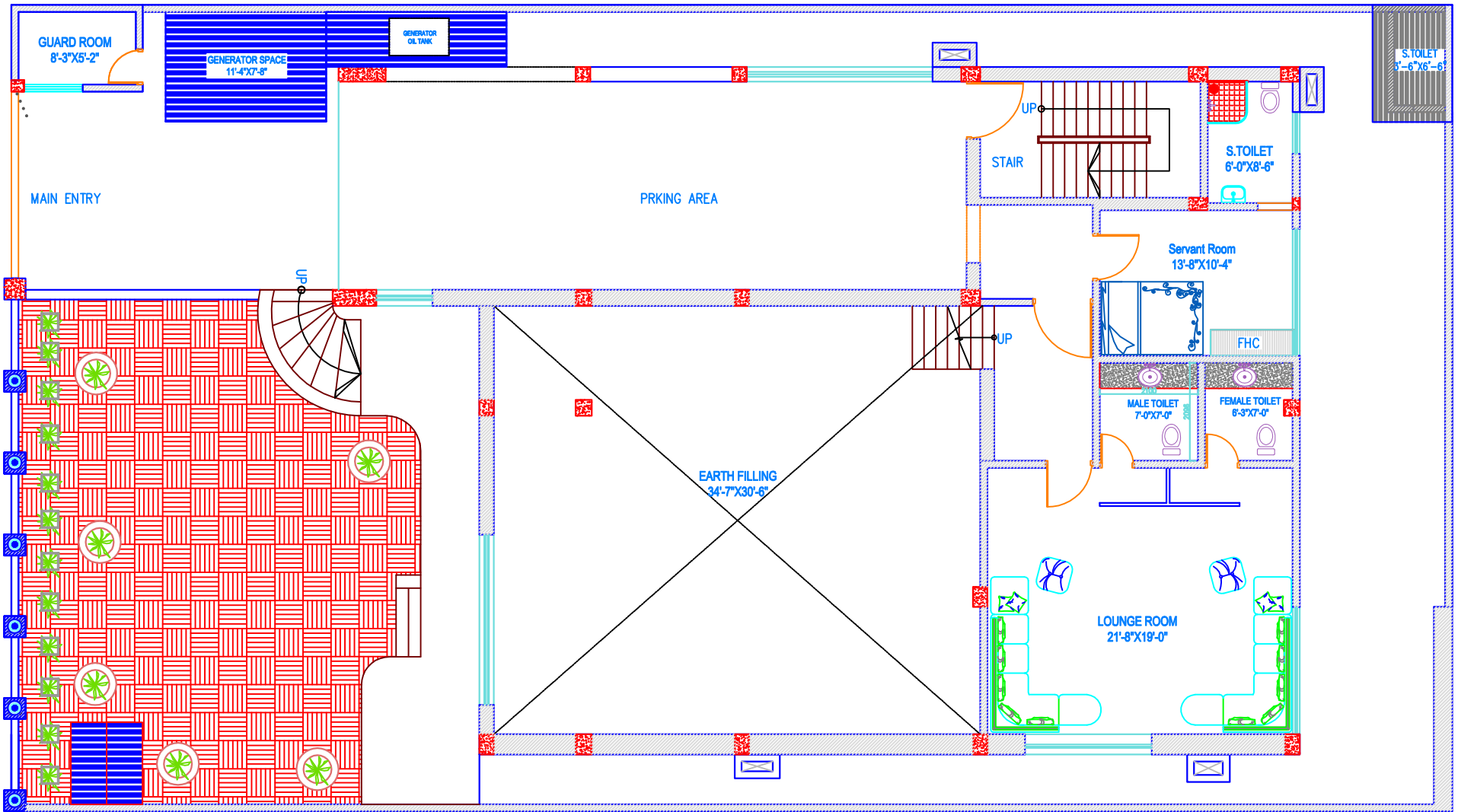


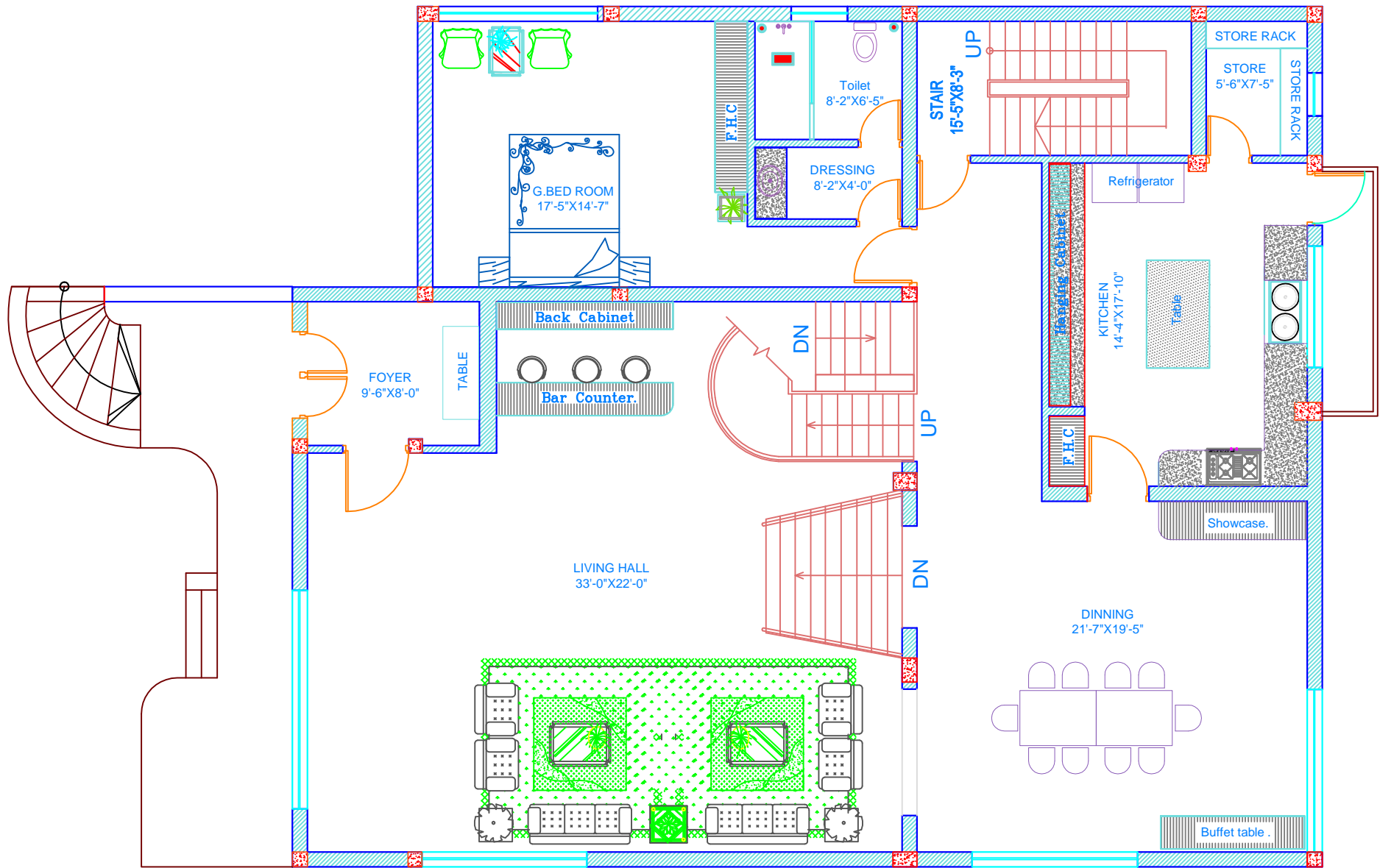
FURNITURE LAYOUT PLAN

U.S.Embassy

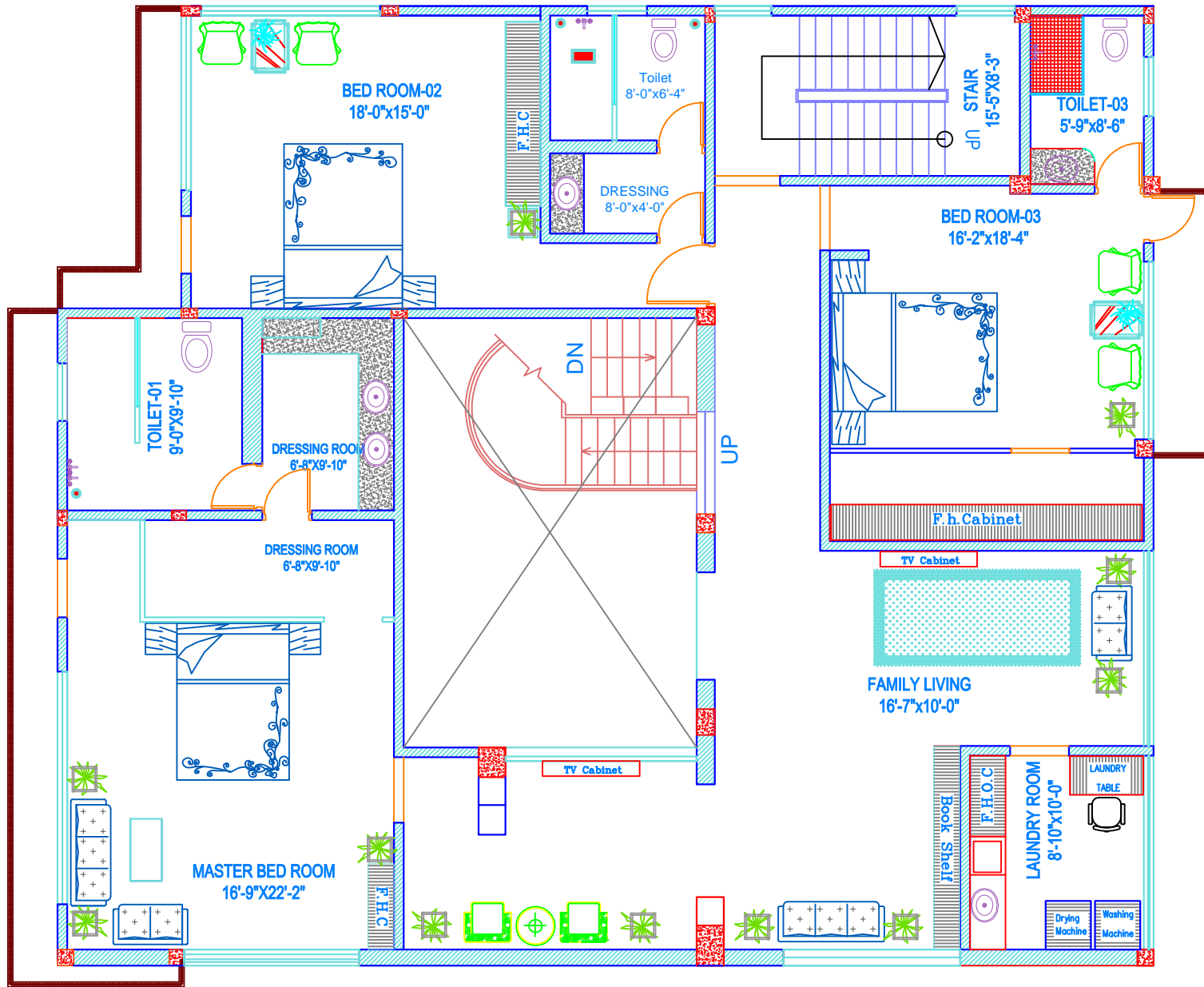
Gulshan -2,Road -63, House -24, Polyvilla .Dhaka , Bangladesh.



N
 GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



: Corporate Office :
 203/1 (4th Floor), Shenpara Parbata, Begum
 Rokeya Sarani, Mirpur-10, Dhaka-1216.
 Tel : 9003777, 9037922, Hotline : 01730374757,
 01730374757

: Drawing Title :
 Layout Plan

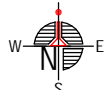
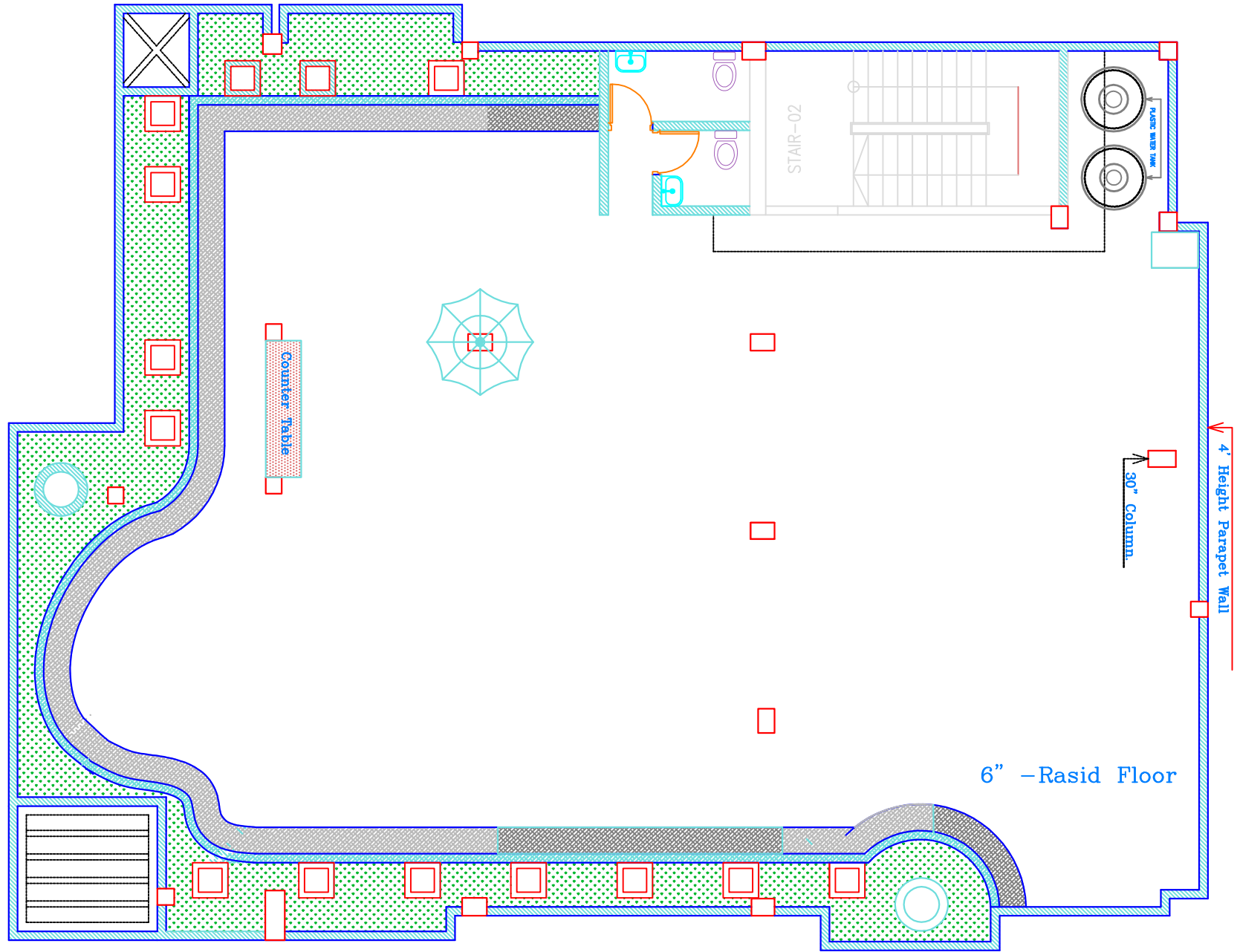
: Client Name :
 U.S.Embassy , Dhaka.

