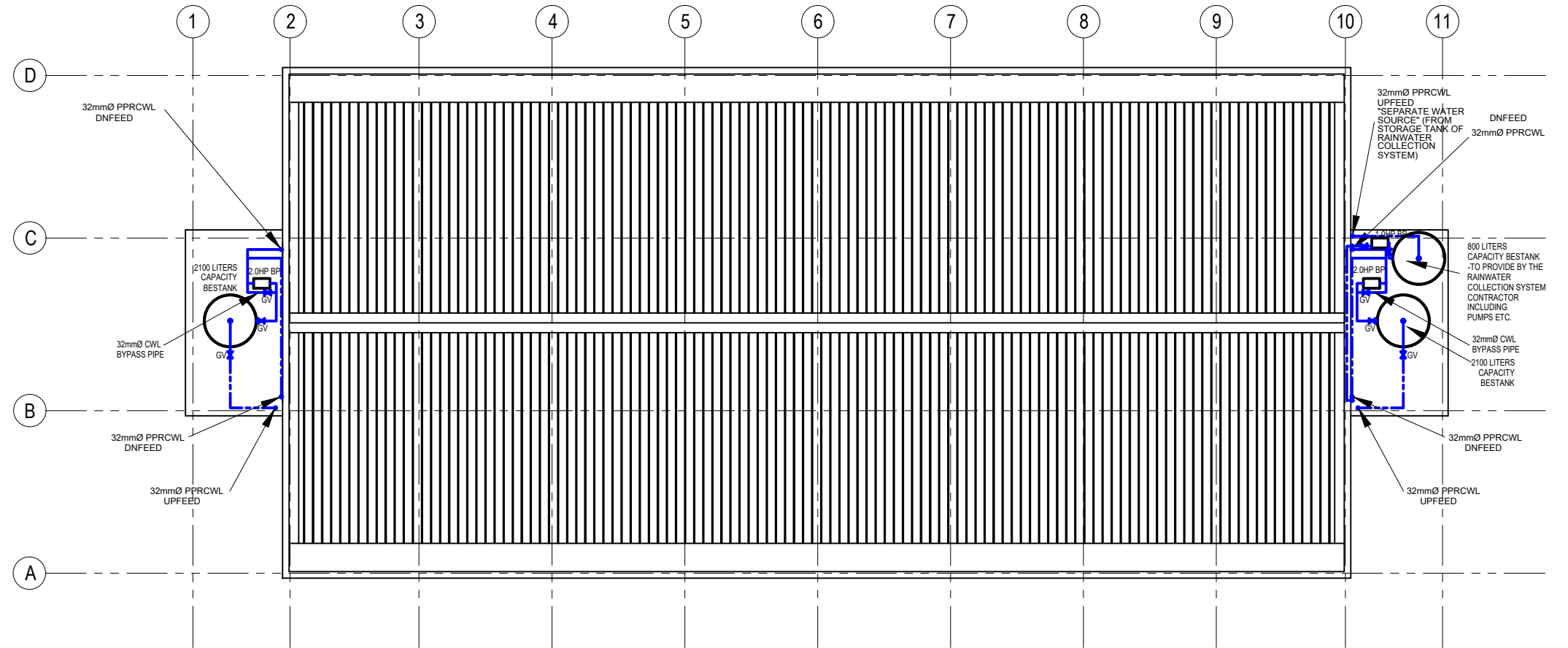
1 UPPER GROUND FLOOR SEWER & DRAINAGE LAYOUT
 PL-5 SCALE 1:100 M.

