

ELECTRICAL DRAWINGS FOR PROPOSED FUEL RETAIL OUTLET, G+1 STORIED SALES BUILDING AND OTHER STRUCTURES.

LOCATION: DAMCHU-CHUKHA BYPASS ROAD
(TRI-JUNCTION), BJABCHHOG GEWOG,
CHUKHA DZONGKHAG.

OWNER: STATE TRADING CORPORATION OF
BHUTAN LTD. THIMPHU

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gdsbhutan@gmail.com
+975 17631322/77845668

OFFICE: FLAT NO 8,GONGDZIN LAM
ABOVE 8/11 CONVENIENT STORE
NEXT TO THIMPHU THROMDE BUILDING
THIMPHU:BHUTAN

PROJECT:

TITLE: FUEL RETAIL OUTLET
LOCATION: TRI-JUNCTION, CHUKHA
OWNER: STCBL
PLOT ID: LBJA-2
CERTIFICATE NO.: CHH-20-8
FLOORS: G+1 STRUCTURE

K:\STCBL\logo.png

OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/00

REVISION SUFFIX

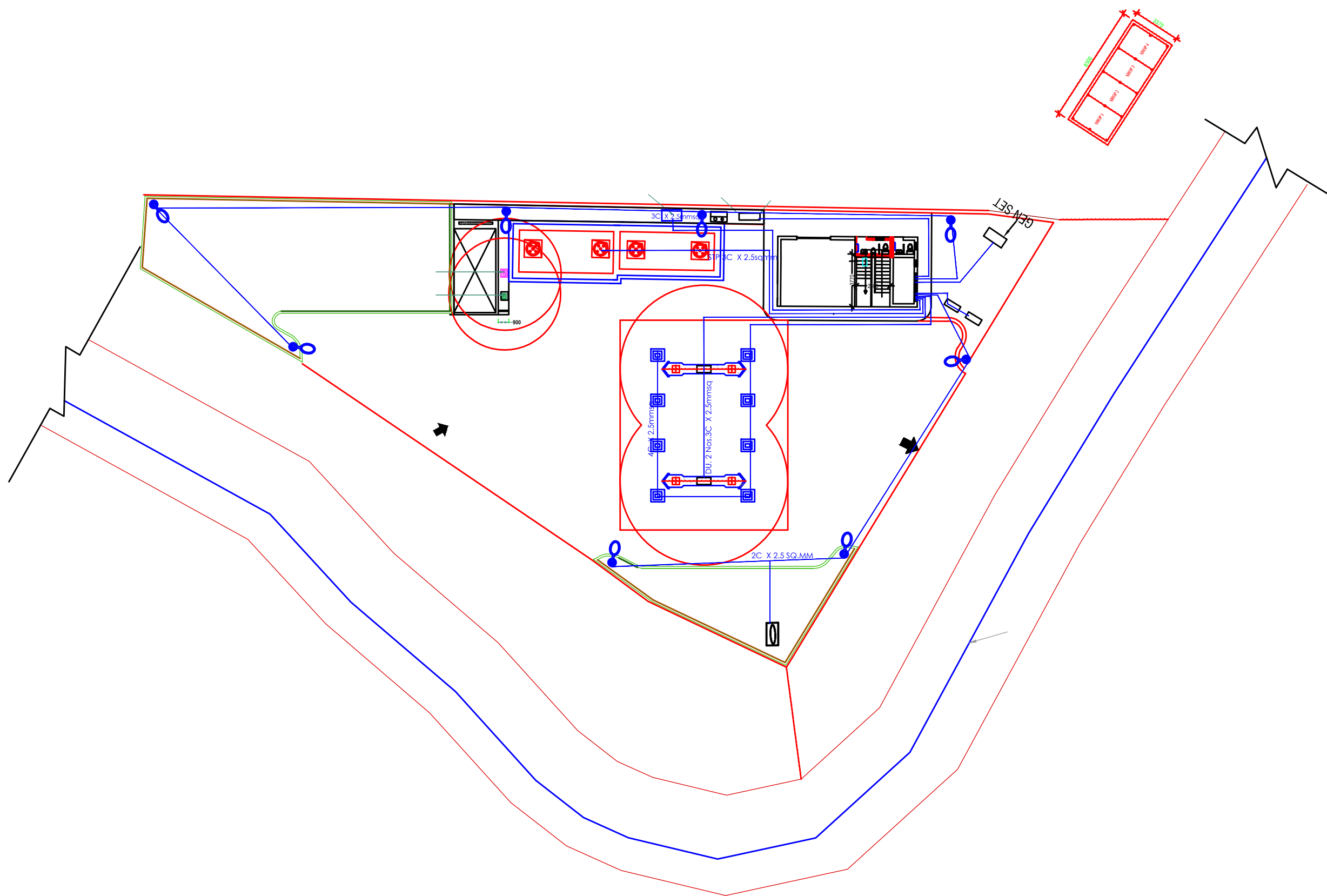
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PIPE AND WIRING CONNECTION

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DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/02

REVISION SUFFIX

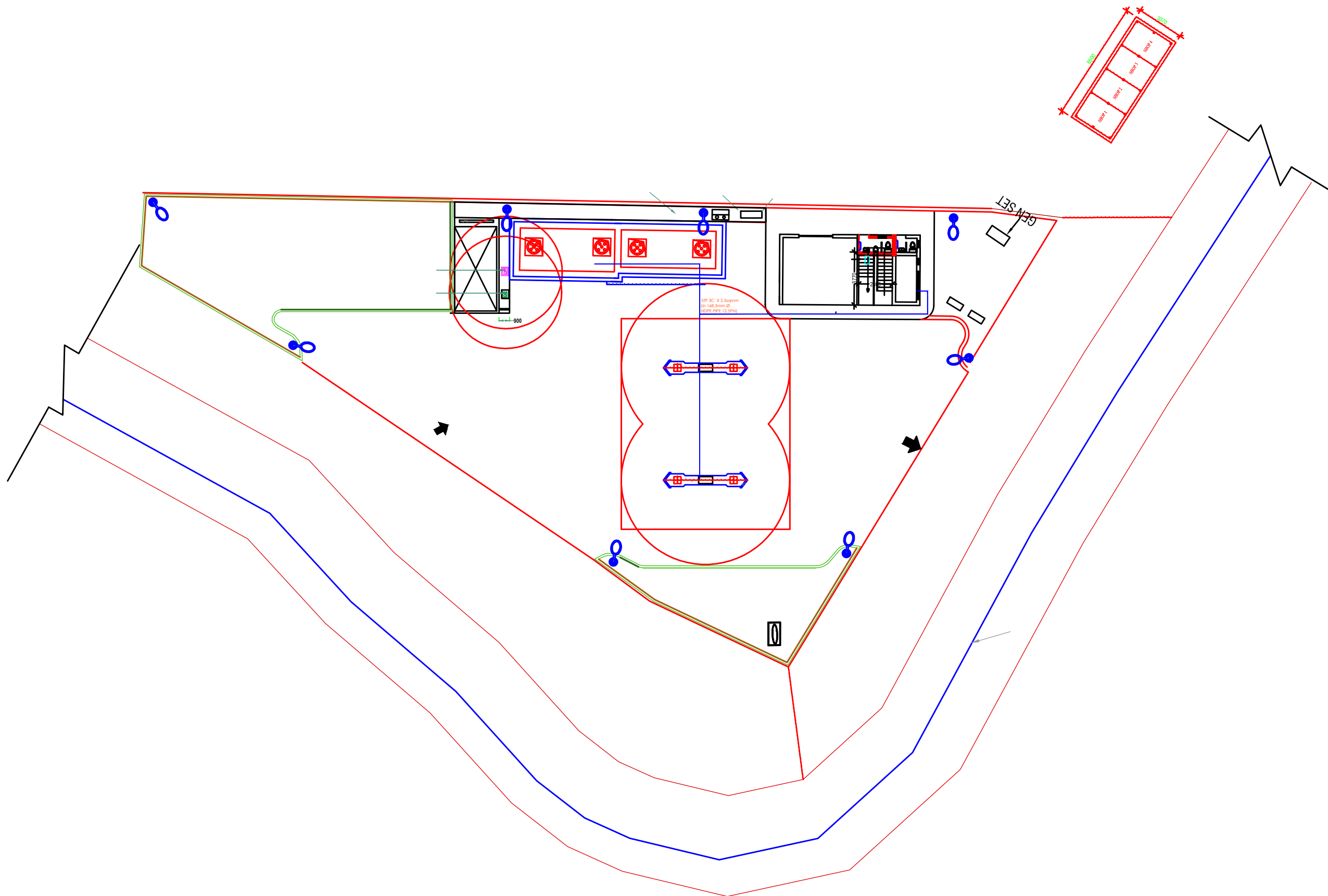
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ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/03

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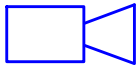
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SPECIFICATION FOR ELECTRICAL WORKS:



80 Watt LED light



CCTV



1x36 Watts - LED Tube light Surface Fitting



Bulk Head fitting, 60W



1x13 Watts - Flourescent Tubelight/CFL Surface Fitting



0.5 Watt - LED Dim light (taken 20Watt for calculation)



1x80 Watts - 300mm Exhaust Fan



Ceiling Fan, 1400mm Sweep ,60W



6A- One Way Switch (Modular)



Mirror light luminaries, 13W



5pin, 16A- 2000 Watts Socket Outlet (universal)



3pin, 6A- 1000 Watts Socket Outlet (Universal)