: Project Address :
 Gulshan -2,Road -63,
 House -24, Polyvilla .

Sales Officer

Designer By :
 Engr. Md. Zakir Hoesen
 B.Sc Engineer (Civil)
 A-18414

: Date :
 12.08.2017



ROOF TOP FLOOR PLAN



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Zakir Hoesen B.Sc Engineer (Civil) A-18414	: Date : 12.08.2017
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ELECTRICAL LAYOUT PLAN

U.S.Embassy

Gulshan -2,Road -63, House -24, Polyvilla .Dhaka , Bangladesh.



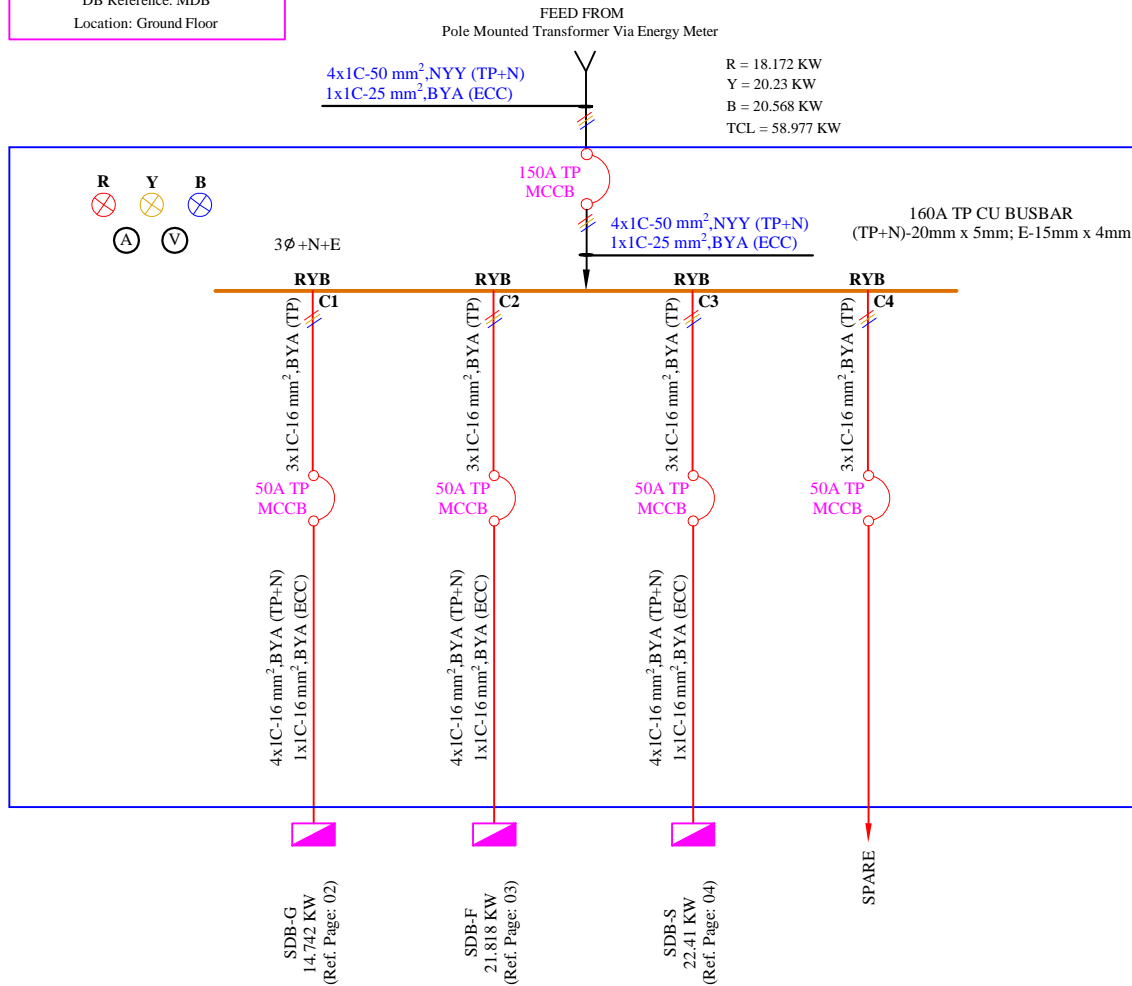
<i>: Corporate Office :</i>	<i>: Drawing Title :</i>	<i>: Client Name :</i>	<i>: Project Address :</i>	<i>Designer By :</i>	<i>Checked By</i>	<i>: Date :</i>
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Lightning Protection System Design	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .	Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	Engr. Shamsul Huda B.Sc Engineer (EEE),CUET FIEB - 12425	29.07.2017

General Electrical Legend

ELECTRICAL LEGEND:-	
Symbol	Description
	Drop Out Fuse (DOF)
	HT Metering Panel
	Transformer
	Change Over Switch (COS)
	Auto Transfer Switch (ATS)
	Generator (G)
	Power Factor Improve (PFI)
	Circuit Breaker (MCCB, MCB, ACB) Fuse
	HT Switchgear
	Main Distribution Board (MDB)
	Indication of Three Phase Line
	Indication of Three Phase Line
	Earthing/Grounding
	Indicator Lamp
	Ammeter
	Volt Meter
	Energy Meter
	Distribution Board (DB)
	Sub Distribution Board (SDB) Sub-sub Distribution Board (SSDB)
	Consumer Box
	Auto Voltage Regulator
	Vacuum Circuit Breaker (VCB)
	Motor Protection Circuit Breaker (MPCB)
	Air Circuit Breaker with interlock provision (ACB)
	Lightning Arrester (LA)
	Copper Busbar
	Load Braker Switch

Short Form	Abbreviation
REB	Rural Electrification Board
SP	Single Phase
DP	Double Pole
TP	Three Phase
N	Neutral
E	Earthing
MCB	Miniature Circuit Breaker
MCCB	Molded Case Circuit Breaker
Cu	Copper
GG	Gas Generator
DG	Diesel Generator
TCL	Total Connected Load
DL	Diversified Load
TL	Tube Light
CF	Ceiling Fan
M/C	Machine
ESL	Energy Saving Light
Ex. Fan	Exhaust Fan
13A S/S	13A Switched Socket Outlet
15A S/S	15A Switched Socket Outlet
1C	Single Core
2C	Two Core
3C	Three Core
4C	Four Core
ECC	Earth Continuity Conductor
No Pro.	No Protection

DB Reference: MDB
Location: Ground Floor



SL	SYMBOL	EXPLAIN	SL	SYMBOL	EXPLAIN
01		Circuit Breaker	10	SL	Spot Light (LED)
02		Phase Indication	11	RCL	Rectangular False-ceiling Light (LED)
03		Indicator Lamp	12	ESL	Energy Saving Light
04	TP	Three Phase	13	EF	Exhaust Fan
05	SP	Single Phase	14	WF	Wall Fan
06	S/S	Switched Socket Outlet	15	P	Power Outlet
07	M/C	Machine	16	S	13A S/S
08	TL	Tube Light	17	SB	Switch Board
09	HL	Hidden Light (LED)	18	FL	Flood Light

MDB/Ground Floor

SDB-G

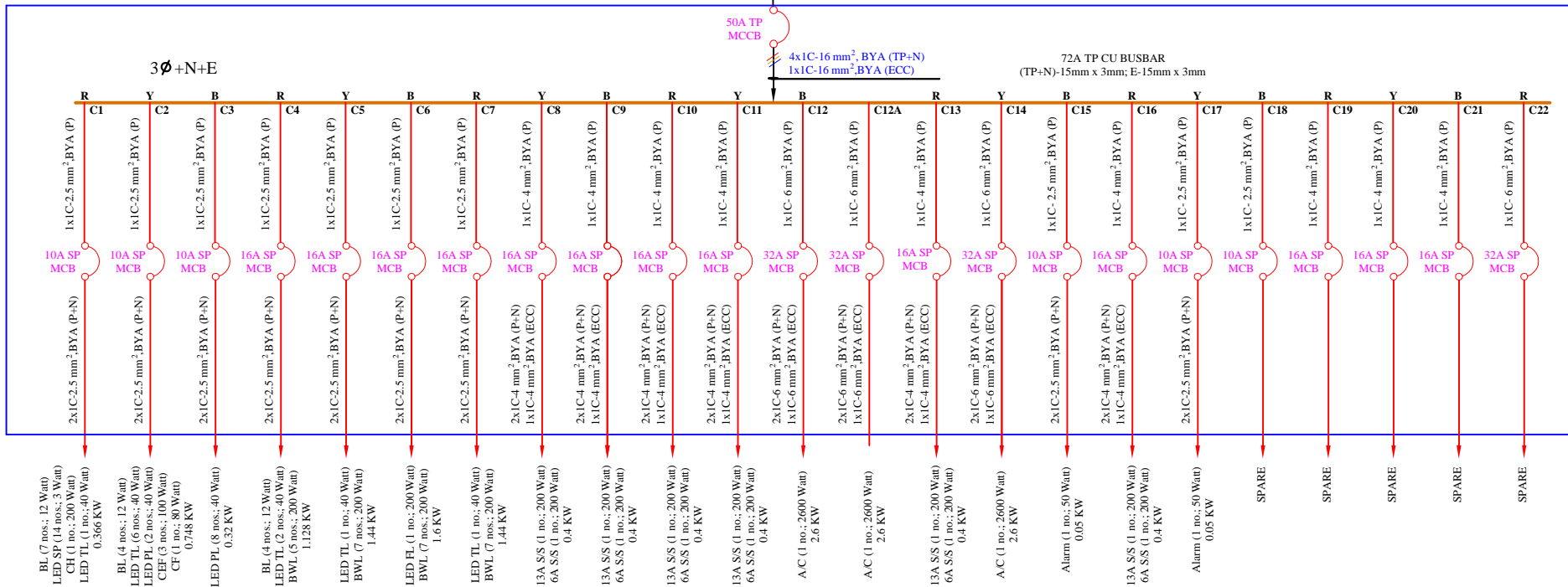
SL	SYMBOL	EXPLAIN	SL	SYMBOL	EXPLAIN
01		Circuit Breaker	07	TP	Three Phase
02		Motor Protection Circuit Breaker	08	SP	Single Phase
03		Phase Indication	09	MCB	Miniature Circuit Breaker
04		Indicator Lamp	10	MCCB	Moulded Case Circuit Breaker
05		Ammeter	11	TL	Tube Light
06		Voltmeter	12	CF	Celing Fan

DB Reference: SDB-G
Location: Ground Floor

FEED FROM
MDB Ckt. No.-01
(Ref. Page: 01)

4x1C-16 mm², BYA (TP+N)
1x1C-16 mm², BYA (ECC)

R = 4.134 KW
Y = 5.638 KW
B = 4.97 KW
TCL = 14.742 KW



: Corporate Office :
203/1 (4th Floor), Shenpara Parbata, Begum
Rokeya Sarani, Mirpur-10, Dhaka-1216.
Tel : 9003777, 9037922, Hotline : 01730374757,

: Drawing Title :
Lightning Protection
System Design

: Client Name :
U.S.Embassy , Dhaka.

: Project Address :
Gulshan -2, Road -63,
House -24, Polyvilla .

Designer By :
Engr. Md. Rezaul Karim
B.Sc Engineer (EEE)

Checked By
Engr. Shamsul Huda
B.Sc Engineer (EEE), CUET
FIEB - 12425

: Date :
29.07.2017

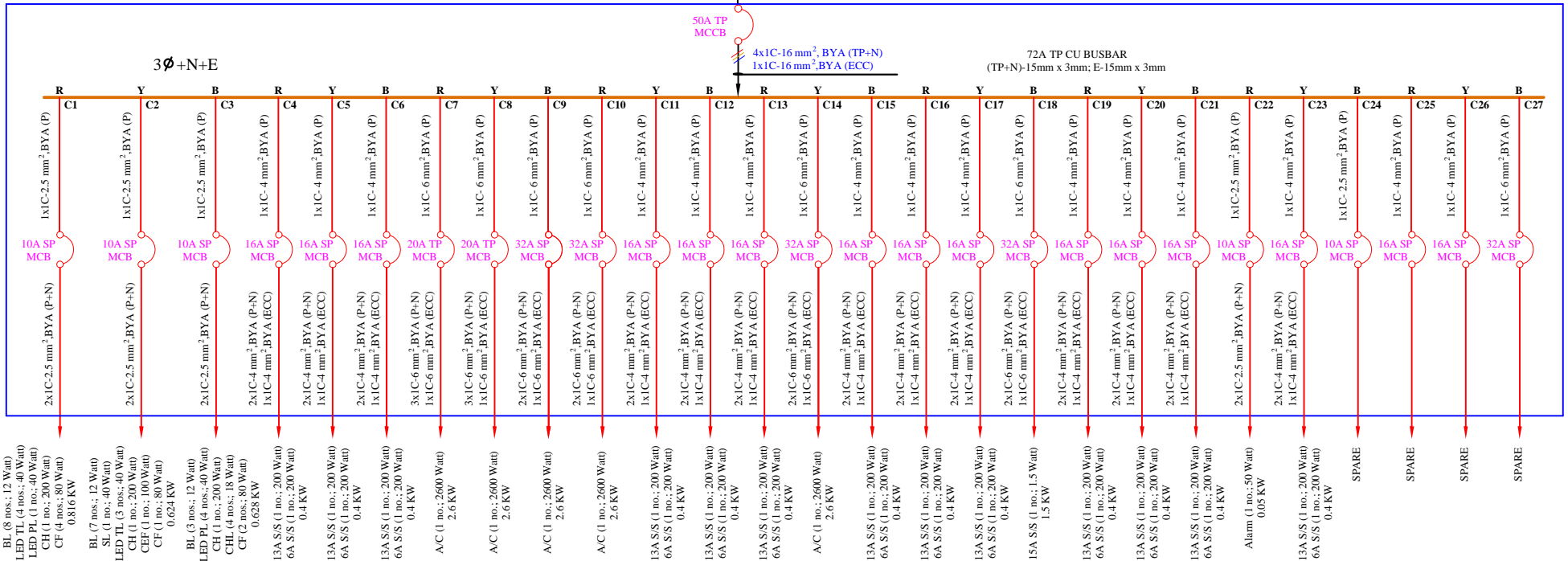
SDB-F

DB Reference: SDB-F
Location: 1st Floor

FEED FROM
MDB Ckt. No.-02
(Ref. Page: 01)