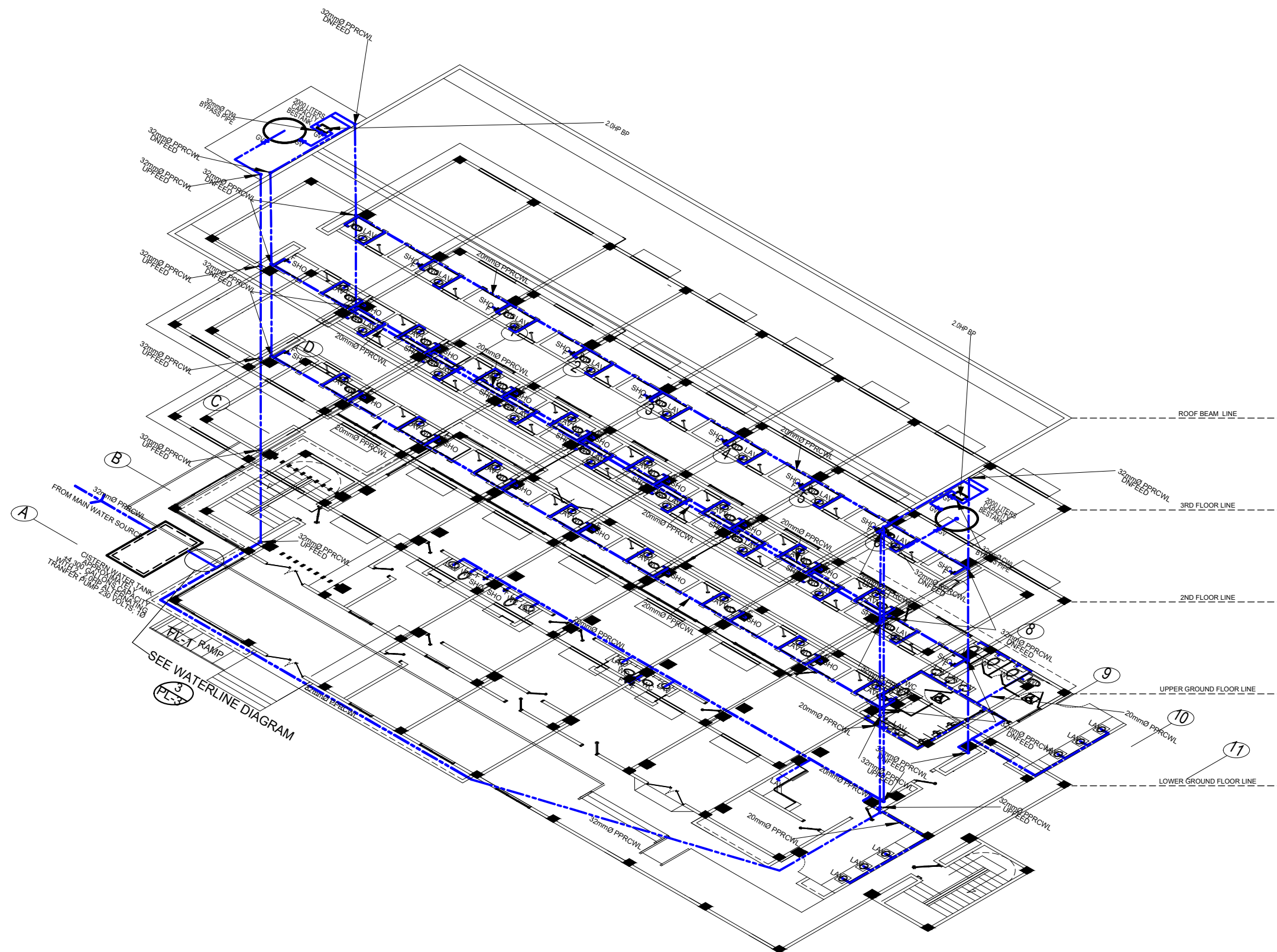


2 SECOD FLOOR WATER LINE LAYOUT
 PL-9 SCALE 1:100 M.



1 UPPER GROUND FLOOR WATER LINE LAYOUT
 PL-9 SCALE 1:100 M.



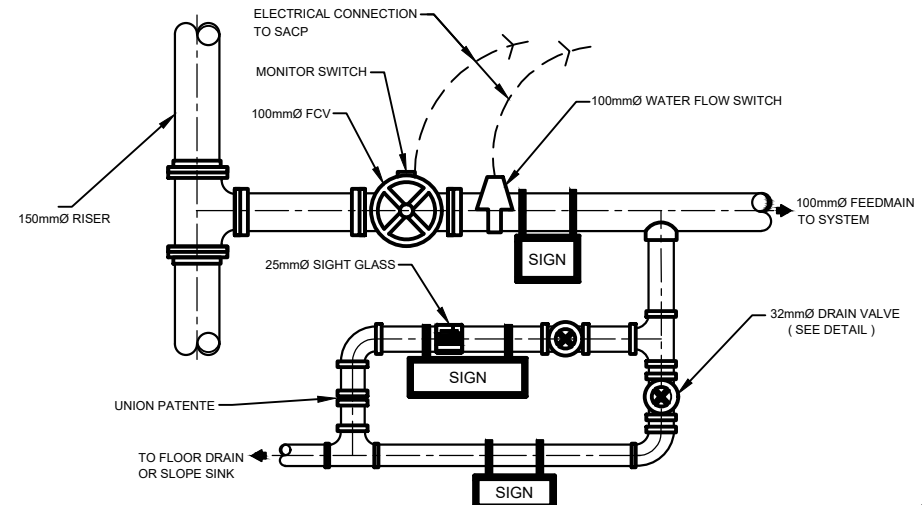


1 ISOMETRIC VIEW OF WATER LINE LAYOUT
 PL-11 SCALE 1:100 M.

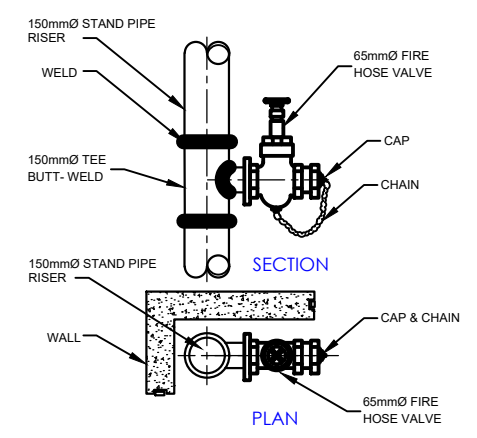
MECHANICAL PLAN

GENERAL NOTES : (FIRE PROTECTION SYSTEM)

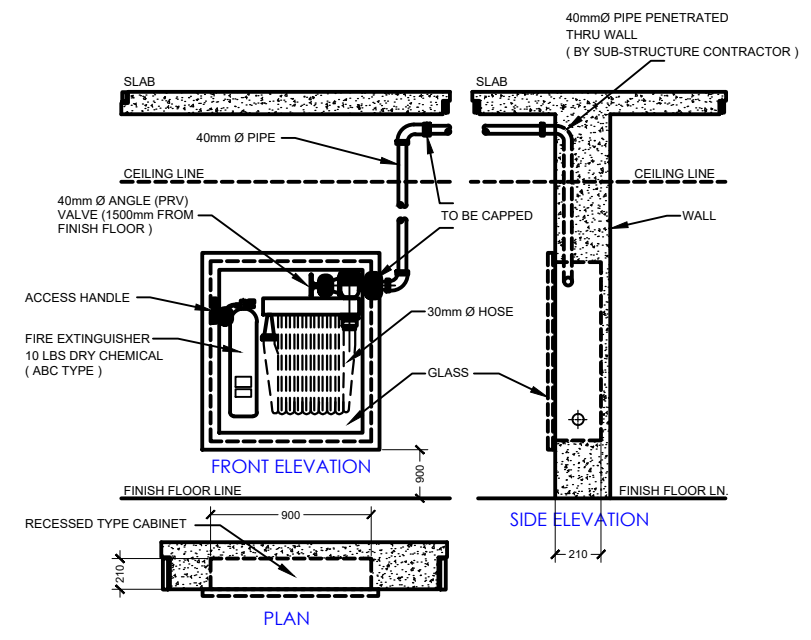
1. THE SPRINKLER SYSTEM SHALL BE DESIGNED ON ORDINARY HAZARD OCCUPANCIES.
2. ONLY NEW SPRINKLER DEVICE AND MATERIALS SHALL BE EMPLOYED IN THE INSTALLATION OF SPRINKLER SYSTEM.
3. A CONNECTION TO A RELIABLE WATER WORKS SYSTEM SHALL BE AN ACCEPTABLE WATER SUPPLY SOURCE.
4. TEST CONNECTION WHICH MAY BE ALSO BE USED AS DRAIN PIPE SHALL BE PROVIDED AT LOCATIONS THAT WILL PERMIT FLOW TEST TO BE MADE TO DETERMINE WHETHER WATER SUPPLIES AND CONNECTION ARE IN ORDER.
5. A PRESSURE GAGE WITH A CONNECTION NOT SMALLER THAN 6MM SHALL BE INSTALLED ON THE RISER OR FEEDMAIN AT OR NEAR EACH TEST CONNECTION. THIS GAGE CONNECTION SHALL BE EQUIPPED WITH A SHUT-OFF VALVE AND WITH PROVISION FOR DRAINING.
6. THE REQUIRED PRESSURE GAGE SHALL BE AN APPROVED TYPE HAVE A MAXIMUM PRESSURE LIMIT NOT LESS THAN TWICE THE NORMAL WORKING PRESSURE AT THE POINT WHERE INSTALLED.
7. PIPES INSTALLED IN A SPRINKLER SHALL BE MADE OF B.I. SCHEDULE 40 AND CAN WITHSTAND A PRESSURE OF NOT LESS THAN 175 PSI (12.1 BARS)
8. BENDING OF PIPES MAY BE ACCOMPLISHED WHEN BENDS ARE MADE IN CONFORMANCE WITH GOOD INSTALLATION PRACTICES IN SHOWN NO KINKS, RIPPLES, DISTORTIONS, REDUCTION IN DIAMETER OR ANY NOTICEABLY DEVIATIONS FROM ROUND. THE MINIMUM RADIUS OF BEND SHALL BE 6 PIPE DIAMETER
9. ALL SPRINKLER SYSTEM SHALL BE ARRANGE FOR FLUSHING READILY REMOVABLE FITTINGS SHALL BE PROVIDED AT THE END OF ALL CROSS MAINS SHALL TERMINATE IN 32MM(1 1/4") OR LARGER PIPE ALL BRANCH ALL BRANCH LINES SHALL BE ARRANGE TO FACILITATE FLUSHING.
10. FIRE HOSE CONNECTION FOR ORDINARY HAZARD OCCUPANCY SHALL BE 63MM(2 1/2") AND SHALL BE ATTACHED TO A WET PIPE SPRINKLER RISER.
11. ALL PIPES SHALL BE PROTECTED AGAINST CORROSION.
12. FLEXIBLE COUPLINGS JOINING GROOVED AND PIPE SHALL BE PROVIDED AS FLEXURE JOINTS TO ALLOW INDIVIDUAL SECTION OF PIPING TO MORE DIFFERENTIALLY WITH THE INDIVIDUAL SECTIONS OF THE BUILDING TO WHICH IS ATTACHED COUPLINGS SHALL BE ARRANGE TO COINCIDE WITH STRUCTURAL OPERATION WITH IN BUILDING.
13. SWAY BRACING SHALL BE DESIGNED TO WITHSTAND A FORCE IN TENSION OR COMPRESSION EQUIVALENT TO NOT LESS THAN HALF WEIGHT OF WATER FILLED PIPING FOR INDIVIDUAL SWAY BRACES THE SLENDERNESS RATIO L/R SHALL NOT EXCEED 200.
14. LONGITUDINAL SWAY BRACING SPACED AT A MAXIMUM OF 24M SHALL BE PROVIDED FOR FEED AND CROSS MAINS.
15. TOP OF RISER SHALL BE SECURED AGAINST DRIFTING IN ANY DIRECTION, UTILIZING FOR FEED AND CROSS MAINS.
16. PROVISION SHALL BE MADE TO PROPERLY DRAIN ALL PARTS OF THE SYSTEM.
17. EACH INTERIOR SECTIONAL CONTROL VALVE SHALL BE PROVIDED WITH DRAIN CONNECTION SO AS TO DRAIN THAT PORTION OF THE SYSTEM CONTROLLED BY SECTIONAL VALVE.
18. ALL THREADED FITTING AND PIPE SHALL THREAD CUT TO ASME STANDARD , CAN SHALL BE TAKEN THAT THE PIPE DOES NOT EXTEND INTO FITTINGS SUFFICIENTLY TO REDUCE THE WATER WAY.
19. JOIN COMPOUND OR TAPE SHALL BE APPLIED TO THE THREADS OF THE PIPE AND NOT ON THE FITTING.
20. WELDED SECTION OF SPRINKLER PIPING IS PLACE INSIDE THE BUILDING SHALL NOT BE PERMITTED. SECTION OF BRANCH LINES CROSS MAINS OR RISER MAY BE SHOP WELDED.
21. WHEN REDUCING A PIPE SIZE IN THE RUN OF A MAIN, CROSSMAIN, OR BRANCH LINE. A REDUCING FITTING DESIGN FOR THAT PROPOSE SHALL BE USED.
22. SECTIONS OF SHOP WELDED PIPING SHALL JOINED BY MEANS OF FLANGED OR FLEXIBLE GASKETED JOINTS OR OTHER APPROVED FITTINGS.
23. EACH SYSTEM SHALL BE PROVIDED WITH A LISTED INDICATING VALVE SO LOCATED AS TO CONTROL ALL SOURCE OF WATER SUPPLY EXCEPT FIRE DEPARTMENT CONNECTION.
24. SPRINKLER PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE.
25. SPRINKLER SYSTEM SHALL BE TESTED FOR WATER AND AIR LEAK FREE.
26. FIRE AND JOCKEY PUMPS SHALL BE FM OR UL APPROVED.
27. VALVES FITTINGS AND PRESSURE GAGES NOT SHOWN IN THE PLAN BUT DEAM NECESSARY FOR THE CONTINUITY OF THE FLOW SHALL BE PROVIDED.