Switch board with 6 A switch



Television Socket Outlet



Television Distribution Box



Telephone Socket Outlet



Telephone Terminal Cabinet



Sub - Distribution Board



Main Distribution Board

1. ALL LIGHT POINT WIRING SHALL BE WITH 1.5 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
2. ALL LIGHT CIRCUIT WIRING SHALL BE WITH 2.5 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
3. ALL POWER POINT WIRING SHALL BE WITH 4 SQ. MM. PVC INSULATED FIRE RESISTANT COPPER CONDUCTOR 1.1 KV GRADE IN RECESSED HDPE PIPE.
4. ALL THE LIGHT SWITCH BOARDS SHALL BE 23CM AWAY FROM DOOR FRAME/EDGE OF WALL AND 1.5M ABOVE THE FINISHED FLOOR LEVEL (FFL).
5. ALL POWER POINTS IN THE ROOM SHALL BE AT 30CM FROM FINISHED FLOOR LEVEL AND IN TOILETS AND PANTRY AT 1.5M, FROM FFL.
6. ALL THE CONDUIT ACCESSORIES ARE THREADED TYPE ONLY.
7. LAYOUT INDICATES 25MM/32MM DIA. HDPE CONDUIT AS PER THE REQUIREMENT.
8. NO PHASE DIFFERENCE IS ALLOWED TO BE DRAWN THROUGH THE SAME CONDUIT.
9. POWER POINTS SHALL NOT BE LOOPED.
10. ALL WALL FIXTURES SHALL BE AT A HEIGHT OF 2.75 M FROM FINISHED FLOOR LEVEL (FFL).
11. ALL SUB DISTRIBUTION SHALL BE IN RECESSED.
12. TTC (TELEPHONE TERMINAL CABINET) & TV-DB (TELEVISION - DISTRIBUTION BOARD) SHALL BE AT THE GROUND FLOOR.
13. MDB (MAIN DISTRIBUTION BOARD) SHALL BE AT THE BASEMENT OR GROUND FLOOR.
14. SOME ASSUMPTION AND LOADS ARE AS FOLLOWS FOR THE MAIN DISTRIBUTION BOARD.
 - (A) CONNECTED LOADS - 154,780 WATT
 - (B) DEMAND LOADS - 92,868 WATT
 - (C) POWER FACTOR - 0.85
 - (D) LOAD FACTOR - 0.6
 - (E) VOLTAGE - 415 V
 - (F) CURRENT DRAWN AS PER CONNECTED LOAD - 253.33 A
 - (G) CURRENT DRAWN AS PER DEMAND LOAD - 152 A

SPECIFICATION FOR TELEPHONE & TV WORKS:

1. TELEPHONE & TV CABLE DUCT SHALL BE WITH 25MM DIA. CONDUIT.
2. TELEPHONE AND TELEVISION CABLE DUCT MUST BE AT LEAST 0.5M AWAY FROM ELECTRICAL ROUTE.
3. TELEPHONE TERMINAL CABINET (TTC) AT 1.5M ABOVE FINISHED FLOOR LEVEL AND SHOULD BE WATER TIGHT AND MOISTURE PROOF.
4. TELEPHONE SOCKET OUTLET SHALL BE WITH 2 PIN, RJ-11 AT 25CM ABOVE FINISHED FLOOR LEVEL.
5. BRIDGE METHOD SHOULD BE FOLLOWED AT THE CROSSING.
6. TELEPHONE AND TV LINES SHALL BE ROUTED THROUGH SEPARATE DUCTS.

TEST RESULTS:

1. POLARITY TEST : - ALL THE SWITCHES MUST BE ON THE LIVE CONDUCTOR.
2. INSULATION TEST : - MINIMUM TEST RESULT SHOULD NOT BE LESS THAN 1 MEGA OHM.
3. EARTH CONTINUITY TEST : - LOW VOLTAGE LAMP TEST SHOULD SATISFY THE WHOLE INSULATION.
4. EARTH TEST : - TEST RESULTS SHOULD BE WITHIN 5 OHMS.

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DRAWING TITLE:

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SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/04

REVISION SUFFIX

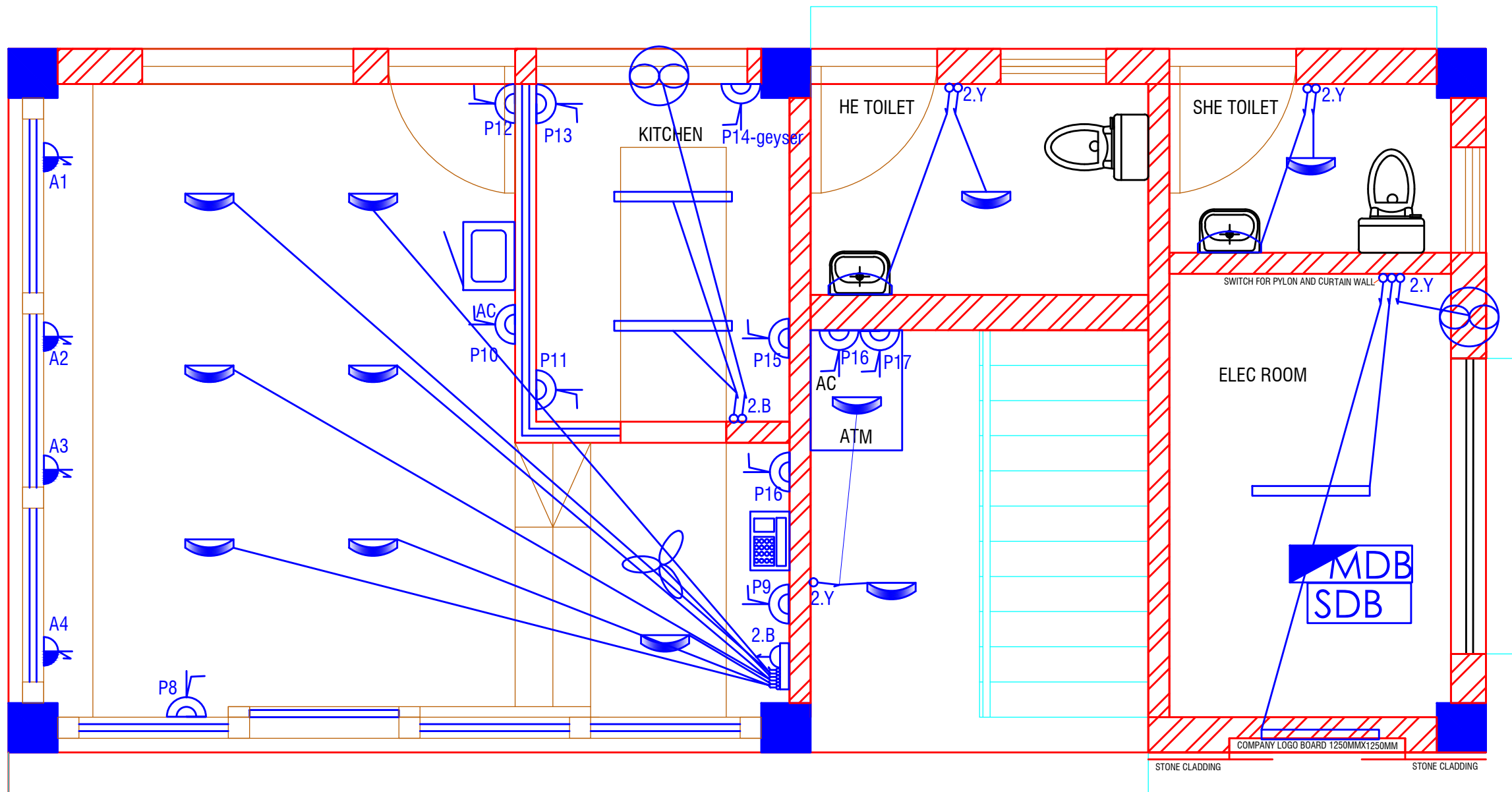
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DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/05