4x1C-16 mm²,BYA (TP+N)
1x1C-16 mm²,BYA (ECC)

R = 7.666 KW
Y = 7.824 KW
B = 6.328 KW
TCL = 21.818 KW



SDB-S

DB Reference: SDB-S
Location: 2nd Floor

4x1C-16 mm², BYA (TP+N)
1x1C-16 mm², BYA (ECC)

FEED FROM
MDB Ckt. No.-02
(Ref. Page: 01)

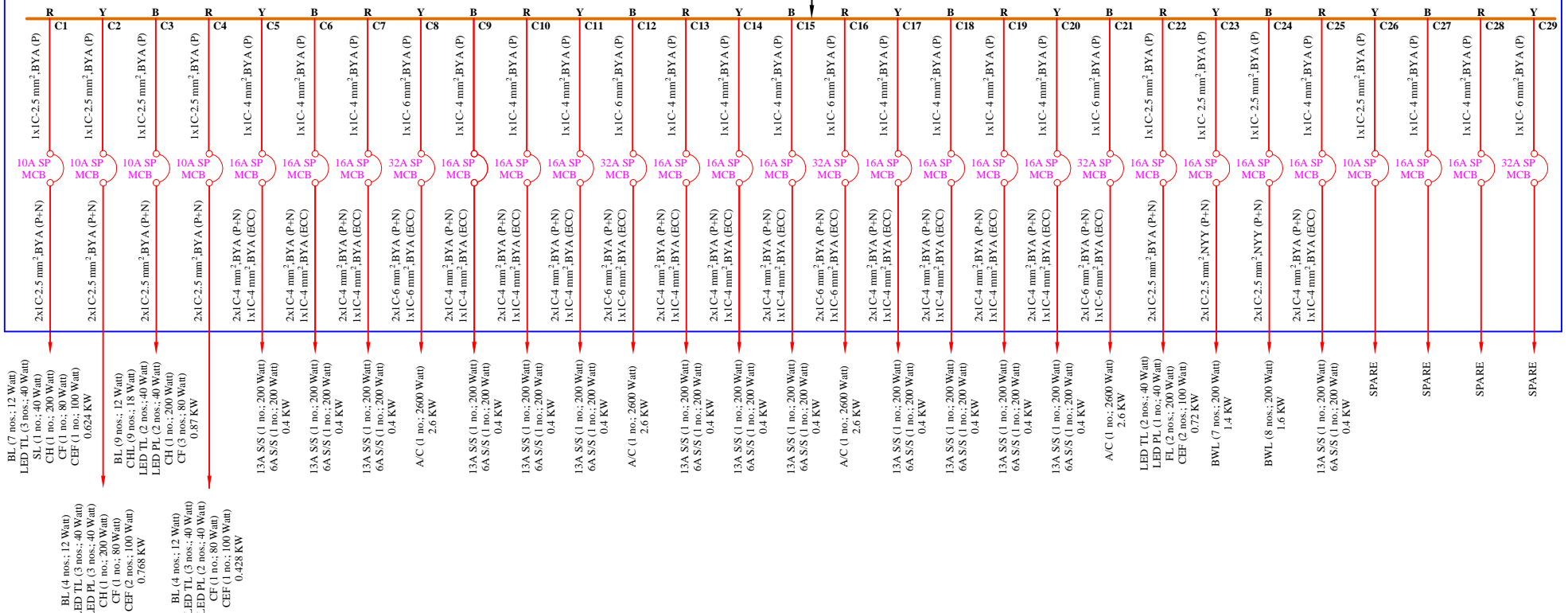
R = 6.372 KW
Y = 6.768 KW
B = 9.27 KW
TCL = 22.41 KW

50A TP
MCCB

4x1C-16 mm², BYA (TP+N)
1x1C-16 mm², BYA (ECC)

72A TP CU BUSBAR
(TP+N)-15mm x 3mm; E-15mm x 3mm

3Ø+N+E



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Tel : 9003777, 9037922, Hotline : 01730374757,
www.artisticbd.com

: Drawing Title :
Lightning Protection System Design



















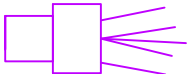





: Client Name :
U.S.Embassy , Dhaka.

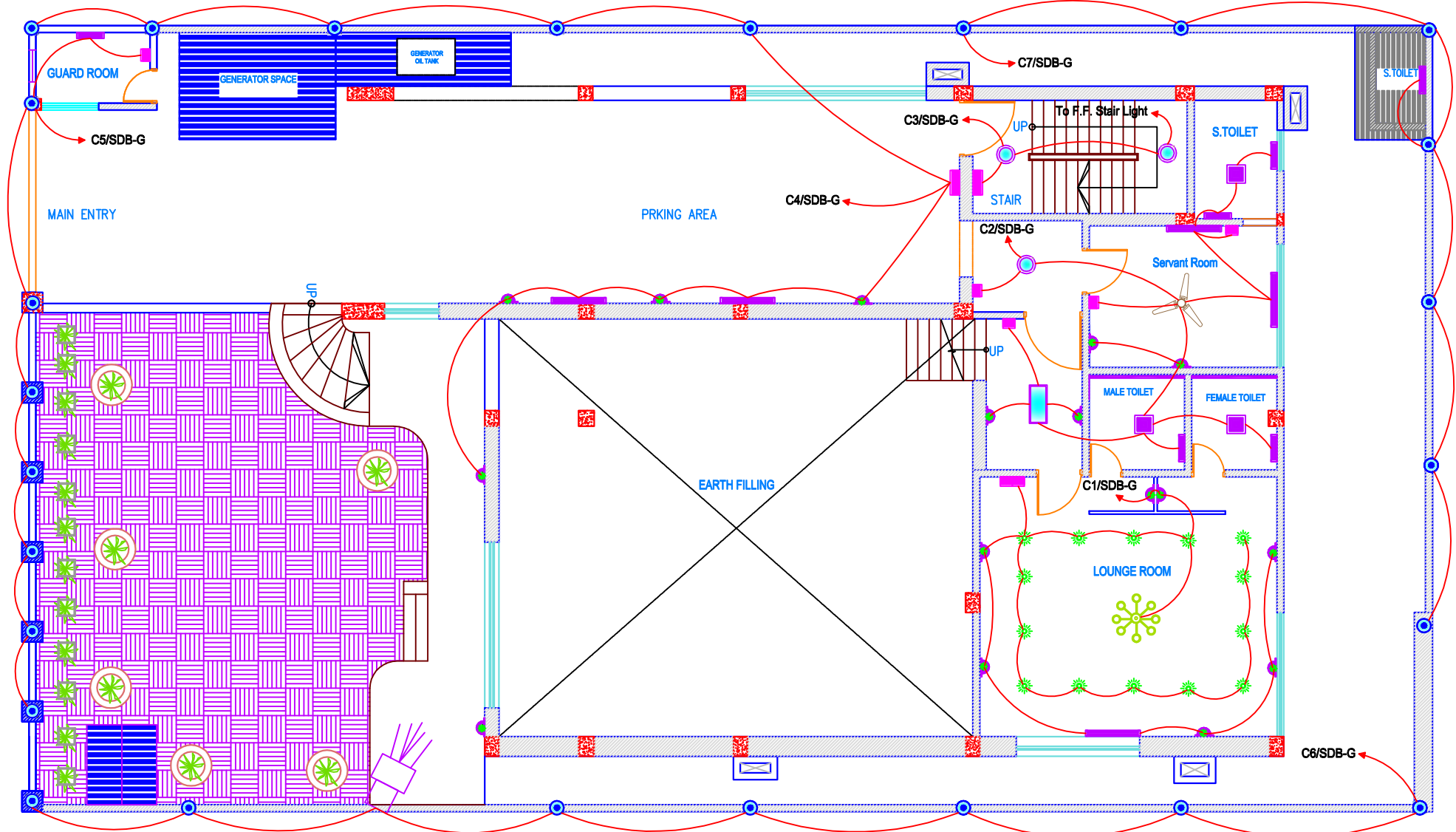
: Project Address :
Gulshan -2,Road -63, House -24, Polyvilla .

Designer By :
Engr. Md. Rezaul Karim
B.Sc Engineer (EEE)

Checked By
Engr. Shamsul Huda
B.Sc Engineer (EEE),CUET
FIEB - 12425

: Date :
29.07.2017

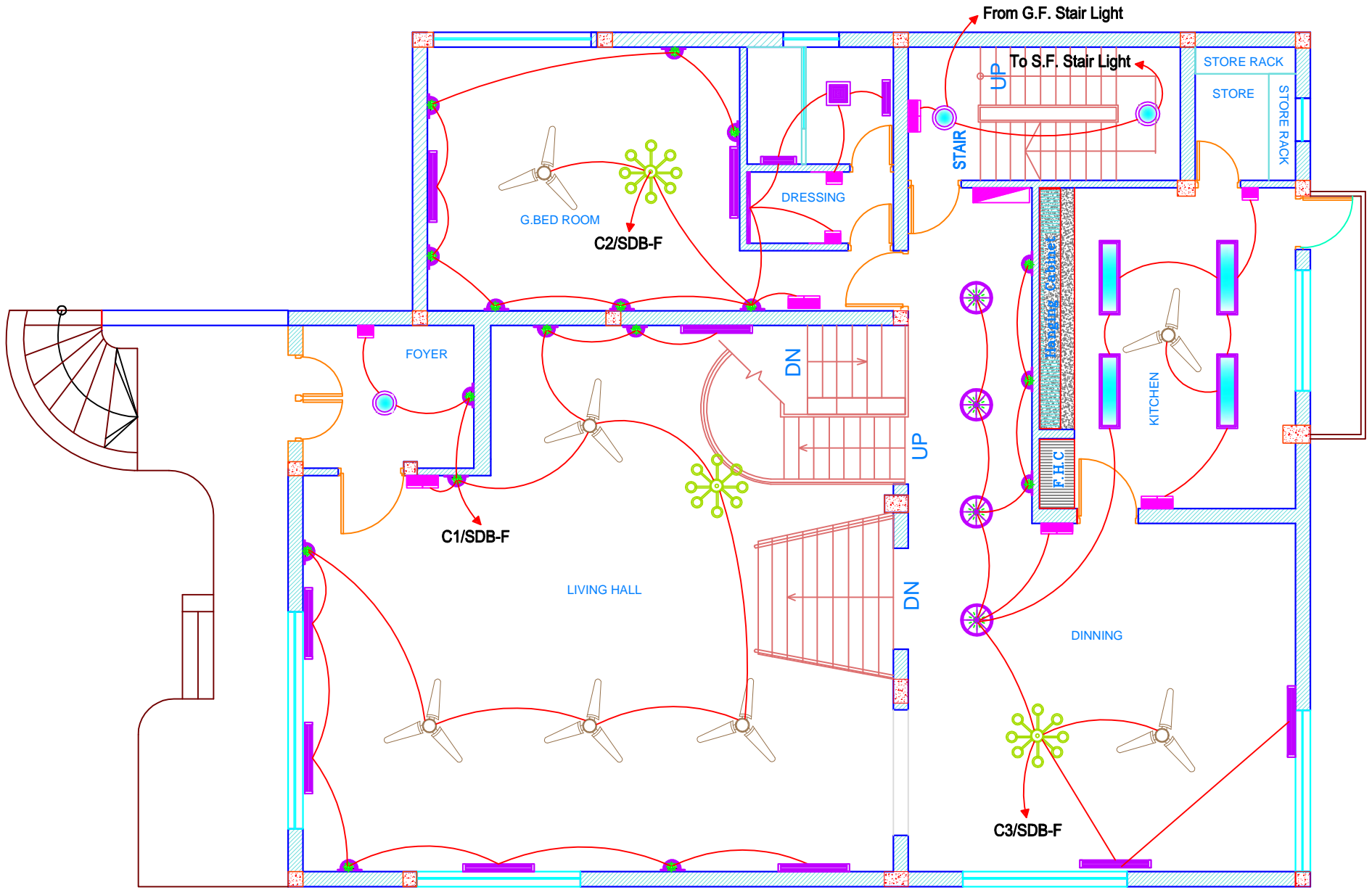
SL	SYMBOL	CODE	DESCRIPTION	SL	SYMBOL	CODE	DESCRIPTION
01				16		CF	CEILING LIGHT
02		MDB	MAIN DISTRIBUTION BOARD	17		CH	CHANDELIER LIGHTS
03		ATS	Automatic Transfer Service	18		BL	6'-0" HEIGHT BRACKET LIGHT
04		SDB	SUB- DISTRIBUTION POWER BOARD	19		LED SP	CEILING -3W LED LIGHT
05		SB	4'-6" COMBINED SWITCH & REGULAR BOARD MK TYPE .	20		CHL	CEILING HANGING LIGHT.
06		P	(1'-6") HEIGHT 2-PIN 6A SOCKET OUTLET	21		LED TL	2'-4' (CATA LED TUBE SET.)
07		Q	(1'-6") HEIGHT . 3-PIN 13A SOCKET OUTLET	22		SL	LED (Strip Lights)
08		Q	(7'-6") 3-PIN ROUND 20A POWER SOCKET FOR AC.	23		LED PL	SURFACE LED PANEL LIGHT
09		TV	(1'-6") SATELLITE DISH SOCKET .	24		A	Alarm 8' Height .
10		TEL	(1'-6") HEIGHT TELEPHONE OUTLET	25		LED FL	High Power LED
11		INT	(1'-6") HEIGHT INTERNET \ LAN				
12		AC	ROOM AIRCOOLER SPILT TYPE				
13		WL	7'-6" HEIGHT BRACKET LIGHT				
14		CEF	16" CEILING TYPE EXHAUST FAN FOR TOILET AREA .				
15		BWL	OUTDOOR BOUNDARY WALL LED LIGHT .				