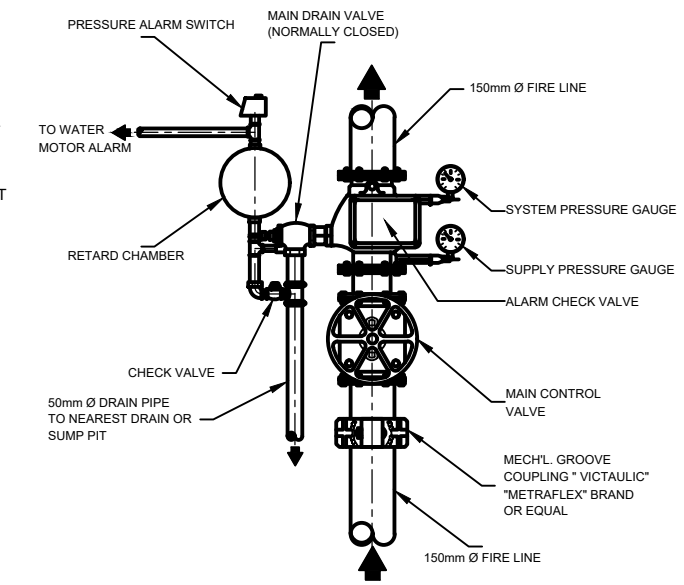
3 FLOOR CONTROL VALVE DETAIL
ME-1 NOT TO SCALE