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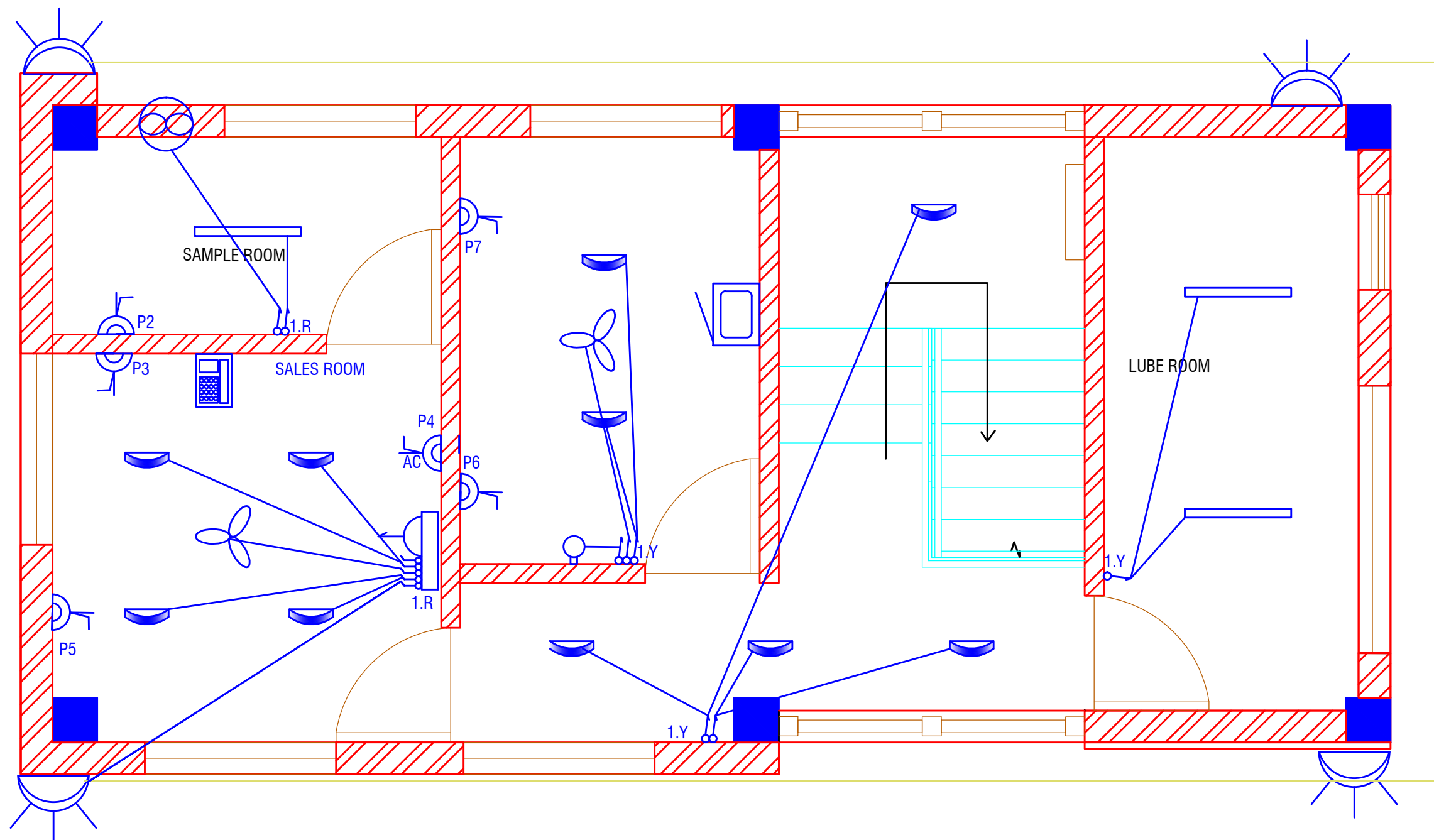
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DRAWING : ELECTRICAL

SHEET NO : EL/06

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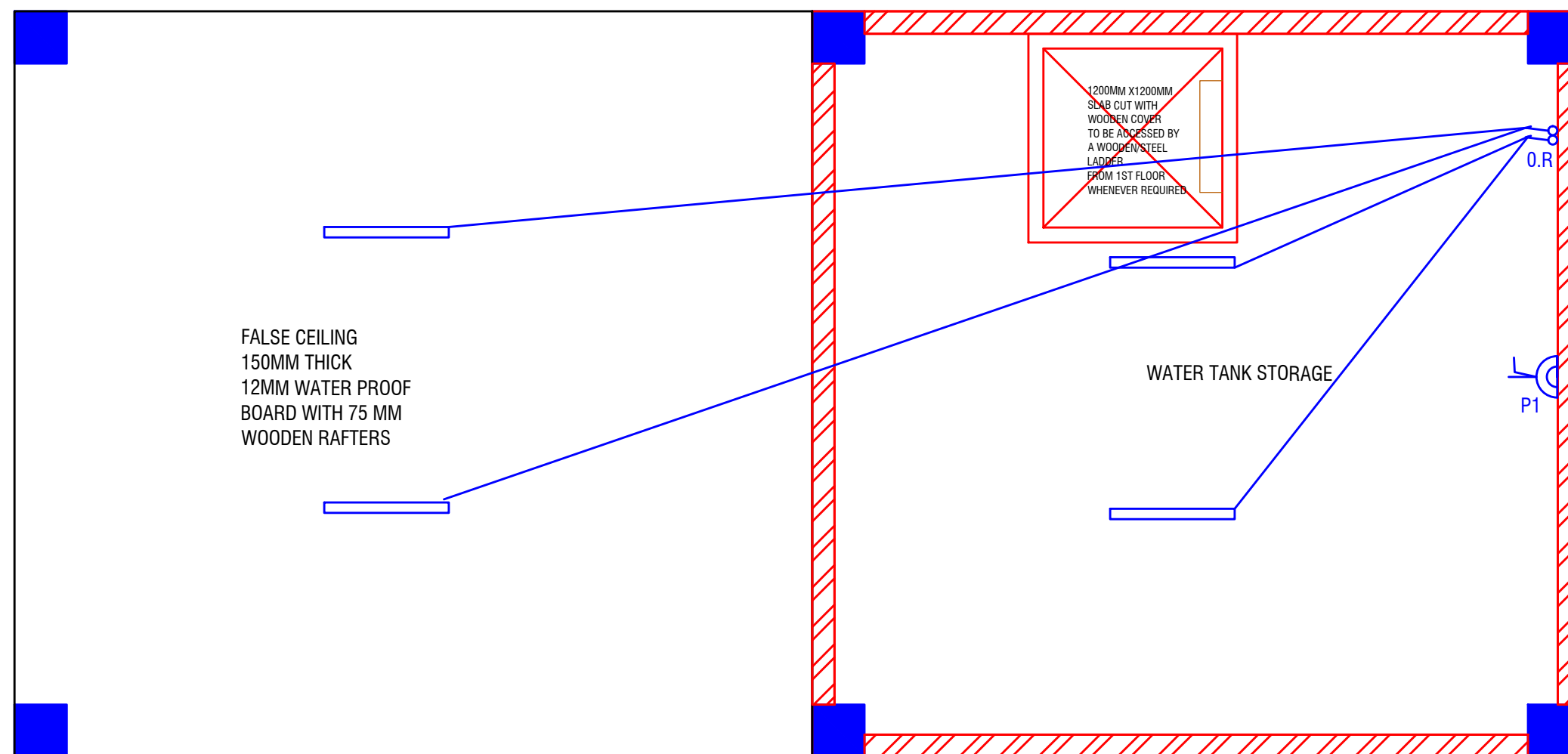
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FLOORS: G+1 STRUCTURE**

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DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/07

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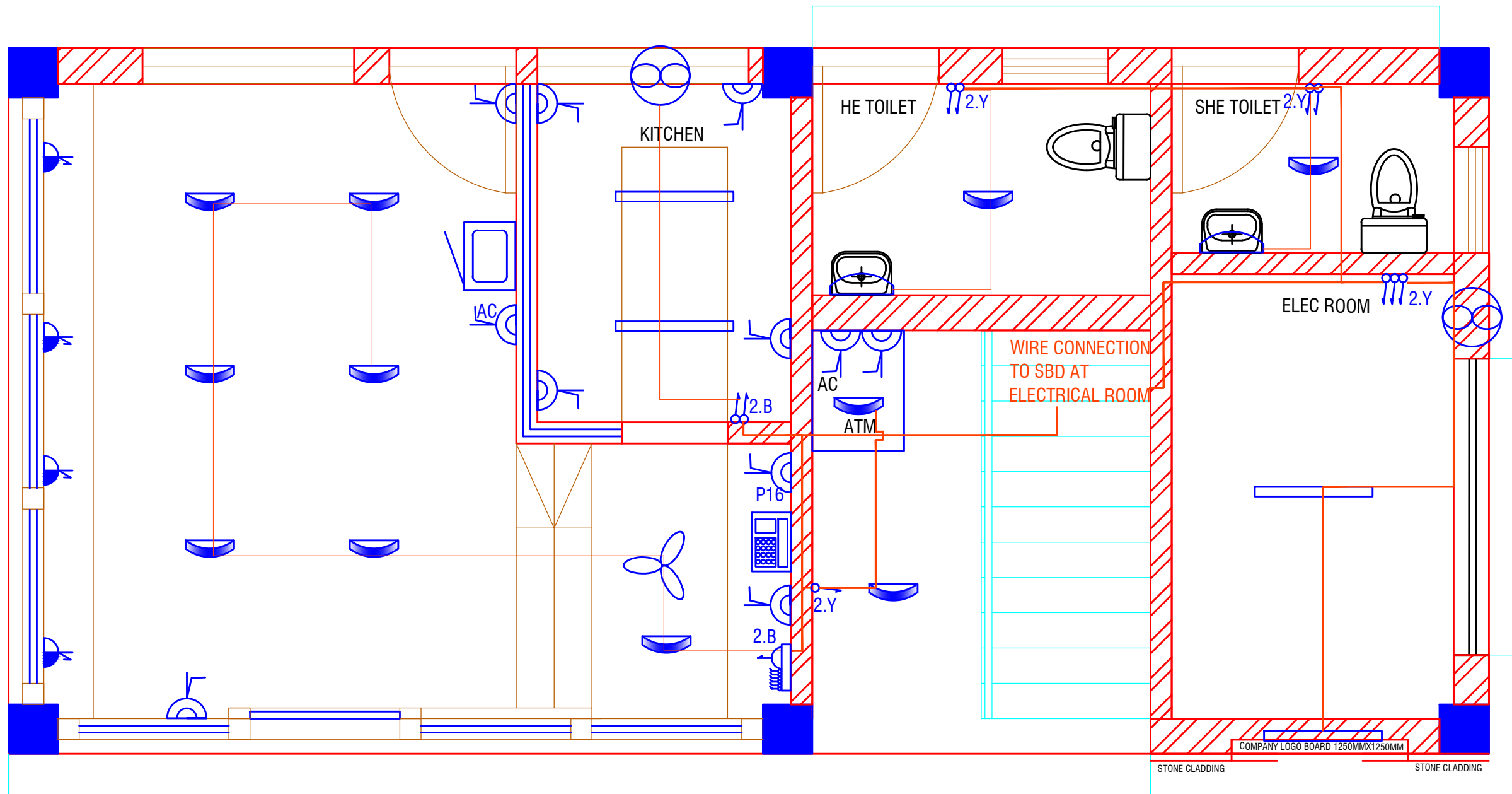
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Ground Floor Fitting and fixture with conduit layout