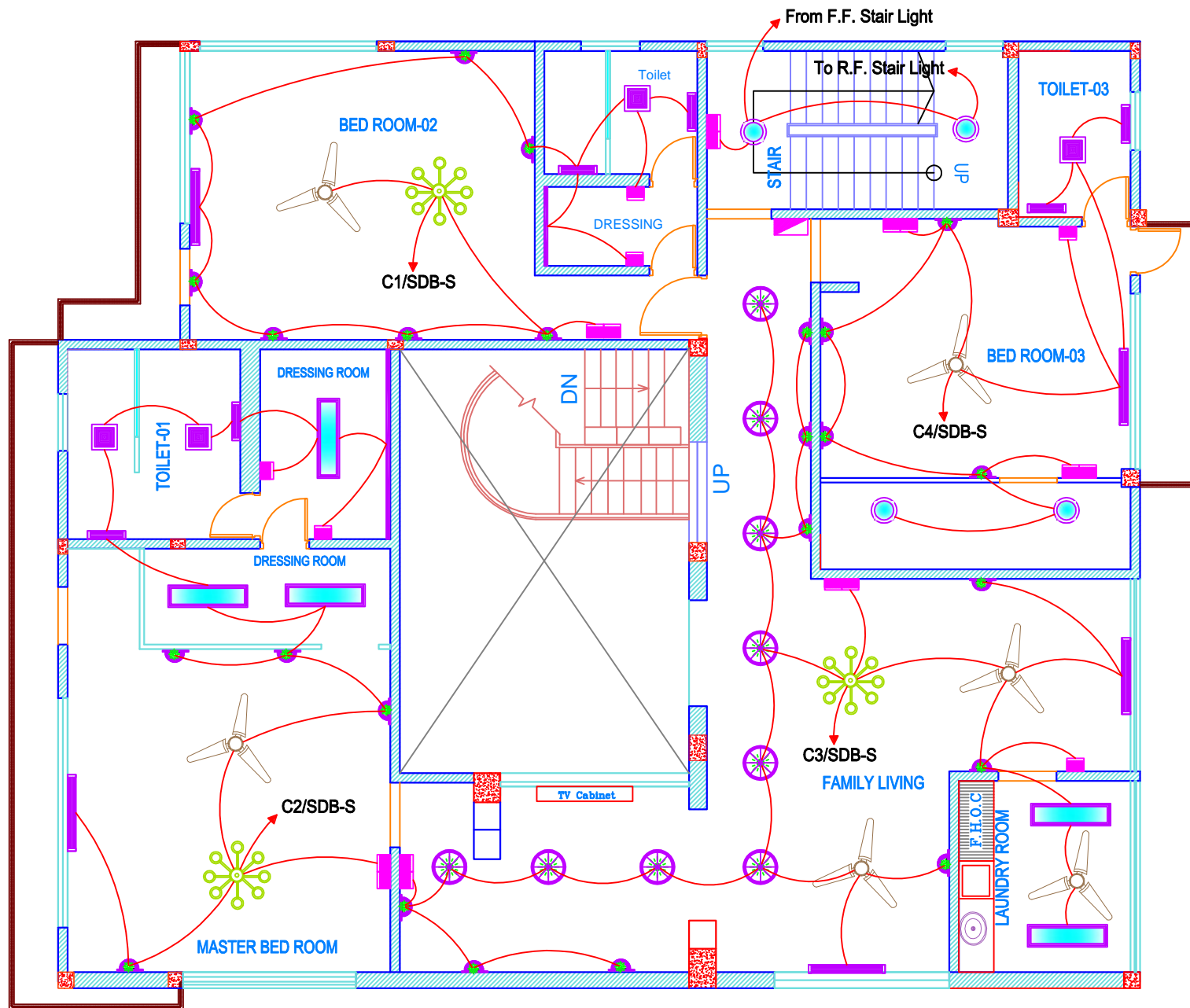
GROUND FLOOR LIGHTING LAYOUT PLAN



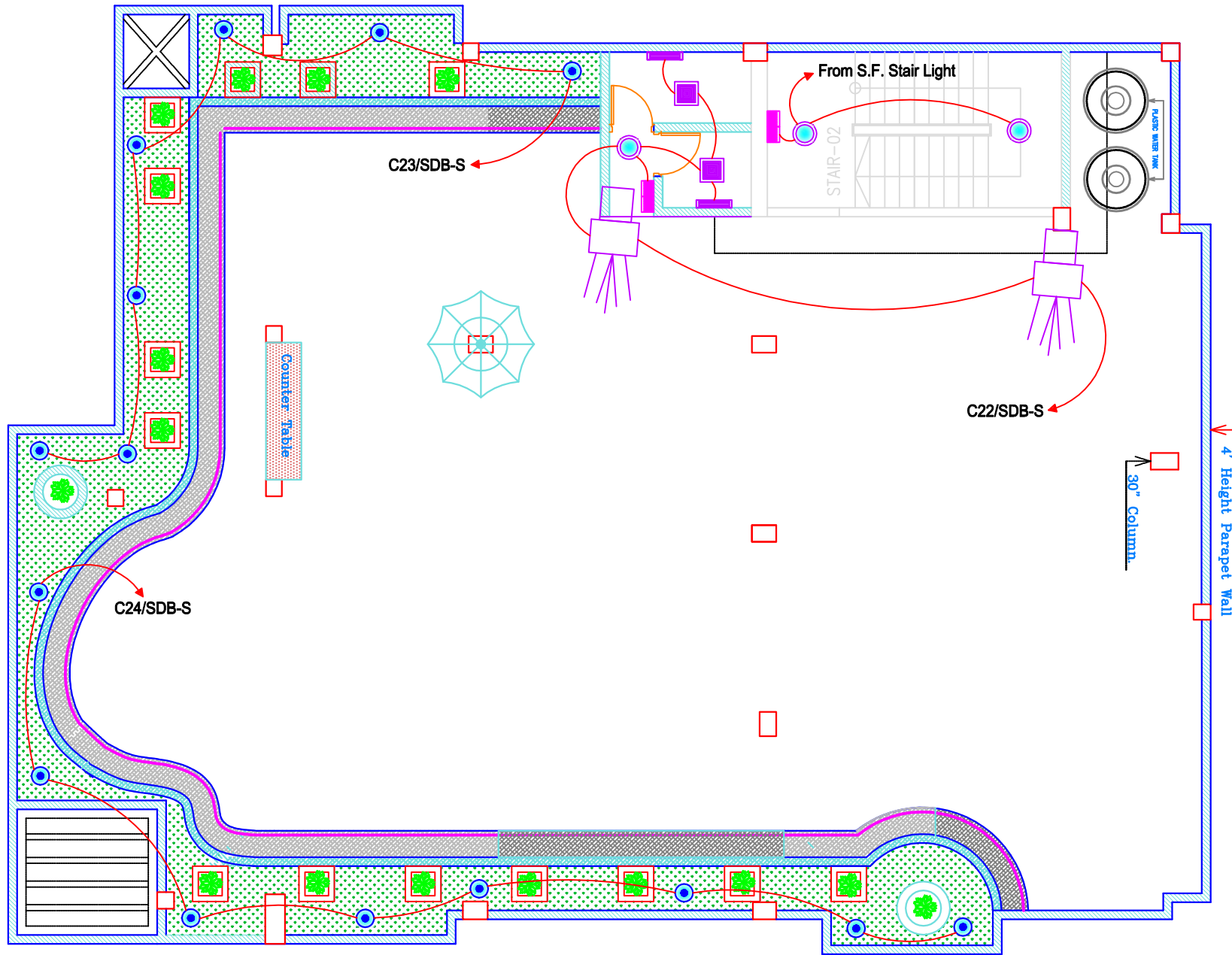
: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	: Date : 08.08.2017
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FIRST FLOOR LIGHTING LAYOUT PLAN



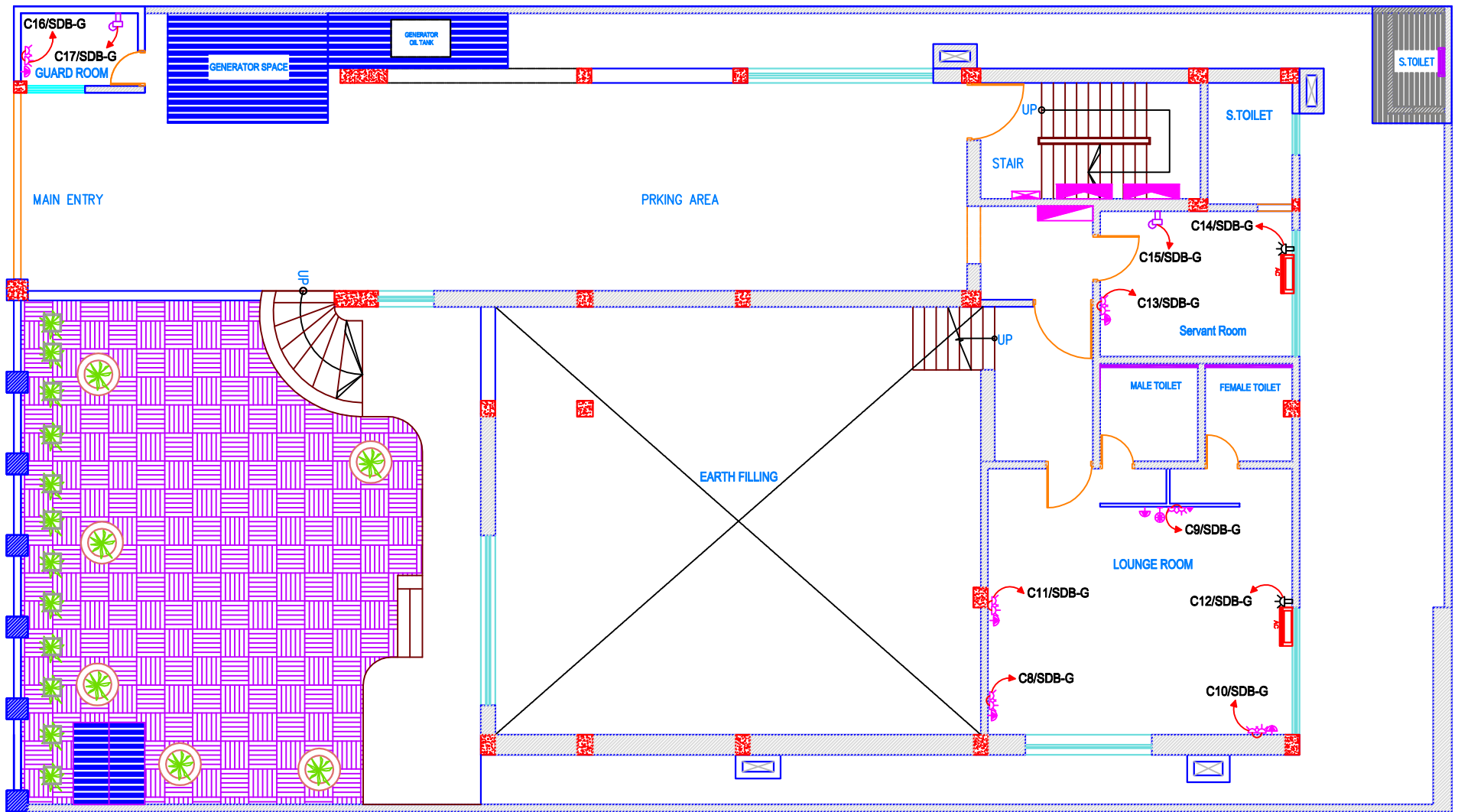
SECOND FLOOR LIGHTING LAYOUT PLAN



W N E S ROOF TOP FLOOR LIGHTING LAYOUT PLAN



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757, 01730374757	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	: Date : 08.08.2017
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GROUND FLOOR POWER LAYOUT PLAN



: Corporate Office :
 203/1 (4th Floor), Shenpara Parbata, Begum
 Rokeya Sarani, Mirpur-10, Dhaka-1216.
 Tel : 9003777, 9037922, Hotline : 01730374757,
 www.artisticbd.com

: Drawing Title :
 Layout Plan

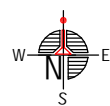
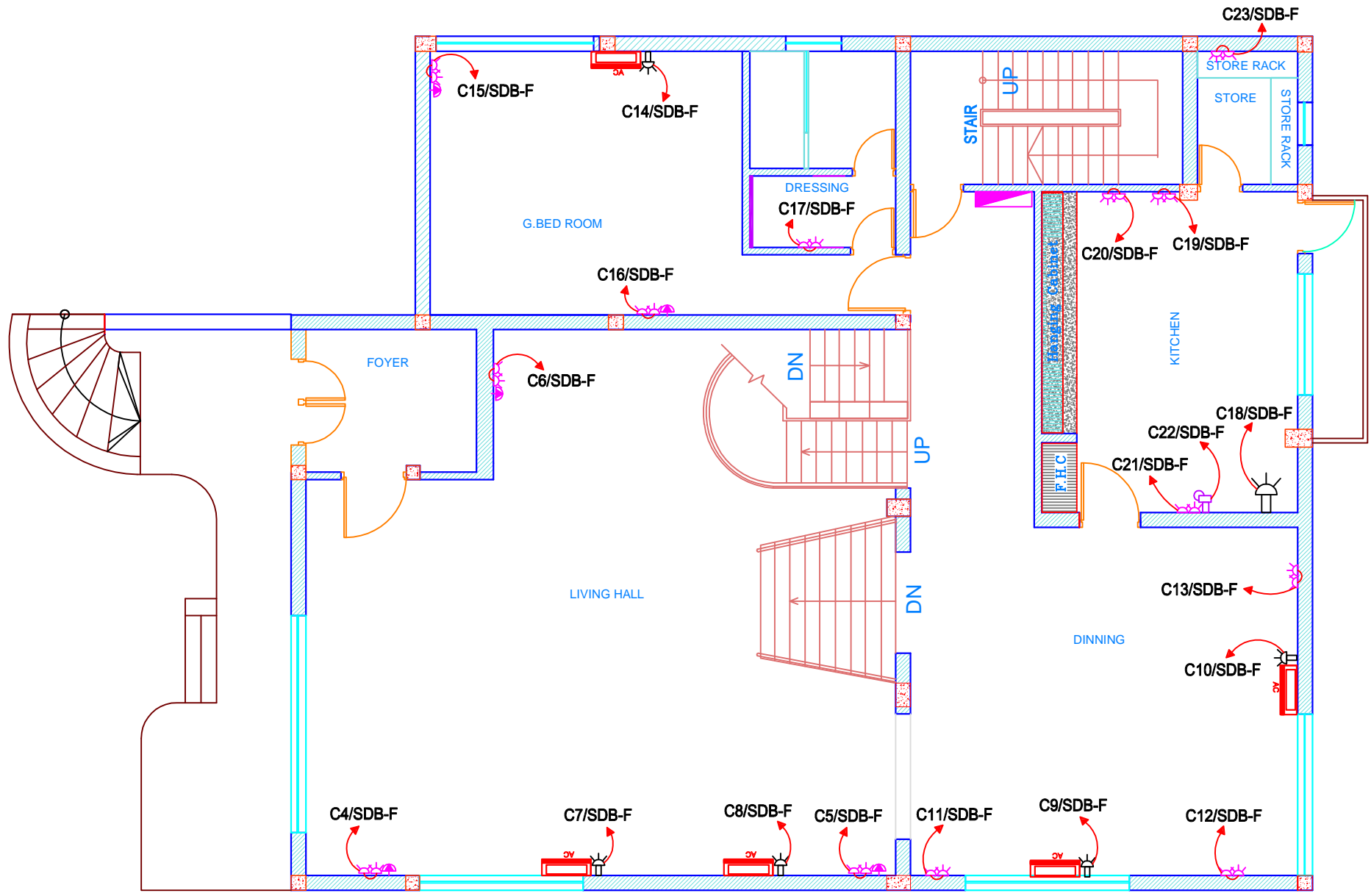
: Client Name :
 U.S.Embassy , Dhaka.

: Project Address :
 Gulshan -2,Road -63,
 House -24, Polyvilla .