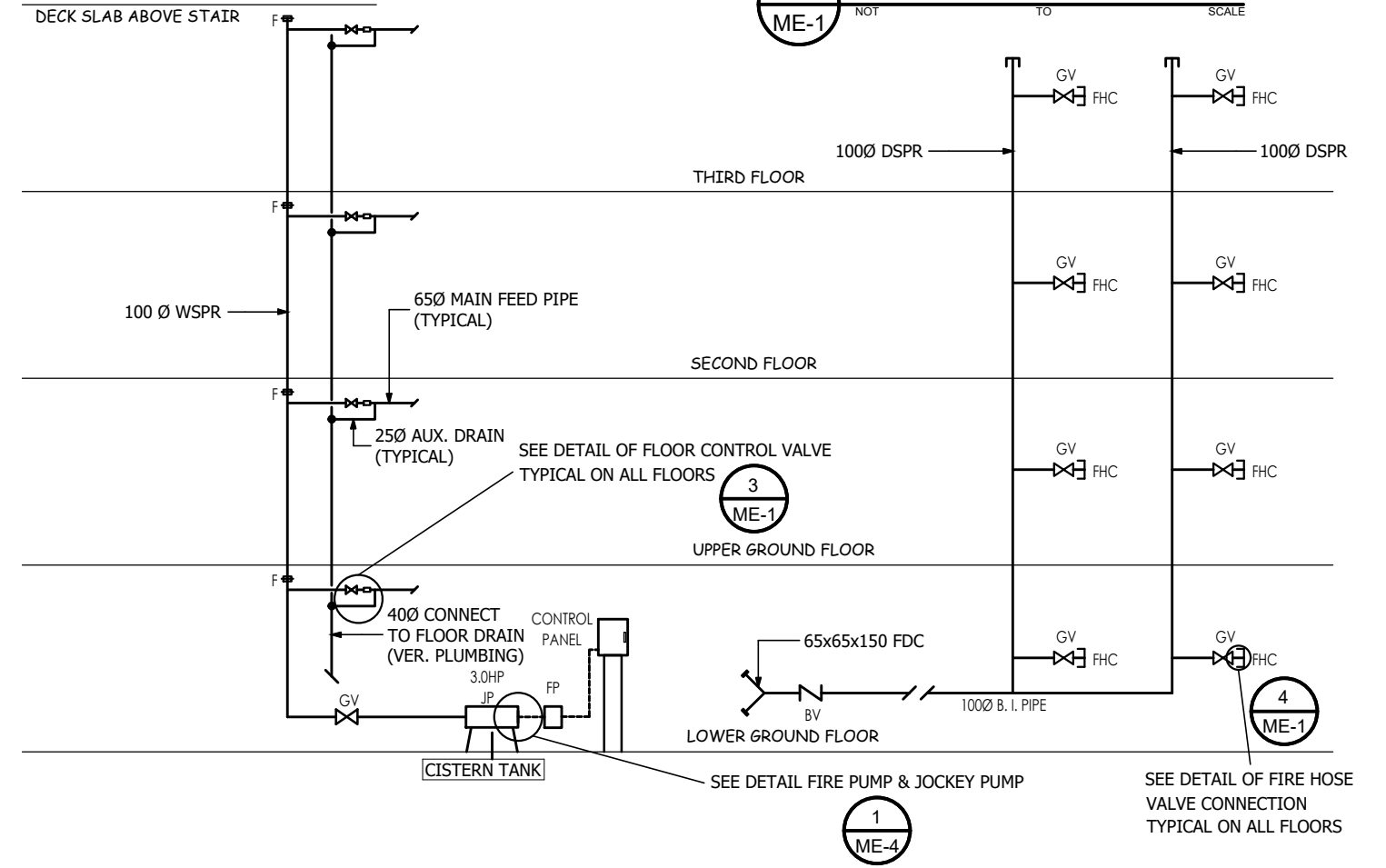
4 FIRE HOSE VALVE CONNECTION DETAIL
ME-1 NOT TO SCALE



6 FIRE HOSE CABINET WITH FIRE EXTINGUISHER DETAIL
ME-1 NOT TO SCALE



5 ALARM CHECK VALVE ASSEMBLY DETAIL
ME-1 NOT TO SCALE



1 WET STAND PIPE RISER DIAGRAM
ME-1 NOT TO SCALE

2 DRY STAND PIPE RISER DIAGRAM
ME-1 NOT TO SCALE

ABBREVIATIONS			
ABBREVIATIONS	DESCRIPTIONS	ABBREVIATIONS	DESCRIPTIONS
AAV	AUTOMATIC AIR VENT	JPC	JOCKEY PUMP CONTROLLER
ACV	ALARM CHECK VALVE	LPS	LITERS PER SECOND
BV	BALL VALVE	LPM	LITERS PER MINUTES
FDC	FIRE DEPARTMENT CONNECTION	PRV	PRESSURE REDUCING/RESTRICTING RELIEF VALVE
FHC	FIRE HOSE CABINET	TYP	TYPICAL
FHV	FIRE HOSE VALVE	C/W	COMPLETE WITH
RN	RISER NIPPLE	M	METER
WFS	WATER FLOW SWITCH	ITC	INSPECTOR TEST CONNECTION
GV	GATE VALVE	FPC	FIRE PUMP CONTROLLER
GPM	GALLONS PER MINUTE		

LEGEND AND SYMBOLS			
SYMBOLS	DESCRIPTIONS	SYMBOLS	DESCRIPTIONS
	FHC PIPE		QRS PENDENT SPRINKLER
	UNDERGROUND PIPE		UPRIGHT SPRINKLER
	CAPPED PIPE		QRS SIDEWALL SPRINKLER
	VALVE AND CAPPED PROVISION		QRS EXTENDED COVERAGE SIDEWALL SPRINKLER
	GATE VALVE		DIRECTION OF FLOW
	ALARM CHECK VALVE		CONTINUOUS PIPE
	CHECK VALVE (SILENT TYPE)		UNION
	DRAIN VALVE FOR PIPE END		PRESSURE GAGE WITH COCK
	END CAP FOR FUTURE CONN.		4.5 KG ABC DRY CHEMICAL FIRE EXTINGUISHER
	FIRE HOSE CABINET		4.5 KG HCFC 123 PORTABLE FIRE EXTINGUISHER
	PUMP		22.7 KG WHEELED TYPE CO2 FIRE EXTINGUISHER
	FLOW METER		ALARM BELL
	AUTOMATIC AIR RELEASE VALVE/AUTOMATIC AIR VENT		FLOW SWITCH
	FIRE PUMP CONTROLLER		HOSE VALVE HEADER
	JOCKEY PUMP CONTROLLER		ELECTRICAL CONTROL PANEL

THIS VALVE CONTROLS
 SUPPLY TO
AUTOMATIC SPRINKLERS

MUST BE **OPEN** AT ALL TIMES
 TO BE HANDLED ONLY BY AUTHORIZED PERSON OR EMPLOYEE CARING FOR SPRINKLER SYSTEM

IN CASE OF FIRE
 DO NOT SHUT VALVE UNTIL FIRE IS ENTIRELY OUT

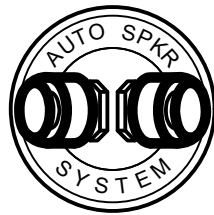
WHEN VALVE IS SHUT FOR EMERGENCY REPAIRS OR FIRE..... NOTIFY:

REQUEST DIRECTION RESTORE PROTECTION QUICKLY

INSPECTORS TEST
 INSPECTOR TEST CONN.

AUXILIARY DRAIN
 NEAR FLOOR CONTROL VALVE

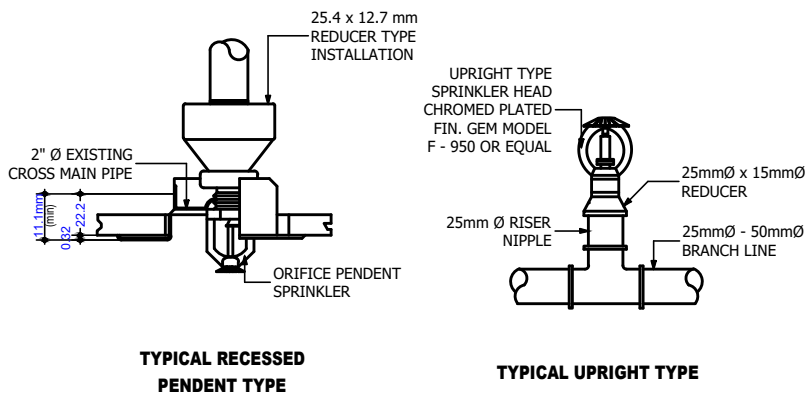
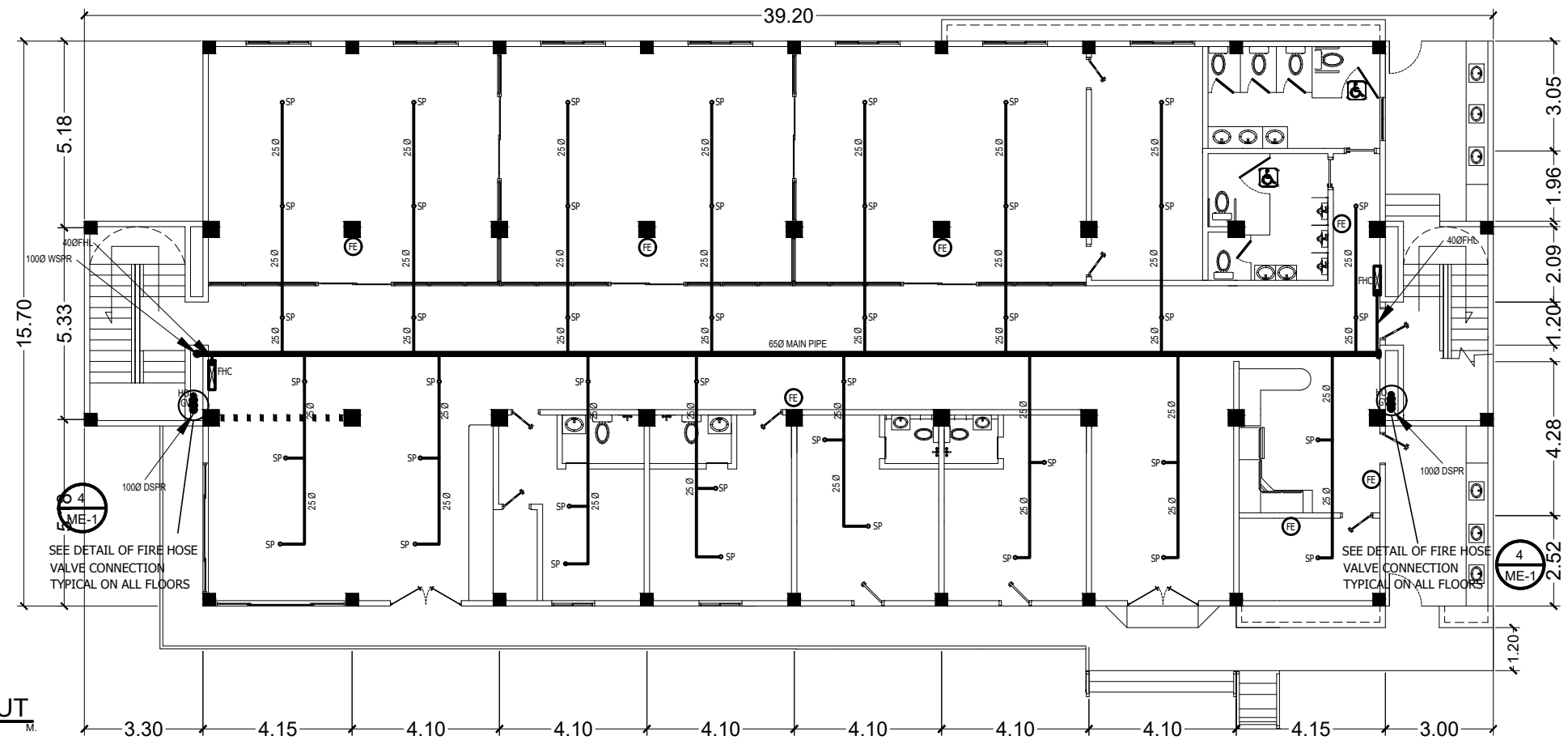
MAIN DRAIN
 ALARM CHECK VALVE