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FLOORS: G+1 STRUCTURE

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DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/08

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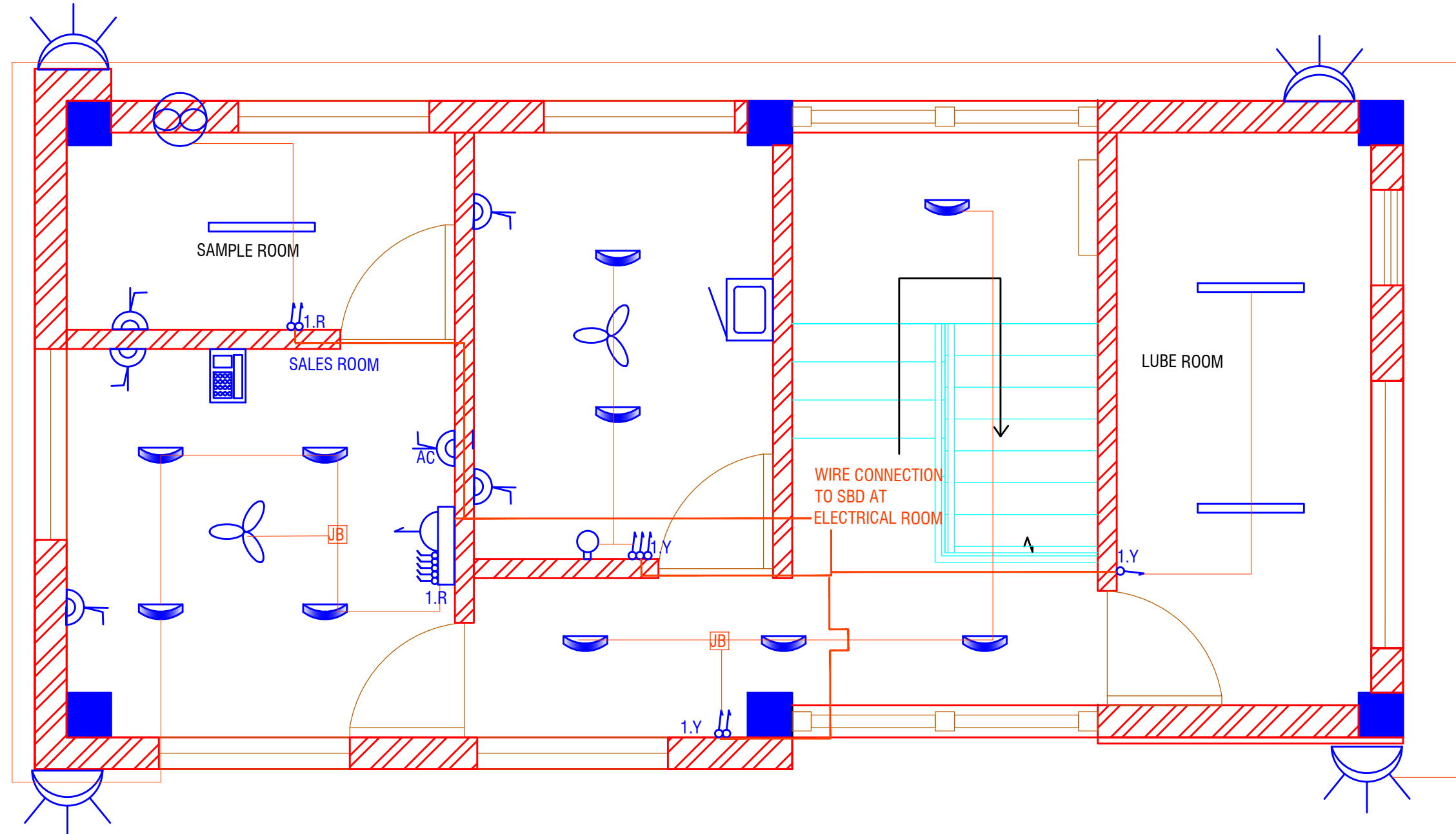
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PLOT ID: LBJA-2
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FLOORS: G+1 STRUCTURE

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DESIGNED BY:

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ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

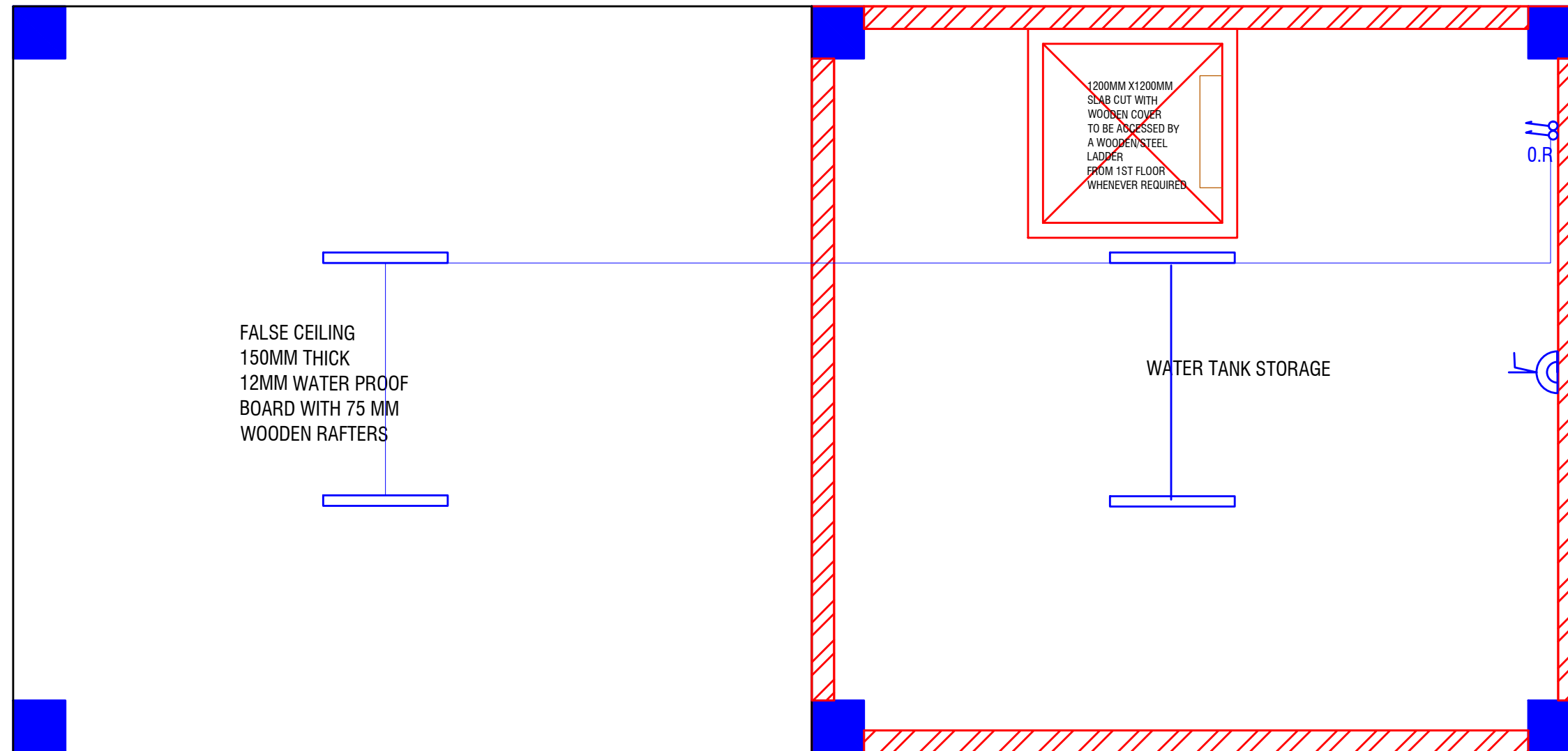
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REVISION SUFFIX NORTH