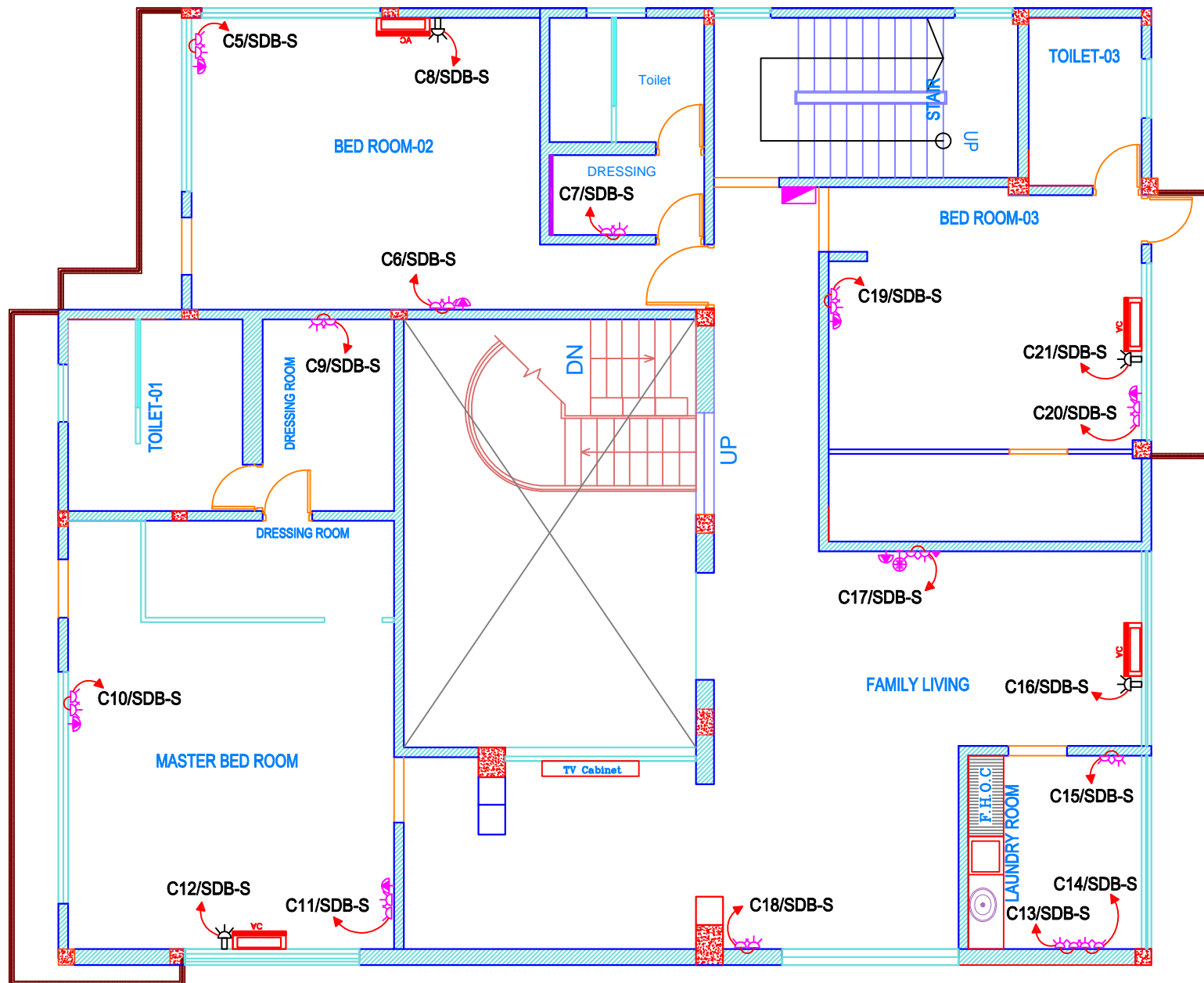
Sales Officer

Designer By :
 Engr. Md. Rezaul Karim
 B.Sc Engineer (EEE)

: Date :
 08.08.2017



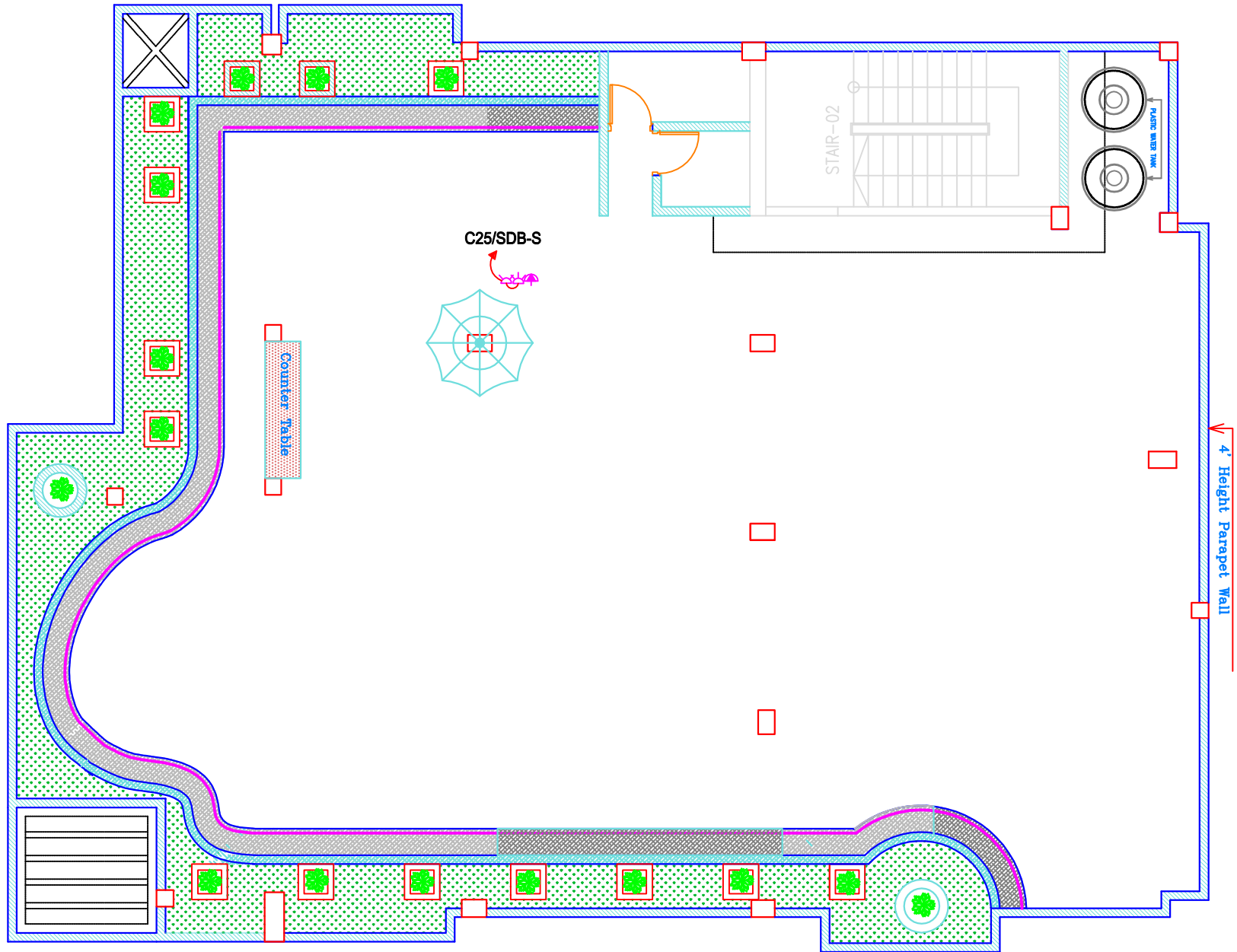
FIRST FLOOR POWER LAYOUT PLAN



SECOND FLOOR POWER LAYOUT PLAN



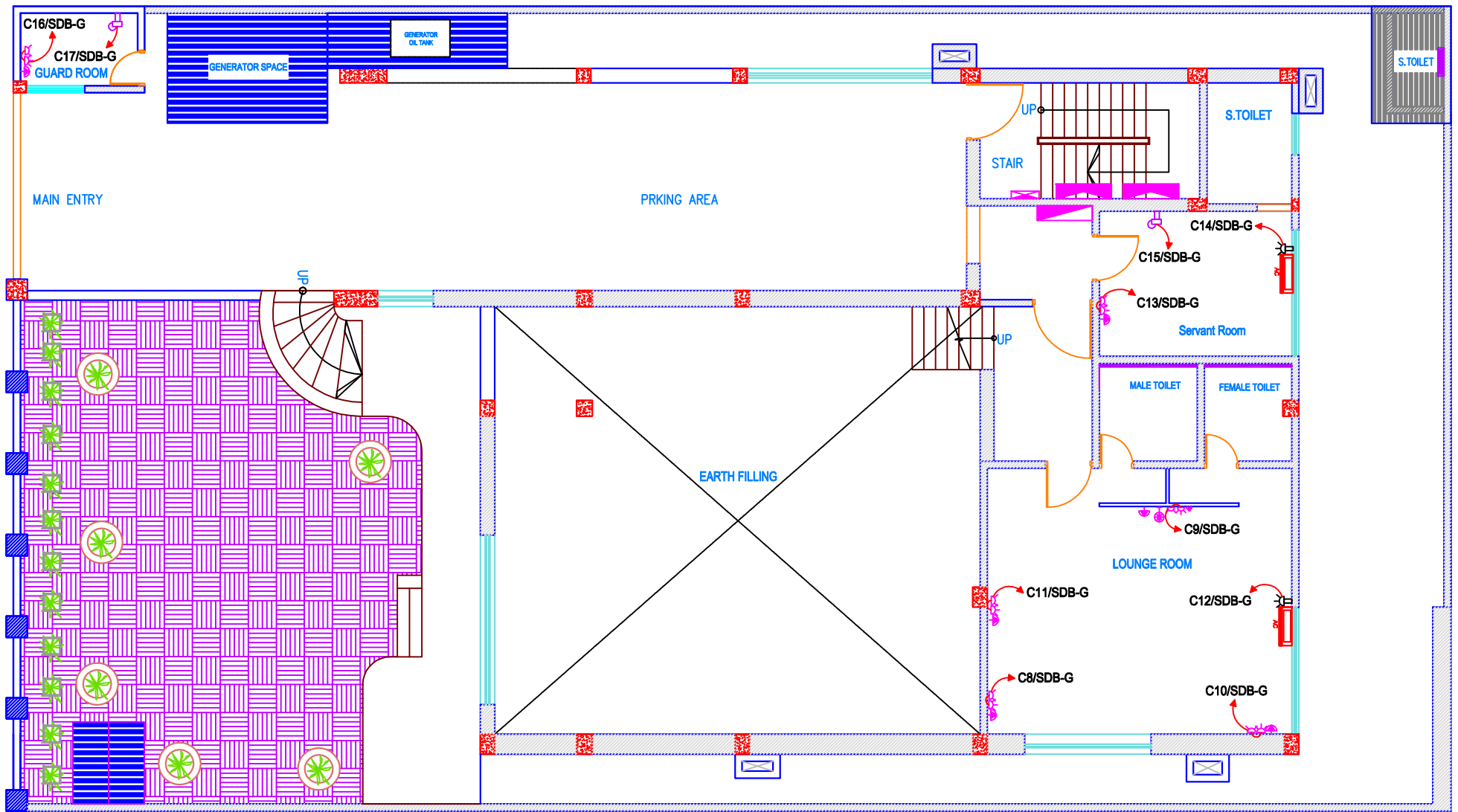
: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Rezaul Karim	: Date : 08.08.2017
				B.Sc Engineer (EEE)		



W N E ROOF TOP FLOOR POWER LAYOUT PLAN S



: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Sales Officer	Designer By :	: Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216.	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Rezaul Karim	08.08.2017
Tel : 9003777, 9037922, Hotline : 01730374757, www.artisticbd.com					B.Sc Engineer (EEE)	



GROUND FLOOR POWER LAYOUT PLAN



: Corporate Office :
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 Rokeya Sarani, Mirpur-10, Dhaka-1216.
 Tel : 9003777, 9037922, Hotline : 01730374757,
 www.artisticbd.com

: Drawing Title :
 Layout Plan

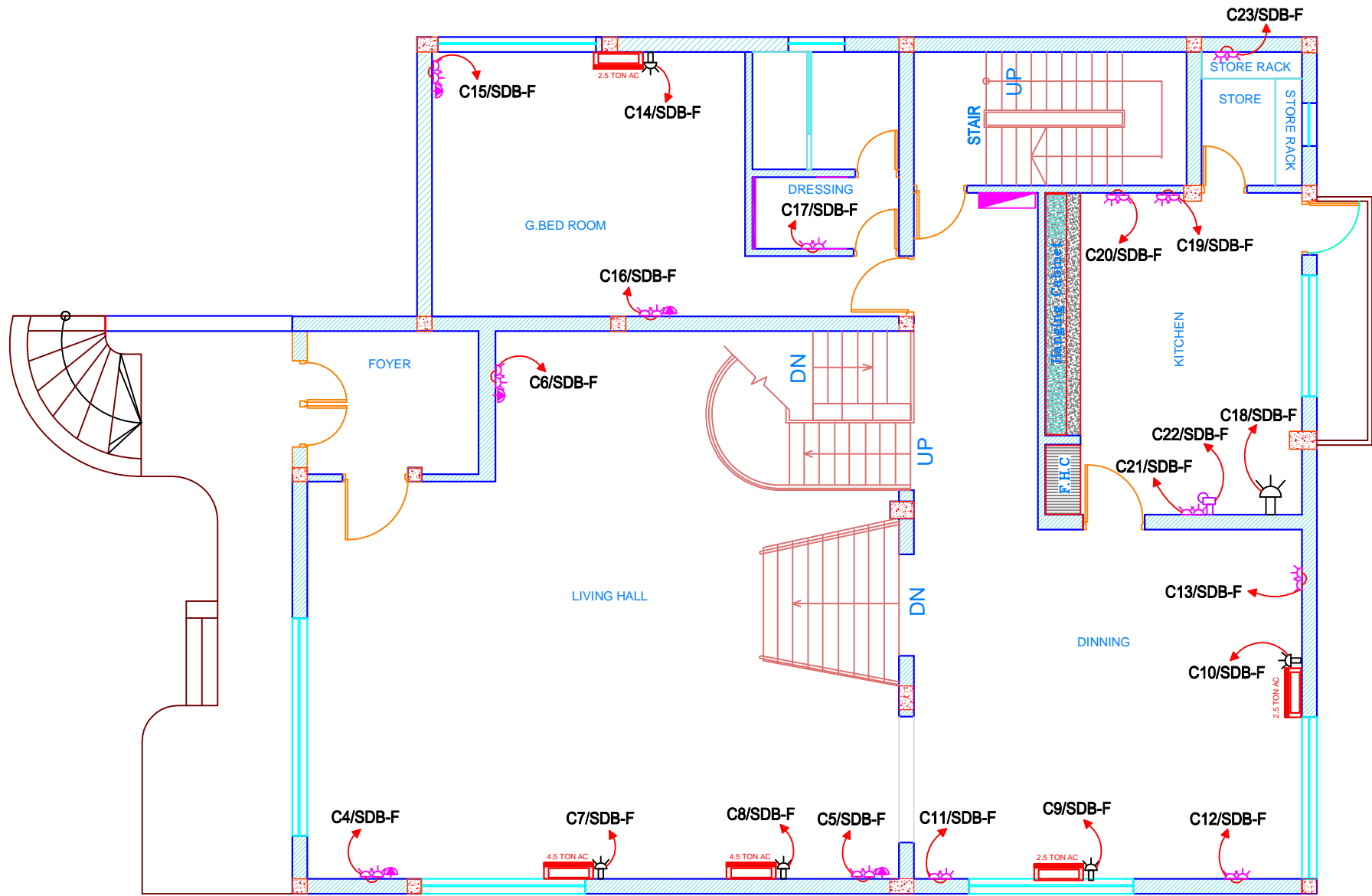
: Client Name :
 U.S.Embassy , Dhaka.