FIRE DEPARTMENT CONN.
 AUTO SPRINKLER

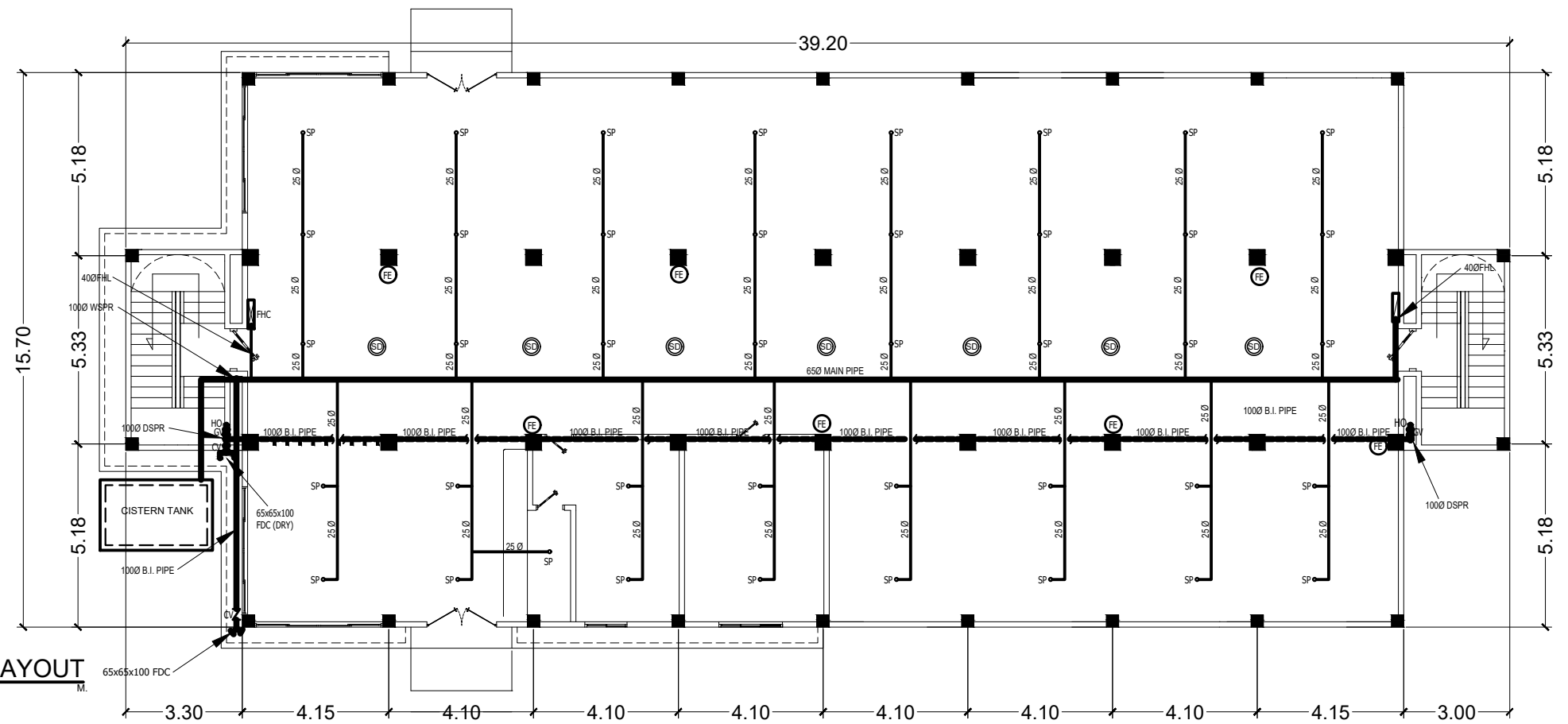
4 IDENTIFICATION SIGNS
 ME-2 NOT TO SCALE

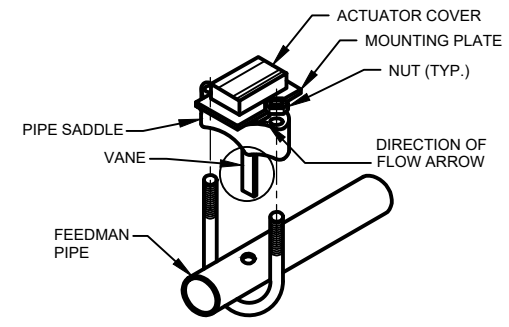
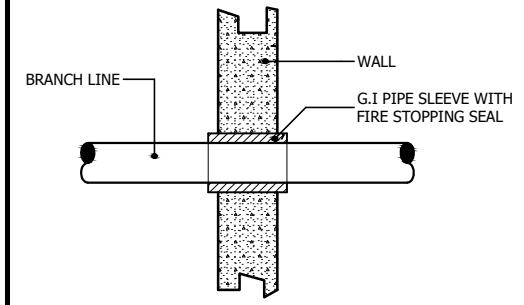
2 UPPER GROUND FLOOR FIRE PROTECTION LAYOUT
 ME-2 SCALE 1:100