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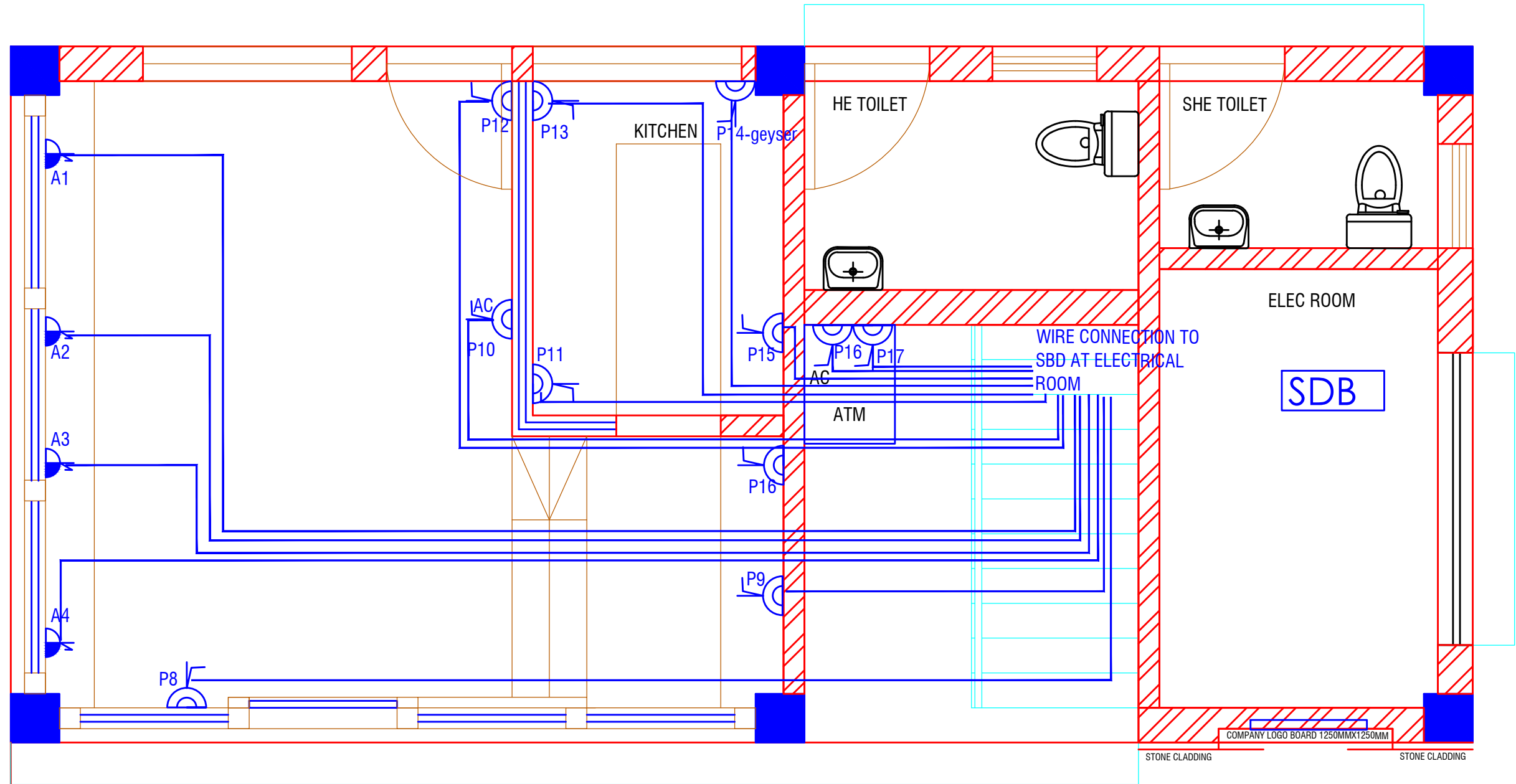
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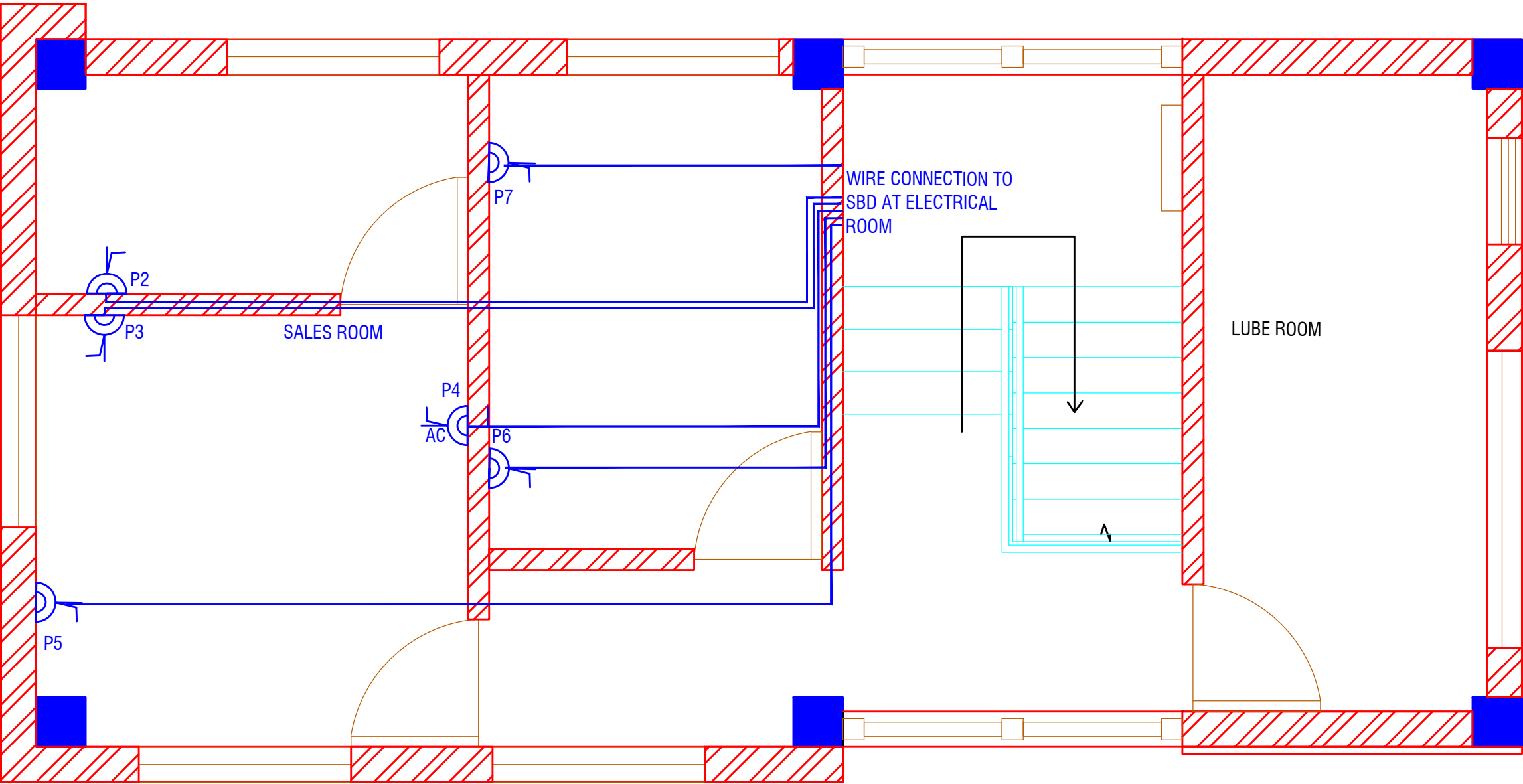


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Ground Floor power point with conduit layout