: Project Address :
 Gulshan -2,Road -63,
 House -24, Polyvilla .

Sales Officer

Designer By :
 Engr. Md. Rezaul Karim
 B.Sc Engineer (EEE)

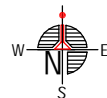
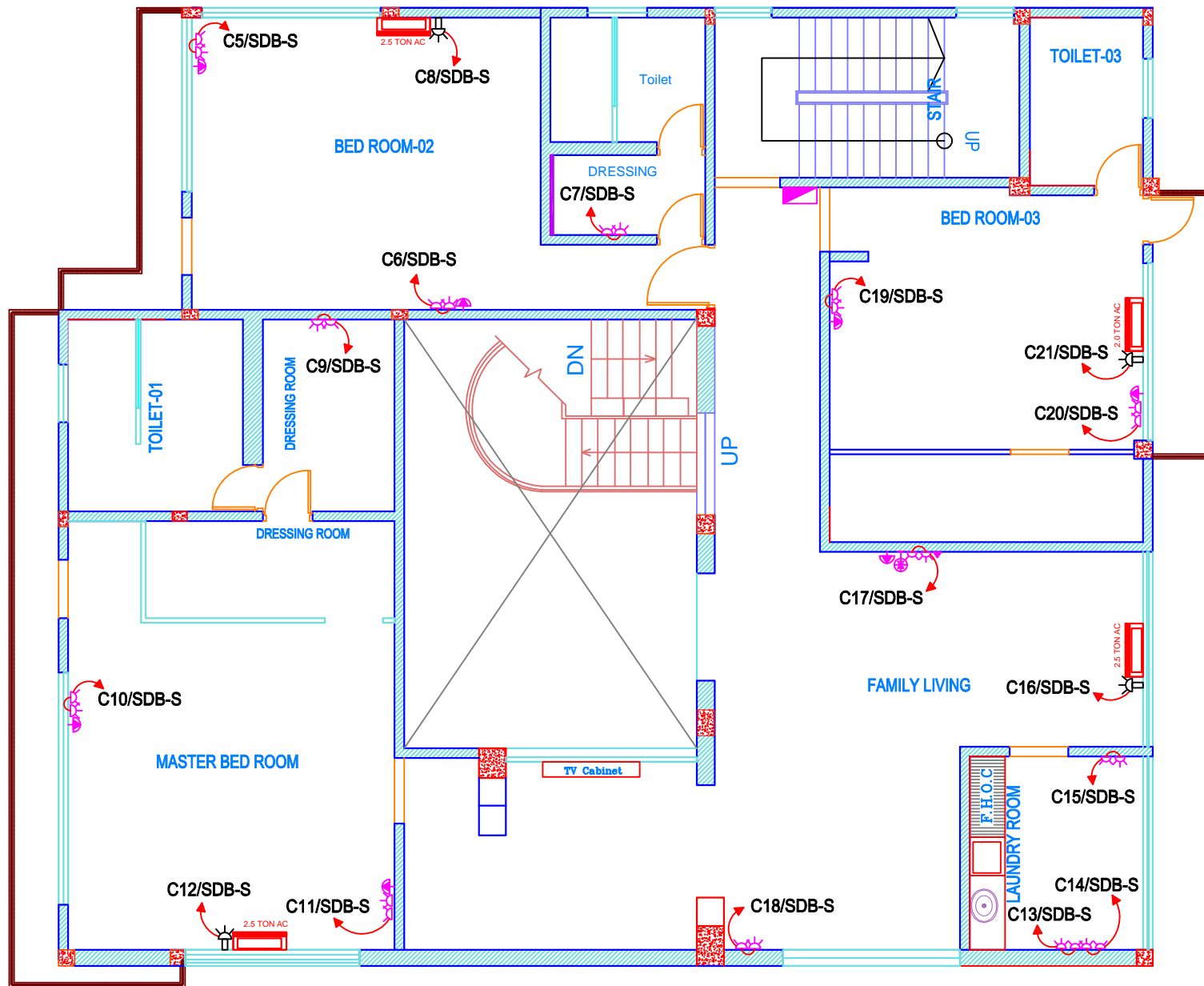
: Date :
 08.08.2017



FIRST FLOOR AC LAYOUT PLAN PLAN



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	: Date : 08.08.2017
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SECOND FLOOR AC LAYOUT PLAN



: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Sales Officer	Designer By :	: Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216.	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Rezaul Karim	08.08.2017
Tel : 9003777, 9037922, Hotline : 01730374757,					B.Sc Engineer (EEE)	

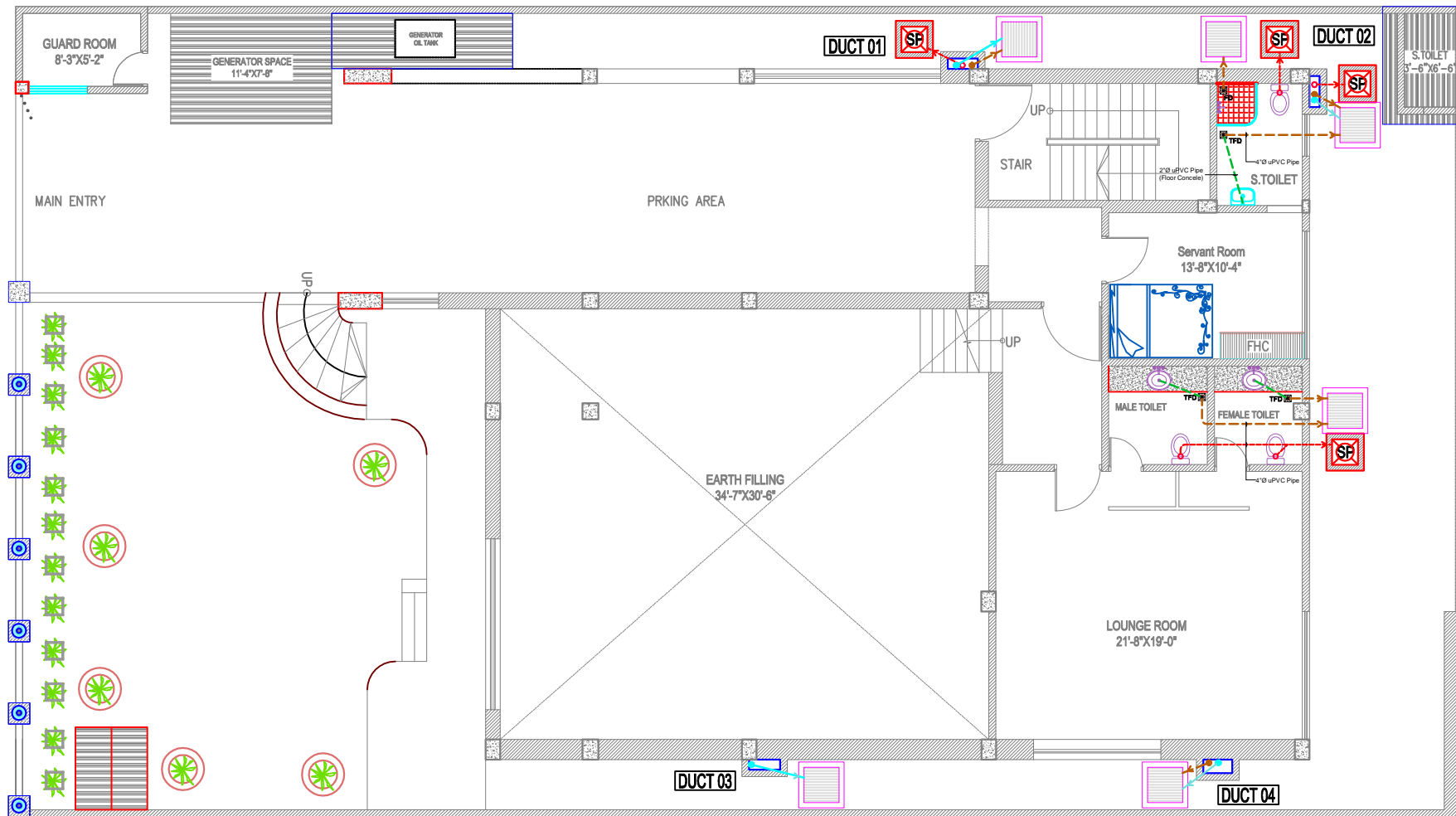
SANITARY & WATER SUPPLY LAYOUT PLAN

U.S.Embassy

Gulshan -2,Road -63, House -24, Polyvilla .Dhaka , Bangladesh.








<i>: Corporate Office :</i>	<i>: Drawing Title :</i>	<i>: Client Name :</i>	<i>: Project Address :</i>	<i>Sales Officer</i>	<i>Designer By :</i>	<i>: Date :</i>
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesn	12.08.2017
					B.Sc Engineer (Civil) A-18414	



 GROUND FLOOR SANITARY SYSTEM LAYOUT

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

LEGEND

-  u.PVC PIPE for Storm Line
-  u.PVC PIPE for Sewerage Line
-  u.PVC PIPE for Waste water Line
-  Storm Water Pit
-  Soil Pit



: Corporate Office :
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 Tel : 9003777, 9037922, Hotline : 01730374757,

: Drawing Title :
 Layout Plan

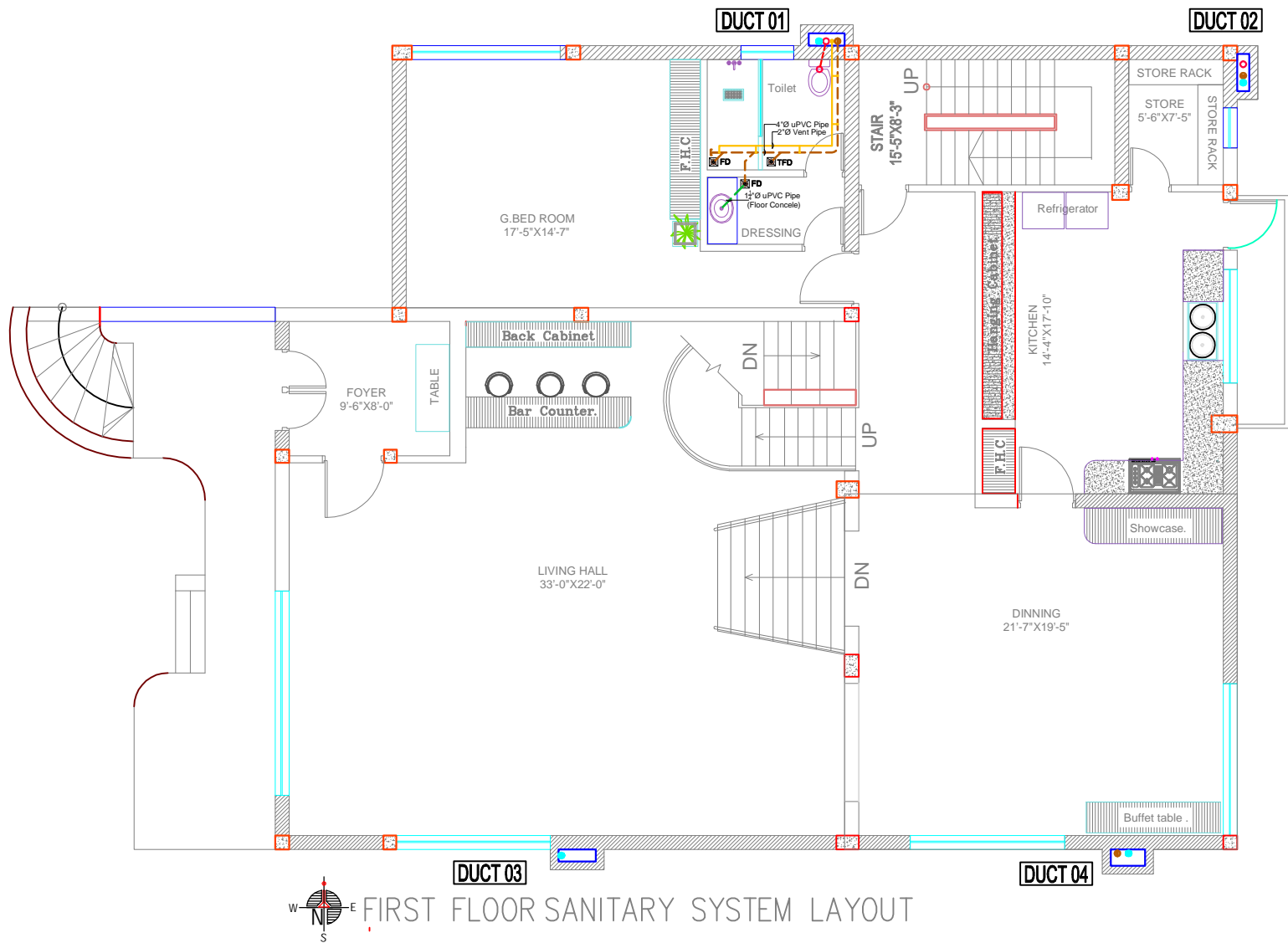
: Client Name :
 U.S.Embassy , Dhaka.

: Project Address :
 Gulshan -2,Road -63, House -24, Polyvilla .