3 DETAIL OF SPRINKLER HEAD
 ME-2 NOT TO SCALE

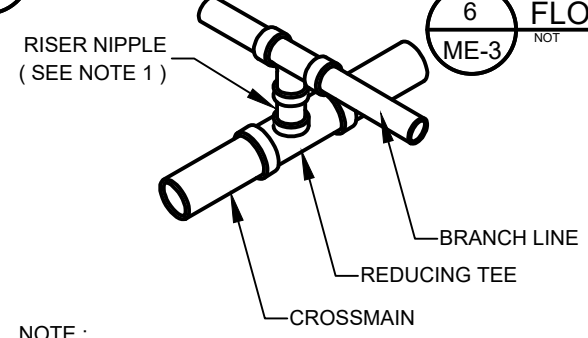
1 LOWER GROUND FLOOR FIRE PROTECTION LAYOUT
 ME-2 SCALE 1:100





4 DETAIL OF PIPE SLEEVE
ME-3 NOT TO SCALE

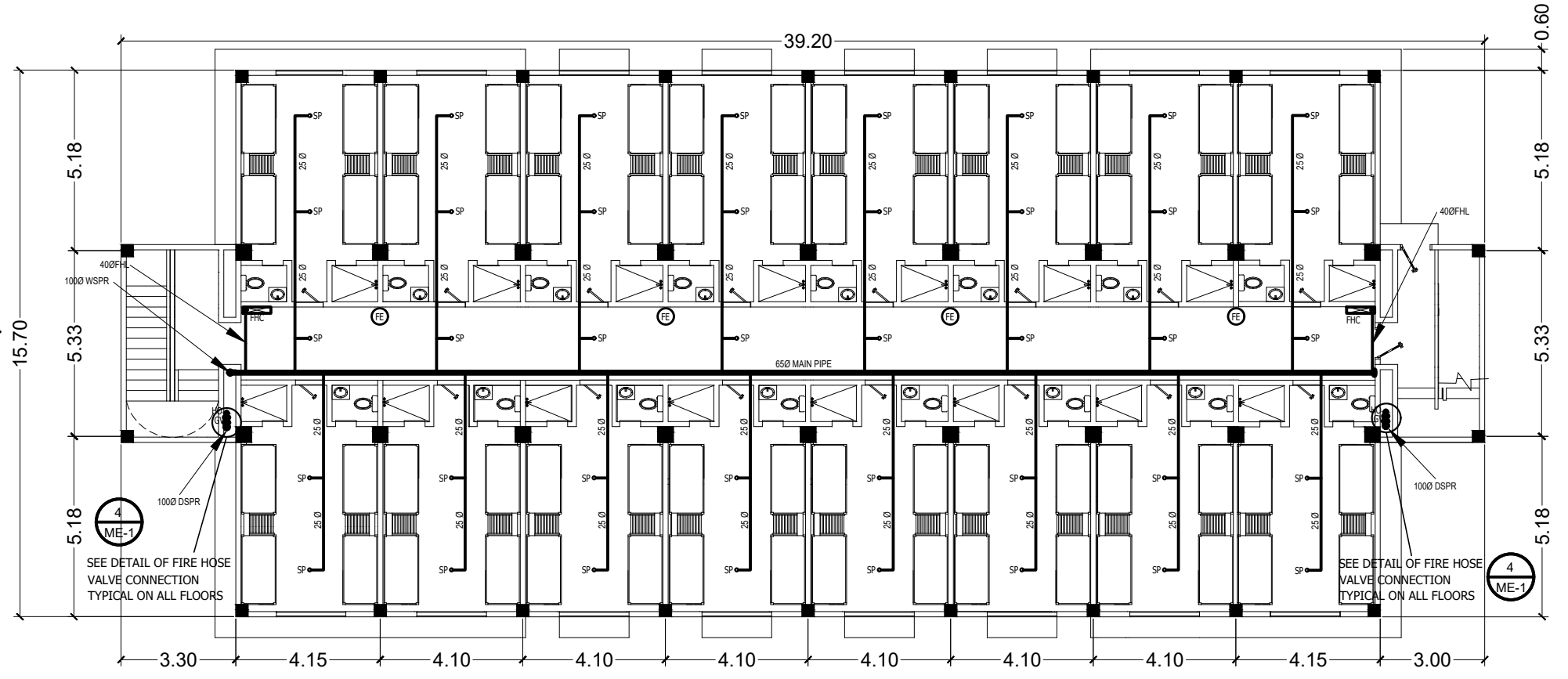
6 FLOW SWITCH INSTALLATION DET.
ME-3 NOT TO SCALE



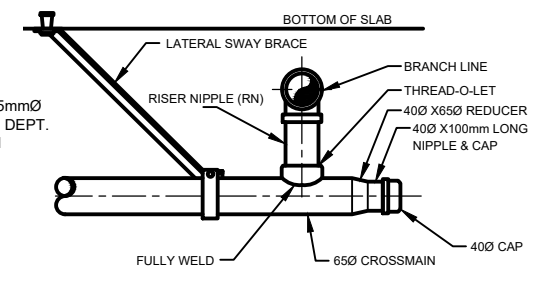
NOTE :
1. ALTERNATIVE CONNECTION IS THRU THE USE OF BOLTED MECHANICAL BRANCH CONNECTION SIMILAR TO "VICTAULIC" MECHANICAL TEE OR CROSS. IF MECHANICAL CROSS IS USED, RISER NIPPLE IS NOT REQUIRED.
2. THE USE OF SCREWED CROSS FITTING IS NOT ACCEPTABLE
3. THE USE OF THREDOLET OR WELDOLET IS NOT ACCEPTABLE

5 CROSSMAIN TO BRANCH LINE DET.
ME-3 NOT TO SCALE

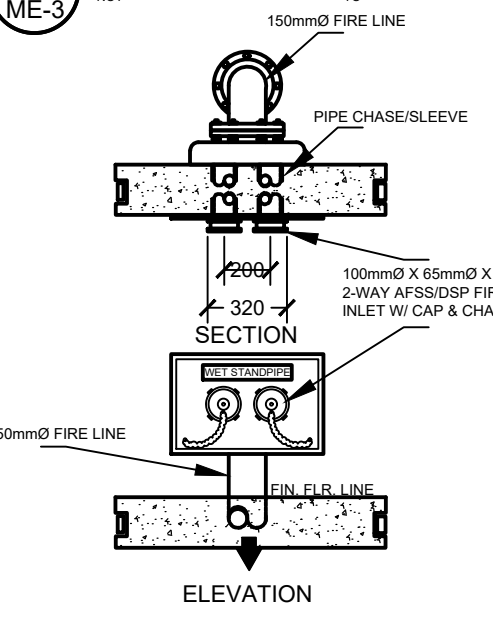
2 THIRD FLOOR FIRE PROTECTION LAYOUT
ME-3 SCALE 1:100 M.