First Floor power point with conduit layout

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SHEET NO : EL/12

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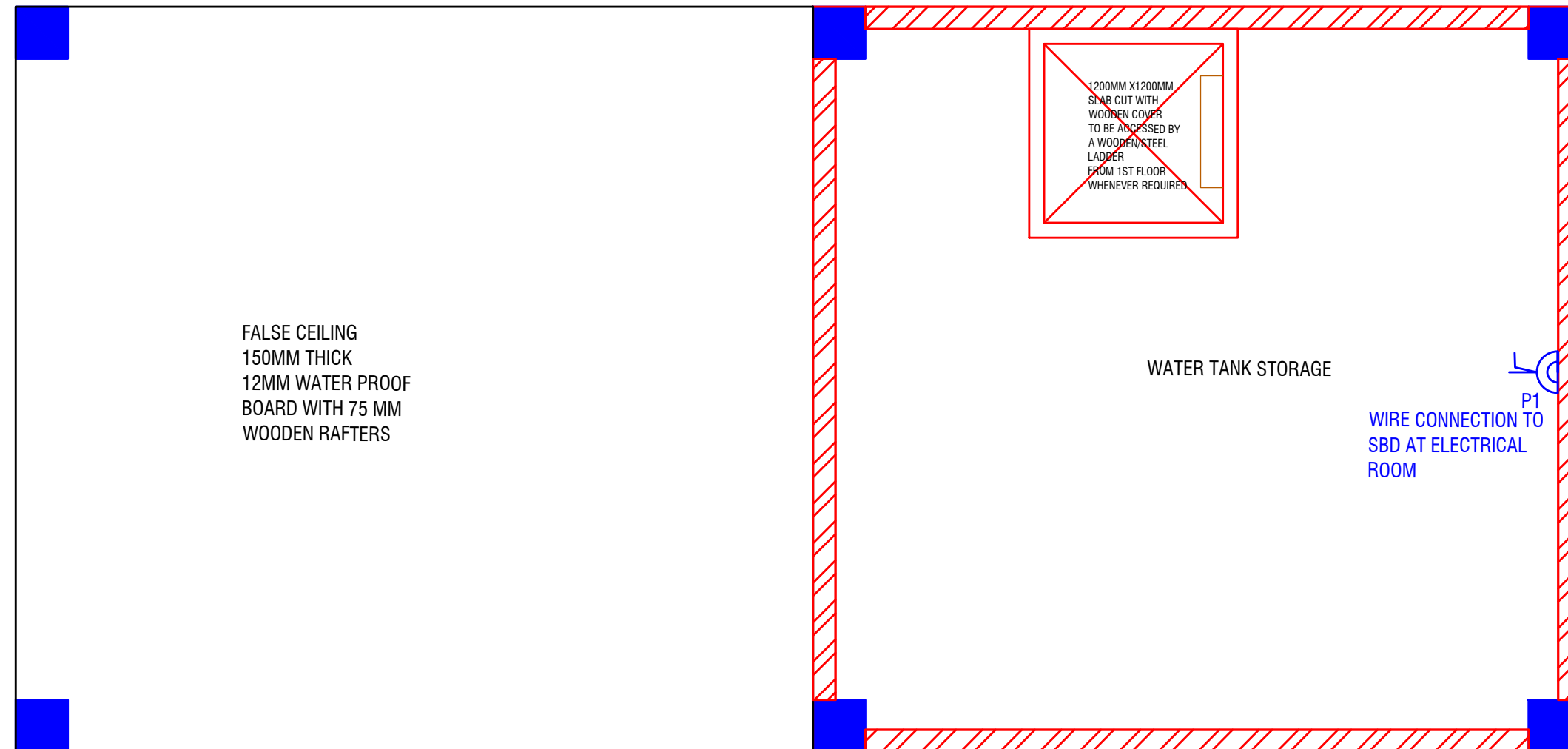
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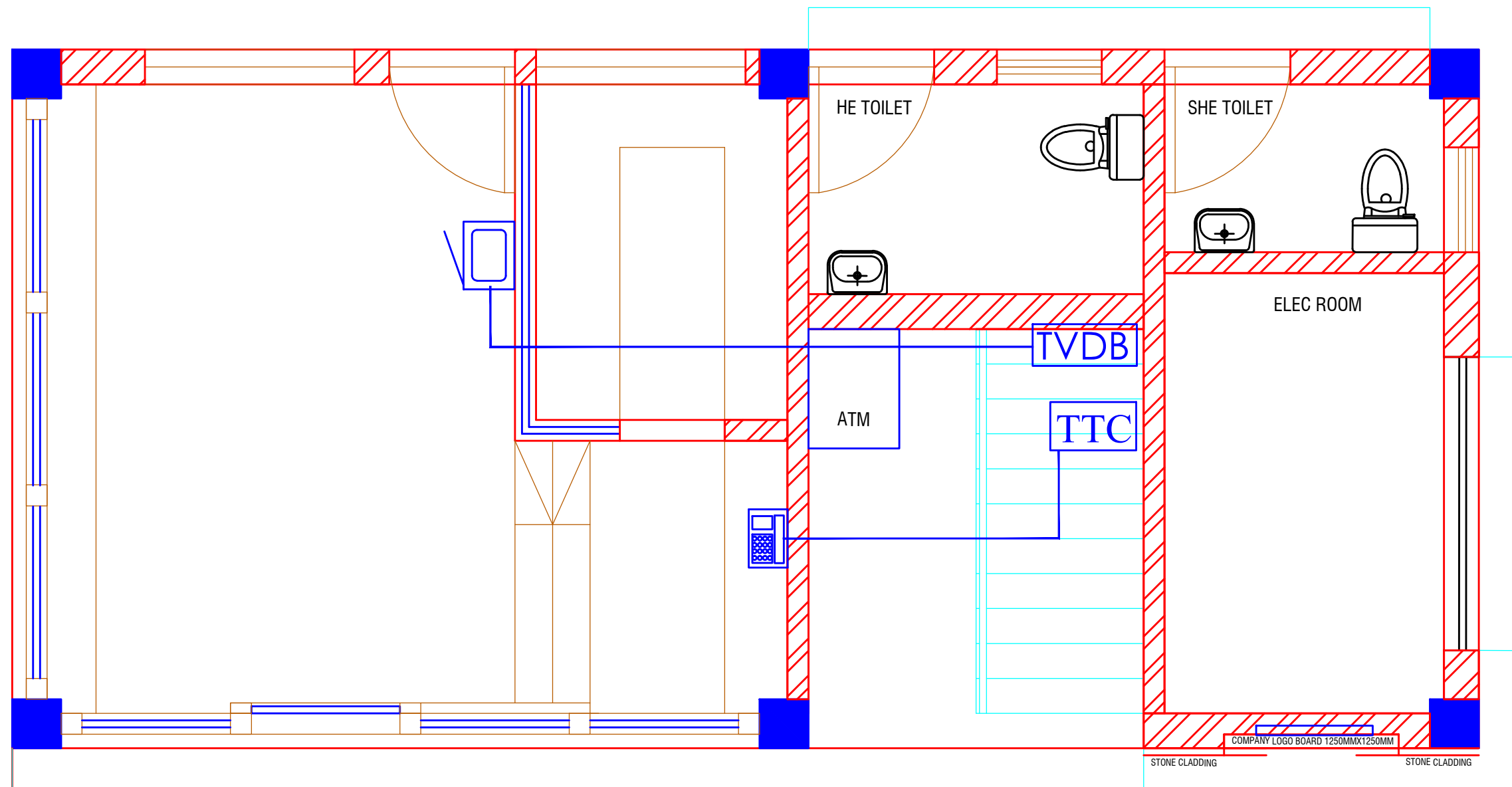
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Ground Floor TV and Telephone layout

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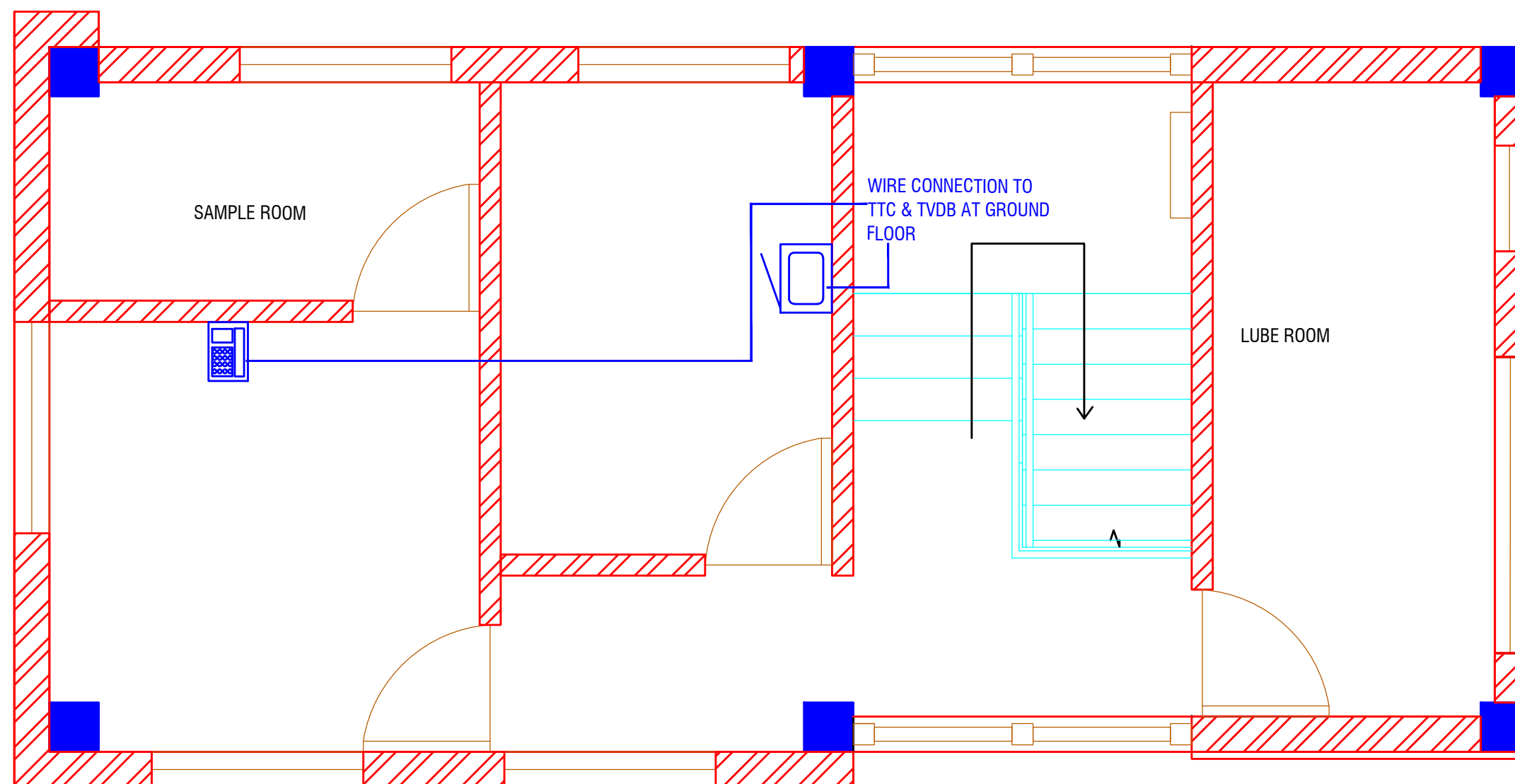
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DESIGNED BY:
MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/15

REVISION SUFFIX

□ □ □ □ □

NORTH



GENERAL NOTE:

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Load distribution

Circuit	R-phase	Y-phase	B-phase
Ckt-1	283	1000	1000
ckt-2	2000	1000	1000
Ckt-3	2000	2000	2000
Ckt-4	1000	1000	1000
Ckt-5	0	1000	1000
Ckt-6	0	0	0
Total	5283	6000	6000
Total connected load			17283

Total Connected load (Watt)		
R-phase	Y-phase	B-phase
5283	6000	6000
Total connected load (watt)		17283
Assumed Load factor		80%
Minimum Pf		85%
Calculated load current at 80% L.F (Amps)		22.6305