Sales Officer

Designer By :
 Engr. Md. Zakir Hoesn
 B.Sc Engineer (Civil)
 A-18414

: Date :
 12.08.2017



LEGEND:

PIPE SYMBOL :-

- S.S (SOIL STACK)
- W.W.S (WASTE WATER STACK)
- R.W.S (RAIN WATER STACK)
- V.S (VENT STACK)
- F.D (FLOOR DRAIN)
- K.F.D (FLOOR DRAIN)
- OVER FLOOR DRAIN
- SEWERAGE PIPE LINE
- WASTE WATER PIPE LINE
- RAIN WATER PIPE LINE
- VENT PIPE LINE
- 1 1/2"-1 3/4" uPVC PIPE (FLOOR CONCEALED)

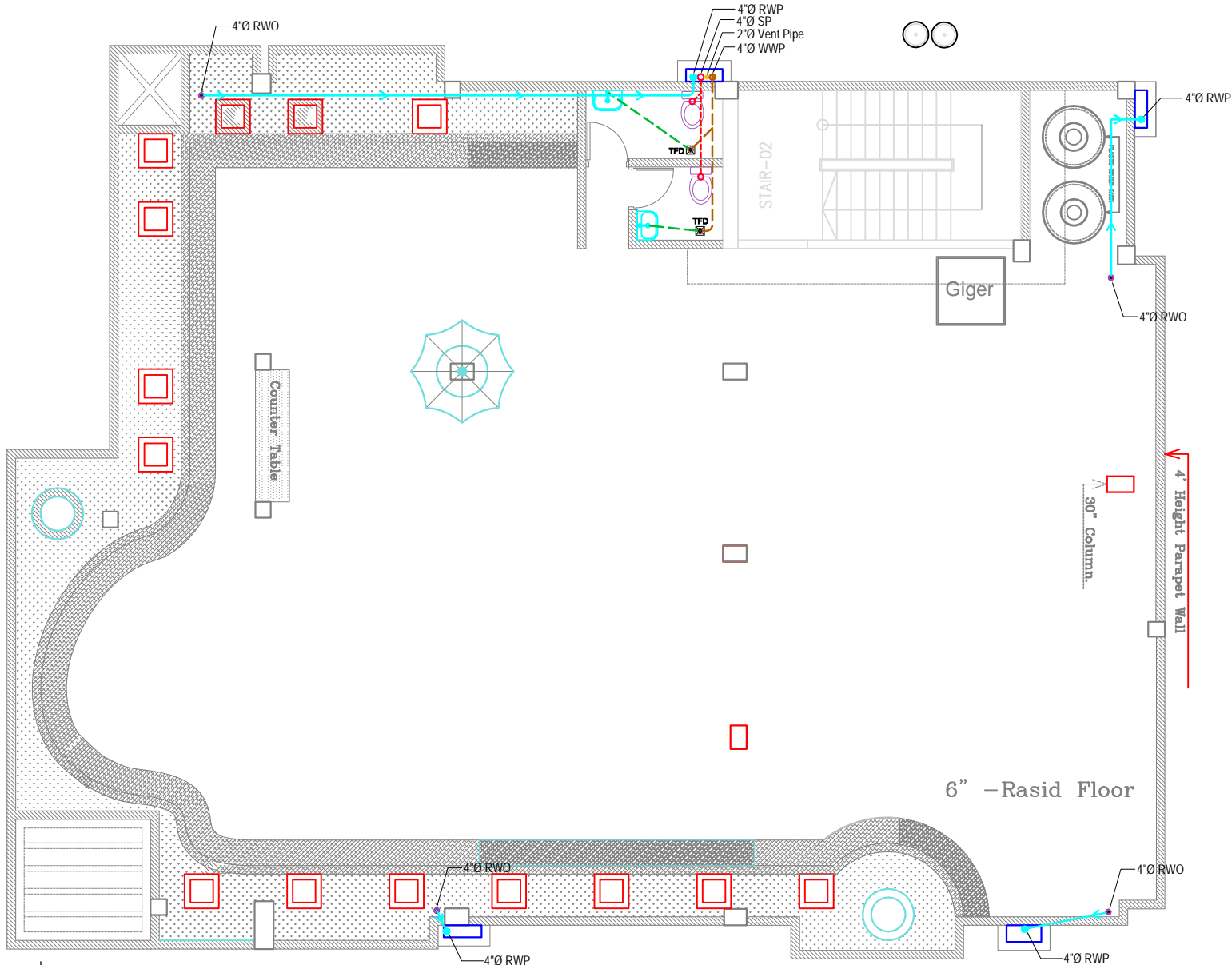
**** Any type of Architectural & Structural decision should not be follow in this Plumbing drawing.**



FIRST FLOOR SANITARY SYSTEM LAYOUT



Corporate Office :	Drawing Title :	Client Name :	Project Address :	Sales Officer :	Designer By :	Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757.	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesen	12.08.2017
					B.Sc Engineer (Civil) A-18414	



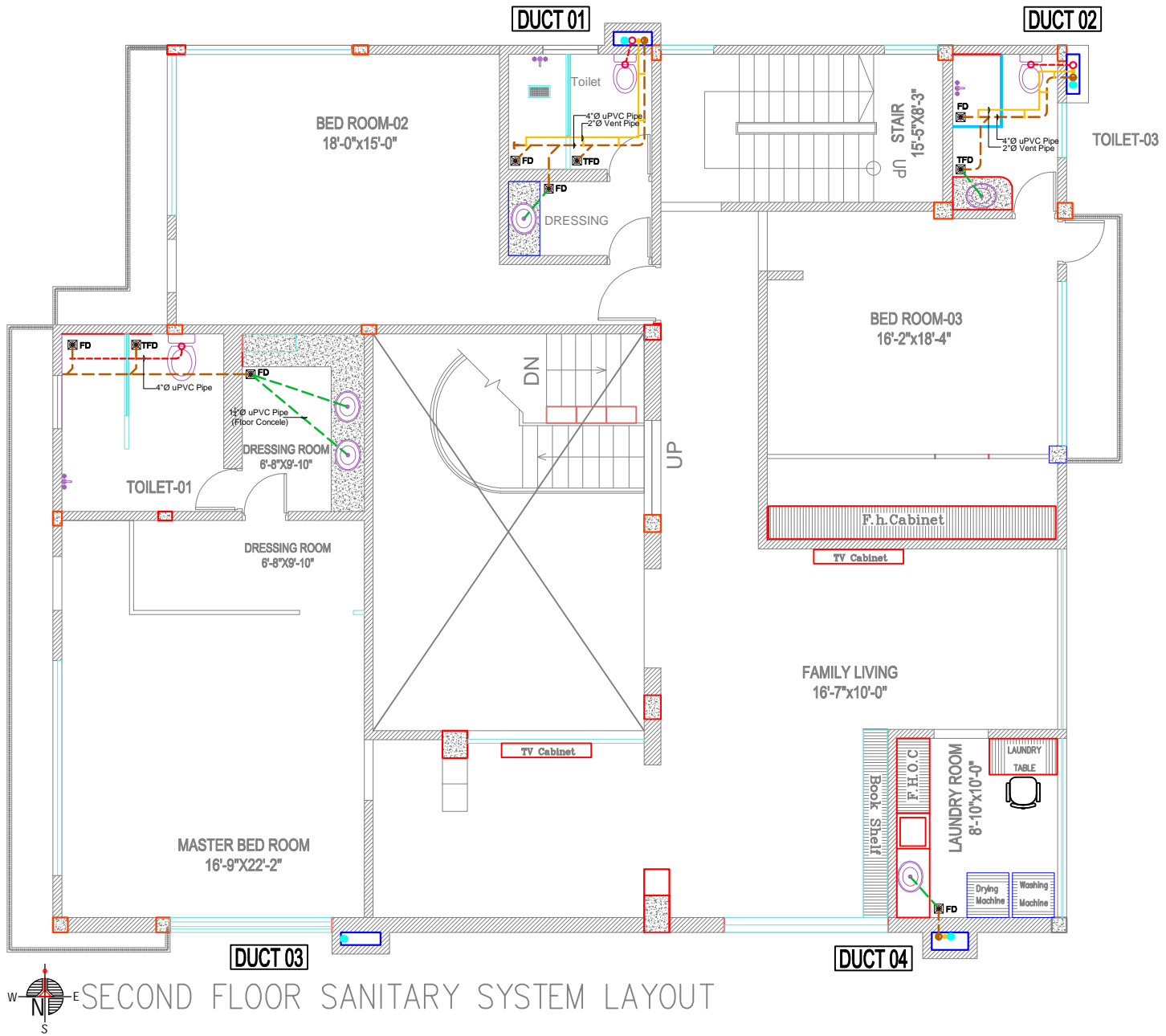
LEGEND:

- ** Rain water line must be followed 1:300 slope
- ⊗ Rain water Outlet
- ⊕ Rain water Stack

W N E ROOF TOP RAIN WATER DISPOSAL SYSTEM LAYOUT S



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Zakir Hoesen	: Date : 12.08.2017
					B.Sc Engineer (Civil) A-18414	



LEGEND:

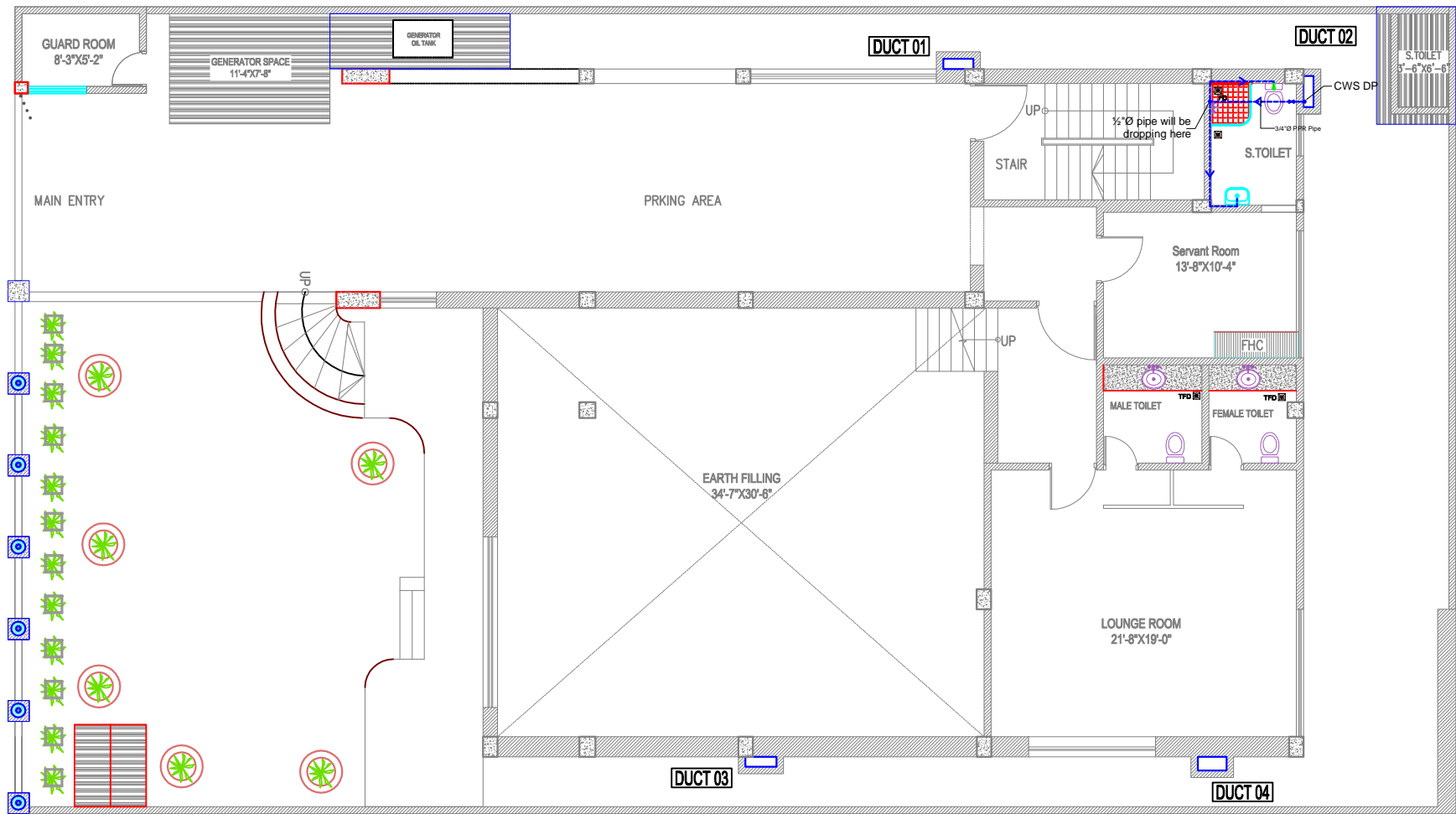
PIPE SYMBOL :-	
	S.S (SOIL STACK)
	W.W.S (WASTE WATER STACK)
	R.W.S. (RAIN WATER STACK)
	V.S (VENT STACK)
	F.D (FLOOR DRAIN)
	K.F.D (FLOOR DRAIN) OVER FLOOR
	DRAIN
	SEWERAGE PIPE LINE
	WASTE WATER LINE
	RAIN WATER PIPE LINE
	VENT PIPE LINE
	1 1/2" - 1 1/4" uPVC PIPE (FLOOR CONCEALED)

**** Any type of Architectural & Structural decision should not be follow in this Plumbing drawing.**

W N E S **SECOND FLOOR SANITARY SYSTEM LAYOUT**



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Zakir Hoesen B.Sc Engineer (Civil) A-18414	: Date : 12.08.2017
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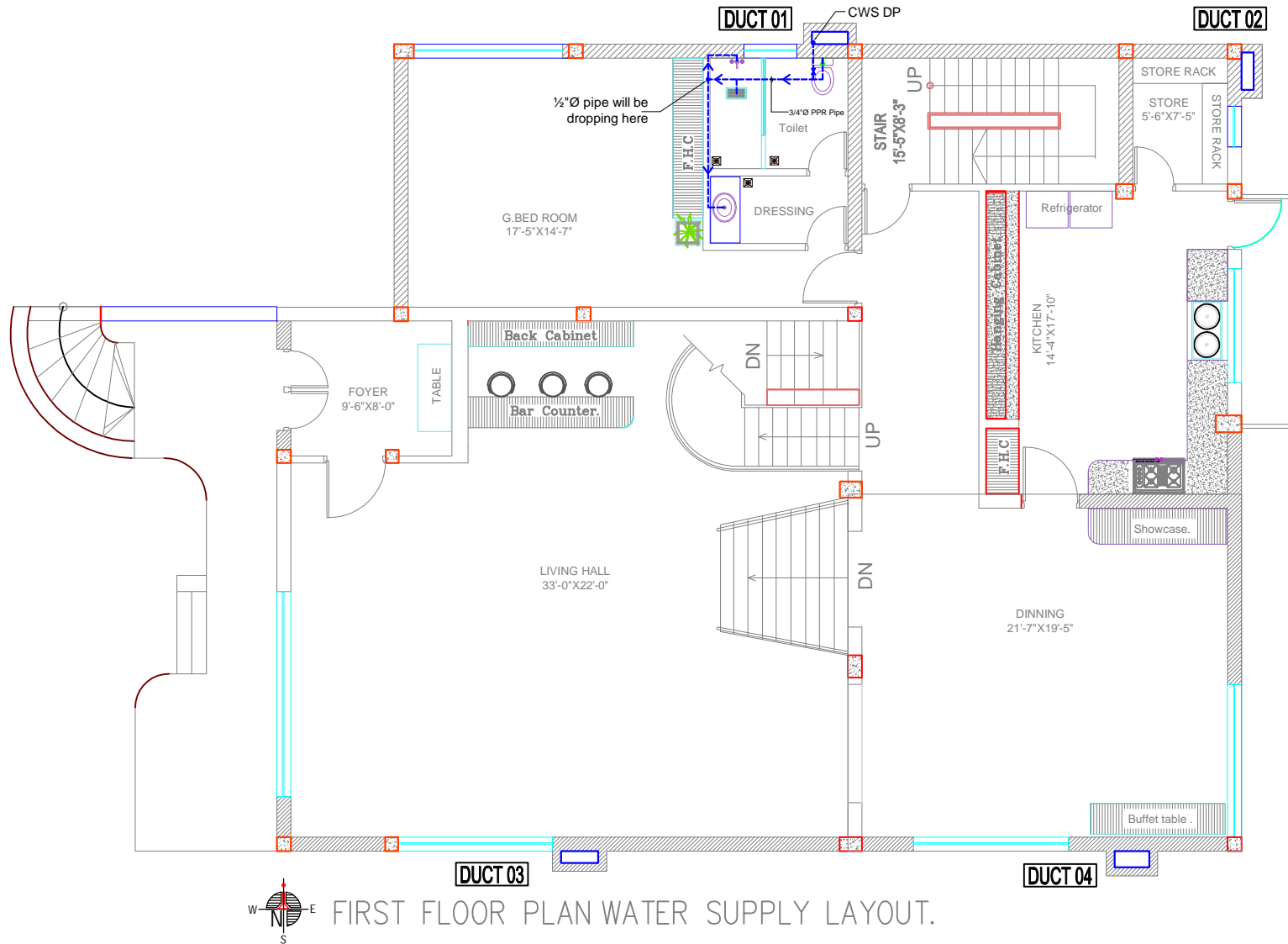
GROUND FLOOR WATER SUPPLY LAYOUT.