3 DETAIL OF FIRE DEPT. CONNECTION
ME-3 NOT TO SCALE

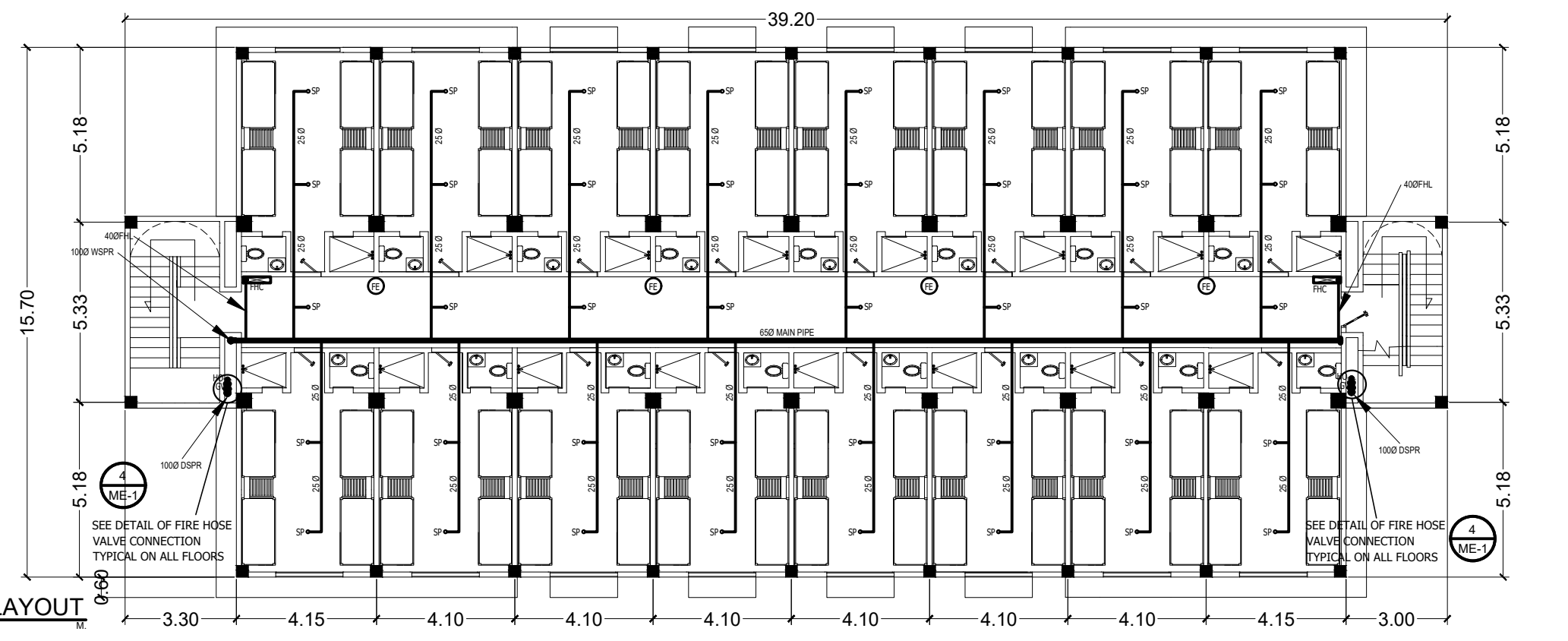


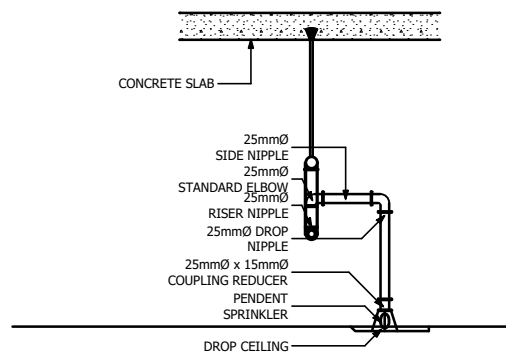
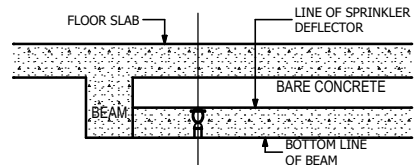
7 FLUSHING CONNECTION & LATERAL SWAY BRACE
ME-3 NOT TO SCALE



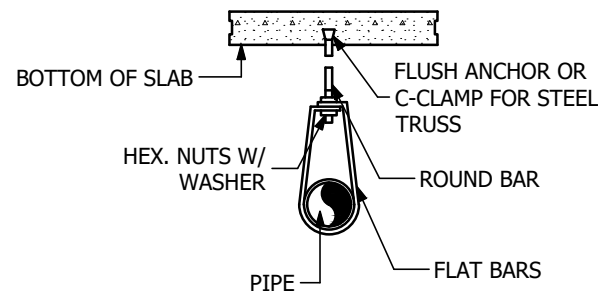
3 DETAIL OF FIRE DEPT. CONNECTION
ME-3 NOT TO SCALE

1 SECOND FLOOR FIRE PROTECTION LAYOUT
ME-3 SCALE 1:100 M.



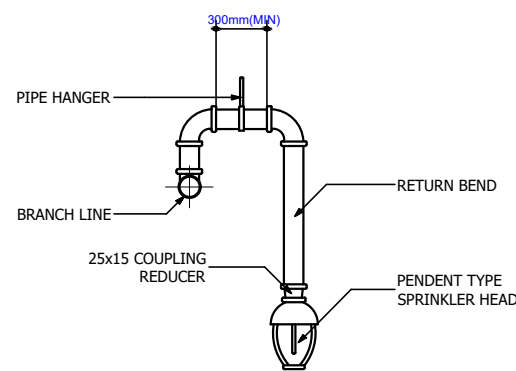


2 ME-4 NOT TO SCALE
DETAIL OF PENDENT / UPRIGHT CONNECTION

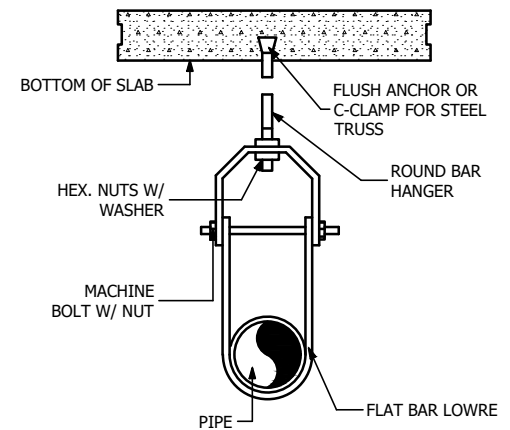


PIPE SIZE		STEEL PLATE BAR	ROD DIA.
mm.	in.	(thick x width)	mm. in.
25	1	3.2 x 19 mm	9.5 3/8
32	2.25	3.2 x 19 mm	9.5 3/8
40	1.50	3.2 x 19 mm	9.5 3/8
50	2	3.2 x 19 mm	9.5 3/8