Commercial space

Circuit	R-phase	Y-phase	B-phase
Ckt-1	384	298	330
ckt-2	1000	1000	1000
Ckt-3	1000	1000	1000
Ckt-4	1000	2000	2000
Ckt-5	940	900	2000
Ckt-6	2000	2000	2000
Ckt-7	2000	0	0
Total	8324	7198	8330
Total connected load			23852

Total Connected load (Watt)		
R-phase	Y-phase	B-phase
8324	7198	8330
Total connected load (watt)		23852
Assumed Load factor		80%
Minimum Pf		85%
Calculated load current at 80% L.F (Amps)		31.23109

Sales building & outside lightning

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OFFICE: FLAT NO 8,GONGDZIN LAM
ABOVE 8/11 CONVENIENT STORE
NEXT TO THIMPHU THROMDE BUILDING
THIMPHU:BHUTAN

PROJECT:

TITLE: FUEL RETAIL OUTLET
LOCATION: TRI-JUNCTION, CHUKHA
OWNER: STCBL
PLOT ID: LBJA-2
CERTIFICATE NO.: CHH-20-8
FLOORS: G+1 STRUCTURE

K:\STCBL\logo.png

OWNER SIGNATURE

DESIGNED BY:

MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/16

REVISION SUFFIX

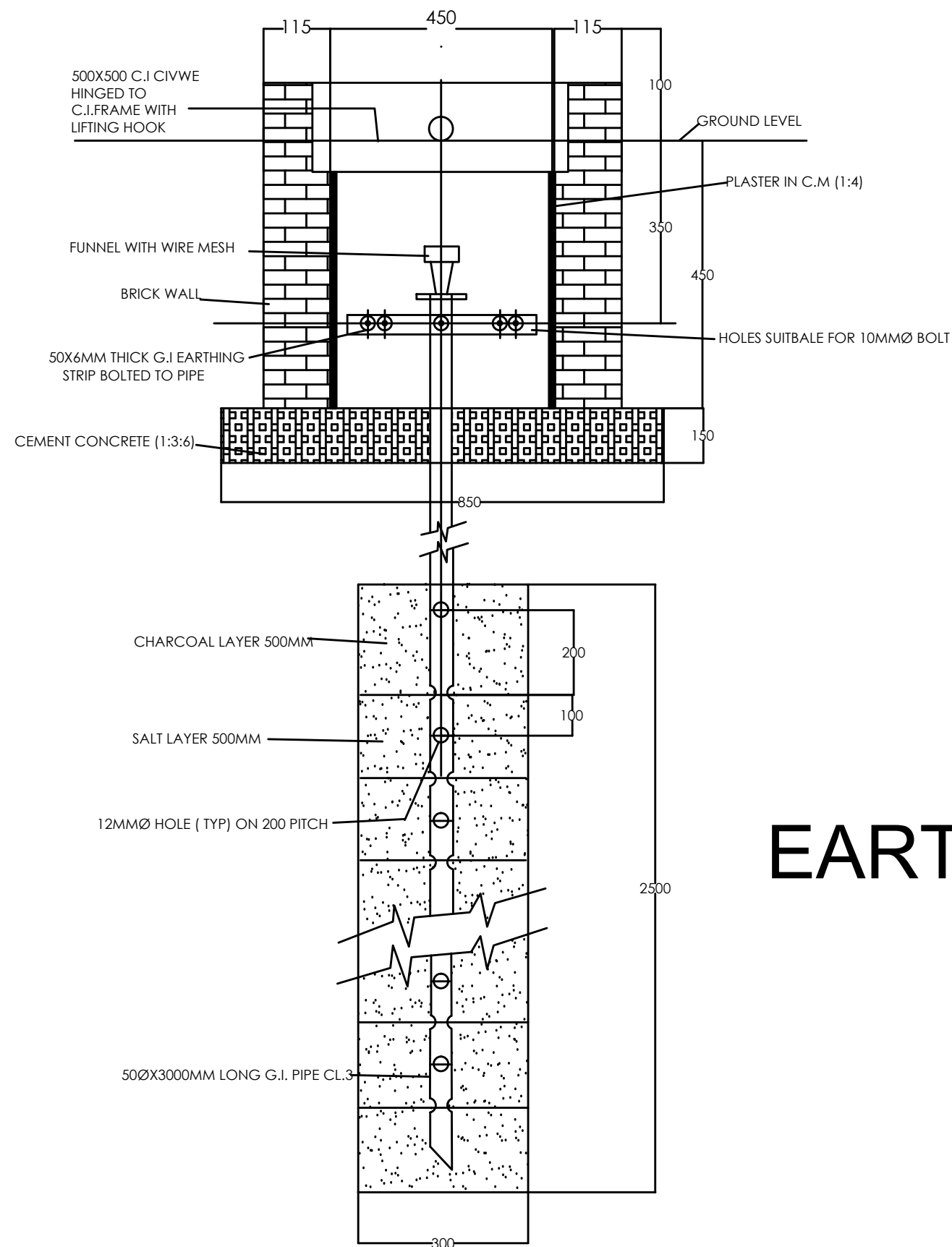
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NORTH



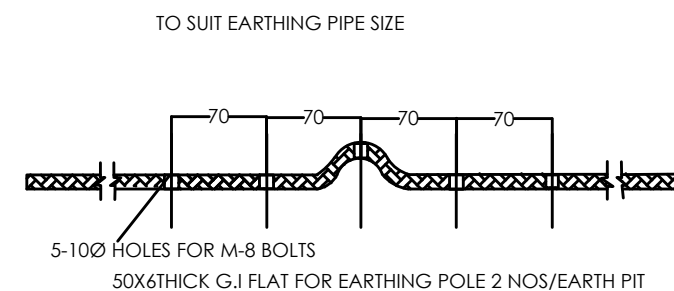
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SL.NO	DESCRIPTION	SIZE	QTY	MAT
1	PIPE FOR EARTHING	50ØX300 LG	1	G.I
2	CHARCOAL		100 KG	
3	ROCK SALT		100 KG	
4	FUNNEL WITH WIRE MESH	6" Ø MOUTH	1	G.I
5	HEX.BOLT WITH NUT & WASHER	M-8 X 30 LG	5	G.I
6	EARTHING STRIP	400 X 50 X 6 THICK	2	G.I

THE EARTHING SHALL BE AS PER IS-3043-1987



EARTHING DETAILS

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FLOORS: G+1 STRUCTURE

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OWNER SIGNATURE

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DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/17

REVISION SUFFIX

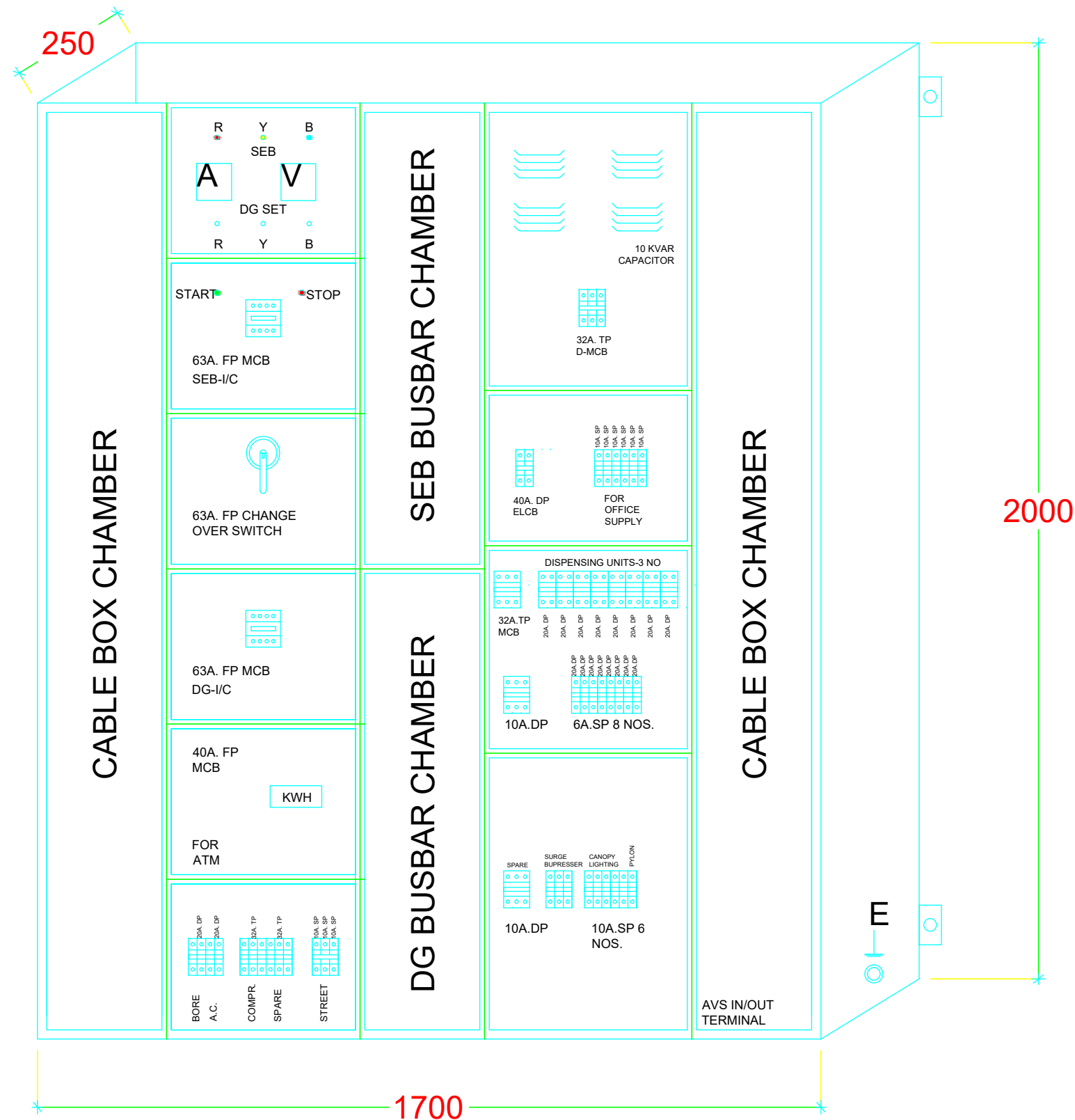
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SPECIFICATION:-
A) CONSTRUCTION: 16 SWG-CRGA SHEET
B) PAINT: POWDER COATING SIEMENS GREY
C) SWITCHGEAR: L&T/SCHNEIDER/C&S
D) BUSBAR: COPPER
E) COS: L&T OR HPL
F) MCB/ & ELCB: HAGAR /SCHNEIDER/C&S
G) CAPACITOR: EPCOS/SIEMENS
H) IND. LAMPS: TECHNIC
I) GLAND PLATE: 14 SWG.
J) PANEL MOUNTING : WALL
K) CABLE ENTRY: BOTTOM

25KW G.A. DRG.

INDEX

R	CONNECTION FROM RED PHASE
Y	CONNECTION FROM YELLOW PHASE
B	CONNECTION FROM BLUE PHASE

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LOCATION: TRI-JUNCTION, CHUKHA
OWNER: STCBL
PLOT ID: LBJA-2
CERTIFICATE NO.: CHH-20-8
FLOORS: G+1 STRUCTURE

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ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/18

REVISION SUFFIX

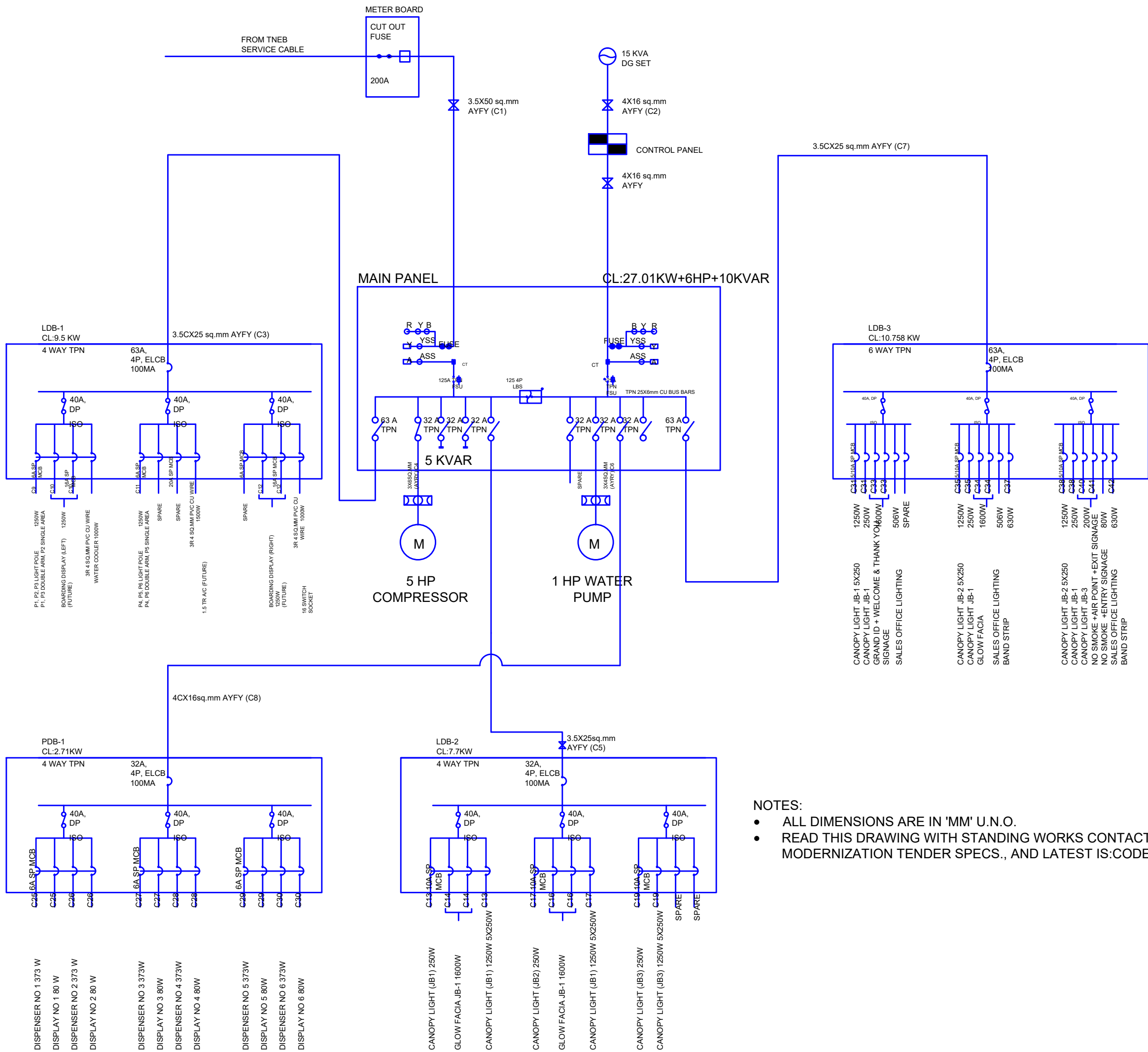
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THIMPHU:BHUTAN

PROJECT:

TITLE: FUEL RETAIL OUTLET
LOCATION: TRI-JUNCTION, CHUKHA
OWNER: STCBL
PLOT ID: LBJA-2
CERTIFICATE NO.: CHH-20-8
FLOORS: G+1 STRUCTURE

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OWNER SIGNATURE

DESIGNED BY:
MANRUPA PRADHAN
ELECTRICAL ENGINEER

DRAWING TITLE:

DATE: JULY 2020

SCALE: NTS

DRAWING : ELECTRICAL

SHEET NO : EL/19

REVISION SUFFIX

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NOTES:

- ALL DIMENSIONS ARE IN 'MM' U.N.O.
- READ THIS DRAWING WITH STANDING WORKS CONTACT FOR MODERNIZATION TENDER SPECS., AND LATEST IS:CODES.

Description	Units	TMTL	KOEL	KOHLER	Mahindra
Genset					
Genset Model		15	KG1-15AS	KES 15	15kVA
Genset Rating	kVA	15	15	15	15
Frequency	Hz	50	50	50	50
Power Factor	Lagging	0.8	0.8	0.8	0.8
Voltage	Volts	230(1Ph)/415(3Ph)	230(1Ph)/415(3Ph)	230(1Ph)/415(3Ph)	230(1Ph)/415(3Ph)
Noise Level	dBA		<75	< 75 dB (A)	75
Fuel Consumption (Ltrs/Hr)	At 100% Load	3.82	4	4	4.55
	At 75% Load	2.75	3	3.4	3.2
	At 50% Load	2	2.2		2.45
Fuel Tank Capacity	Ltrs	100	65	93	90
Overall Dimensions of Genset (LXWXH)	mm	1950 x 900 x 1250	1772X1050X1410	1997 x 950 x 1450	1800X900X1300
Dry Weight of Genset With Canopy(approx.)	Kg	950	950	758	
Electrical Battery Starting Voltage	Volts-DC	12	12	12	12,88Ah
Engine					
Engine Model		322ES	HA294G1	G20-II	3255GMC2
Cooling medium	Air / Water	Air	Air	Air	Water
Rated Power (Gross)	Hp (kW)	25.1 (18.5) (*)	20.5 (15.1)	18.5 (24.8) @ 1500	25 (18.4)
Engine fuel	HSD	Diesel	Diesel	Diesel	Diesel
Aspiration	NA/TC	NA	NA	Natural	NA
Number of stroke	Nos	4	4		4
Number of Cylinders	Nos	2	2	3	3
Bore X Stroke	mm x mm (in x in)	100x125	100X120	91 x 110 (3.58 x 4.33)	88.9X101.6
Displacement	CC/Ltrs (cu. in.)	1963	1.88	2.15 (131.2)	1891
Compression ratio	--	17 : 1		17.5:1	19.5:1
Rated Speed	RPM	1500	1500	1500	1500
Governing Class & Type		A1	G2	Mechanical, Class A2	A1
Lubrication filter	Type / No. of filters	Spin-on type / Single		1, spin on	
Total Coolant Capacity	Litres	NA	NA	10.9	11
Lubrication oil	API	15W40-CI4		Kohler Oil	CF415W40
Fuel Filter	Type / No of filters	Double bowl / Single		Combo fuel filter, 1	
Air Cleaner type		Dry		Dry, 1	
Service Interval		500/6	500/6		300 Hr Top UP
Warranty	Hrs/Months or yrs.	5C	2Yr.	2Yr. Or 5000 Hrs.	2 Yrs.

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SHEET NO : EL/20

REVISION SUFFIX NORTH

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