3 ME-4 NOT TO SCALE
DETAIL OF ADJUSTABLE FLAT IRN TYPE

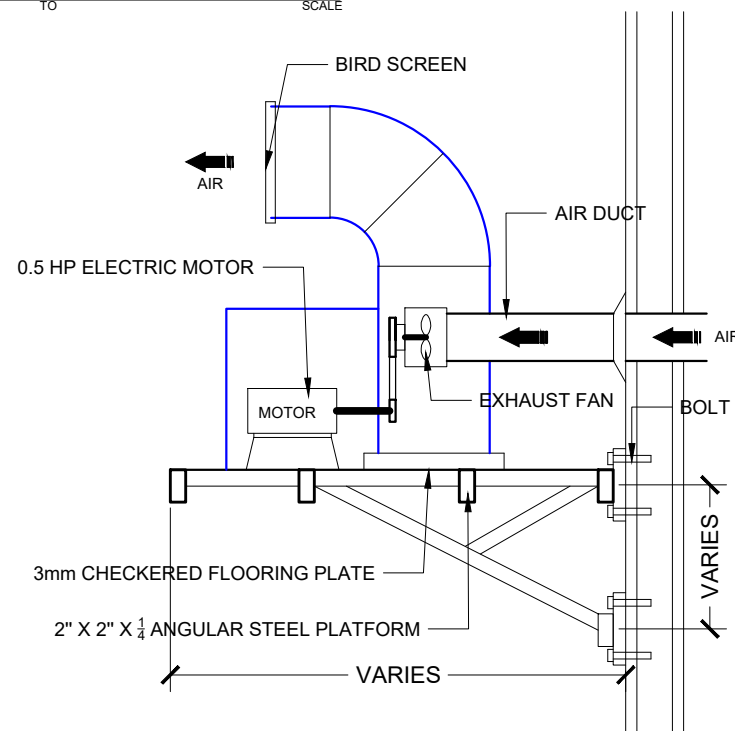


4 ME-4 NOT TO SCALE
DETAIL OF TYP. BRANCH PIPE

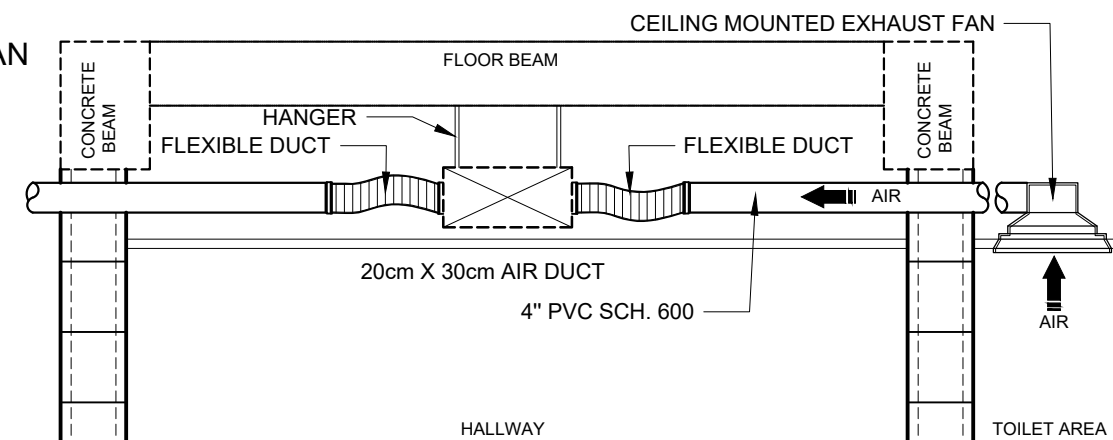
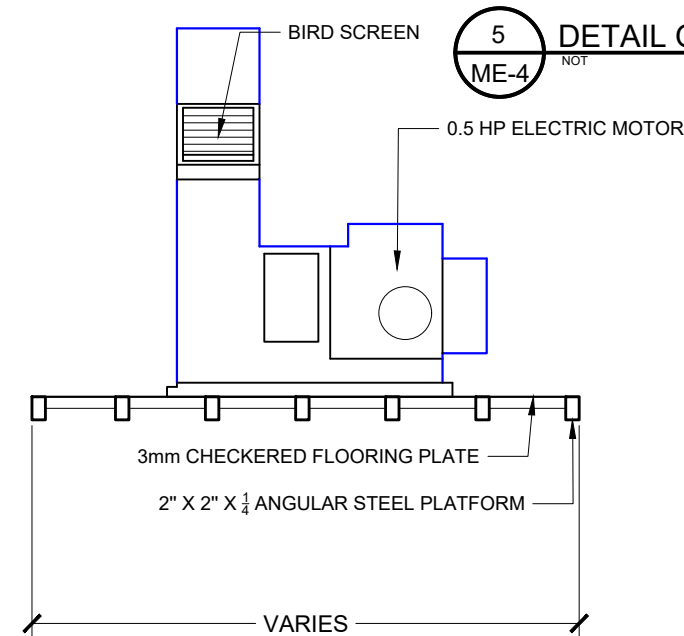


PIPE SIZE		STEEL PLATE BAR		ROD DIA.	MACHINE BOLT W/NUT
mm.	in.	LOWER(thk x W)	LOWER(thk x W)	mm. in.	(DIA. x L) mm
50	2	3.2 x 25 mm	4.8 x 25 mm	9.5 3/8	9.5Ø x 100 mm. L
65	2 1/2	3.2 x 25 mm	4.8 x 25 mm	9.5 3/8	9.5Ø x 115 mm. L
80	3	3.2 x 25 mm	4.8 x 25 mm	9.5 3/8	9.5Ø x 127 mm. L
100	4	3.2 x 25 mm	4.8 x 25 mm	9.5 3/8	9.5Ø x 165 mm. L
150	6	4.8 x 32 mm	6.4 x 32 mm	12.0 1/2	12.0Ø x 216 mm. L

5 ME-4 NOT TO SCALE
DETAIL OF ADJUSTABLE CLEVER HANGER TYPE



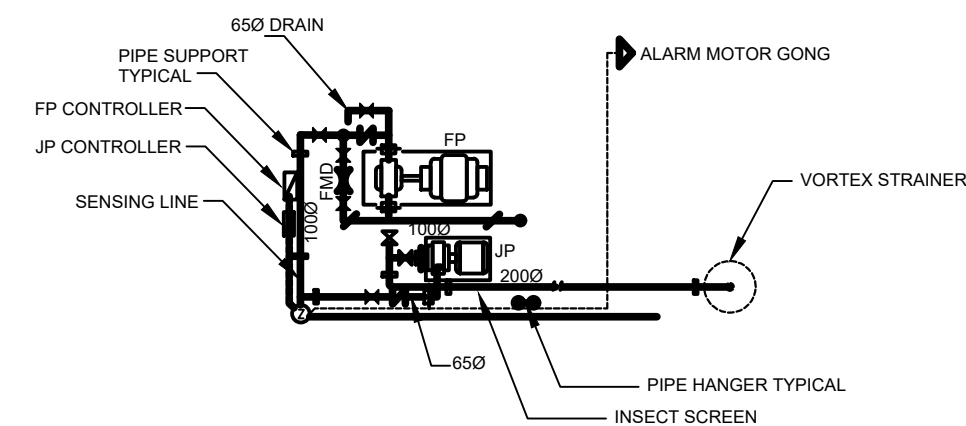
6 ME-4 NOT TO SCALE
DETAIL OF EXTERNAL EXHAUST FAN



7 ME-4 NOT TO SCALE
DETAIL OF EXHAUST DUCT @ HALLWAY

PUMP SCHEDULE

MARK	SERVICE	TYPE	CAPACITY GPM	HEAD FT (PSI)	ELECTRICAL SPECIFICATION				REMARKS
					HP	VOLTS	PHASE	Hz	
FP 1	FIRE PUMP	HORIZONTAL SPLIT CASE TYPE	250 gpm	90 psi	2.0	220	3	60	• SEE SPECIFICATION FOR PUMP DESCRIPTION AND ACCESSORIES
JP 1	JOCKEY PUMP	HORIZONTAL SPLIT CASE	25 gpm	90 psi	2	220	3	60	• ON EMERGENCY POWER



1 ME-4 NOT TO SCALE
FIRE PUMP & JOCKEY PUMP DETAIL