LEGEND

- COLD WATER SUPPLY PIPE
- COLD WATER SUPPLY DOWN PIPE
- ⋈ GATE VALVE
- ▶ REDUCING SOCKET

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Zakir Hoesen B.Sc Engineer (Civil) A-18414	: Date : 12.08.2017
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LEGEND

- COLD WATER SUPPLY PIPE
- COLD WATER SUPPLY DOWN PIPE
- X GATE VALVE
- ▽ REDUCING SOCKET

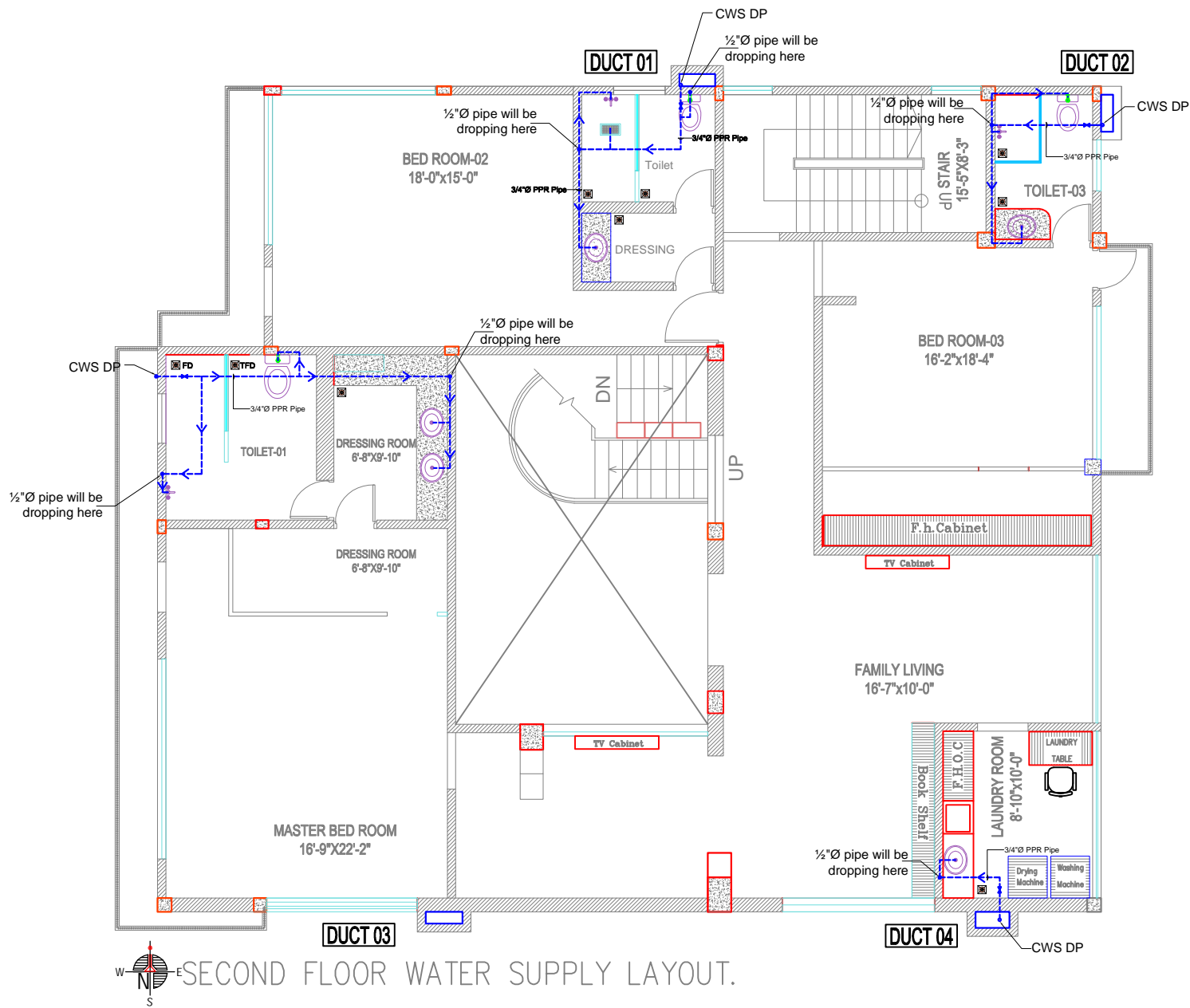
**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**



FIRST FLOOR PLAN WATER SUPPLY LAYOUT.



: Corporate Office : 203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	: Drawing Title : Layout Plan	: Client Name : U.S.Embassy , Dhaka.	: Project Address : Gulshan -2,Road -63, House -24, Polyvilla .	Sales Officer	Designer By : Engr. Md. Zakir Hoesen B.Sc Engineer (Civil) A-18414	: Date : 12.08.2017
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LEGEND

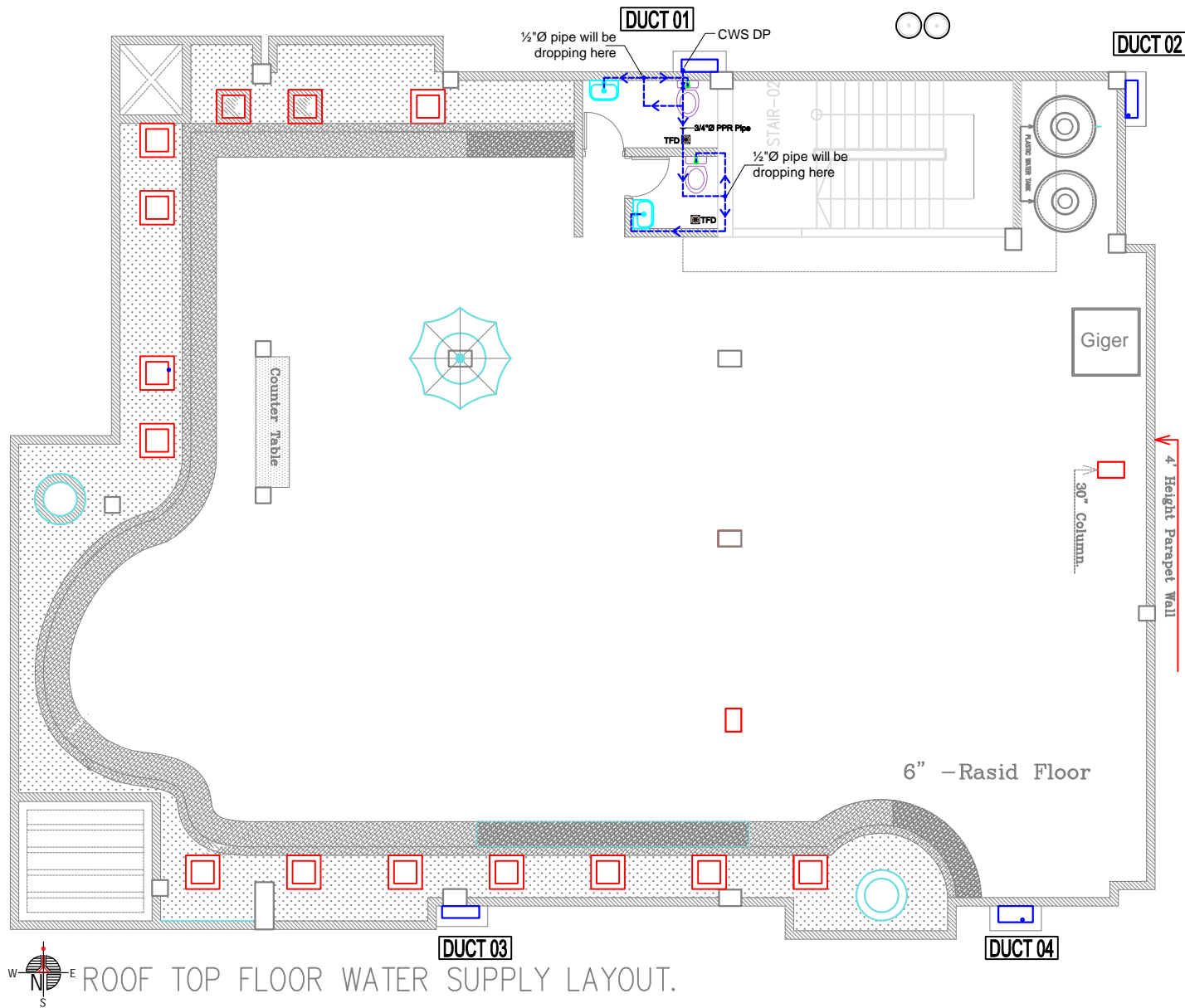
- COLD WATER SUPPLY PIPE
- → COLD WATER SUPPLY DOWN PIPE
- X → GATE VALVE
- ▽ → REDUCING SOCKET

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

W E
SECOND FLOOR WATER SUPPLY LAYOUT.



	: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Sales Officer	Designer By :	: Date :
	203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesen	12.08.2017
						B.Sc Engineer (Civil) A-18414	



LEGEND

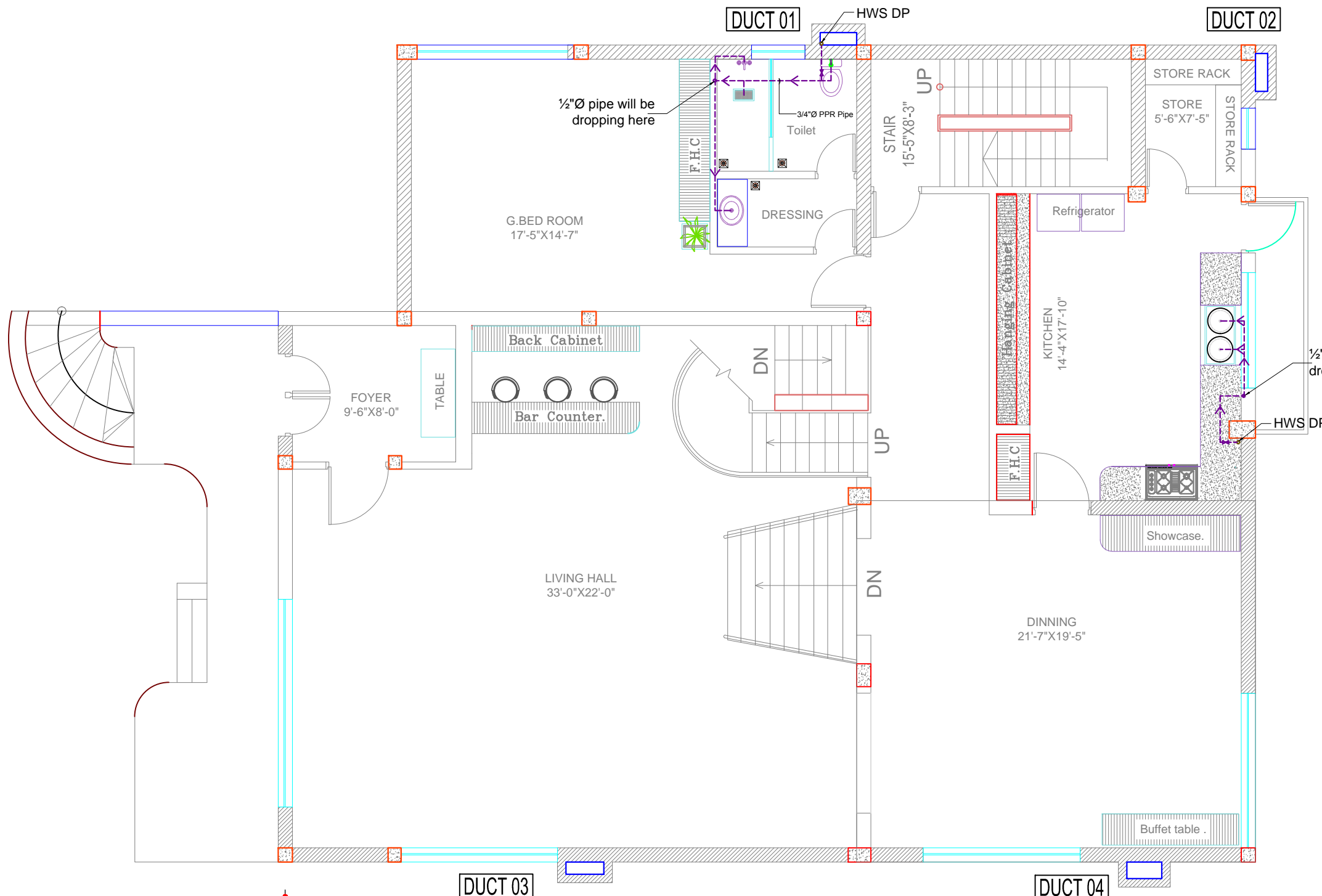
- COLD WATER SUPPLY PIPE
- → COLD WATER SUPPLY DOWN PIPE
- ⊗ → GATE VALVE
- ▽ → REDUCING SOCKET

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

W N E S ROOF TOP FLOOR WATER SUPPLY LAYOUT.



Corporate Office :	Drawing Title :	Client Name :	Project Address :	Sales Officer :	Designer By :	Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757.	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesen	12.08.2017
					B.Sc Engineer (Civil) A-18414	



LEGEND

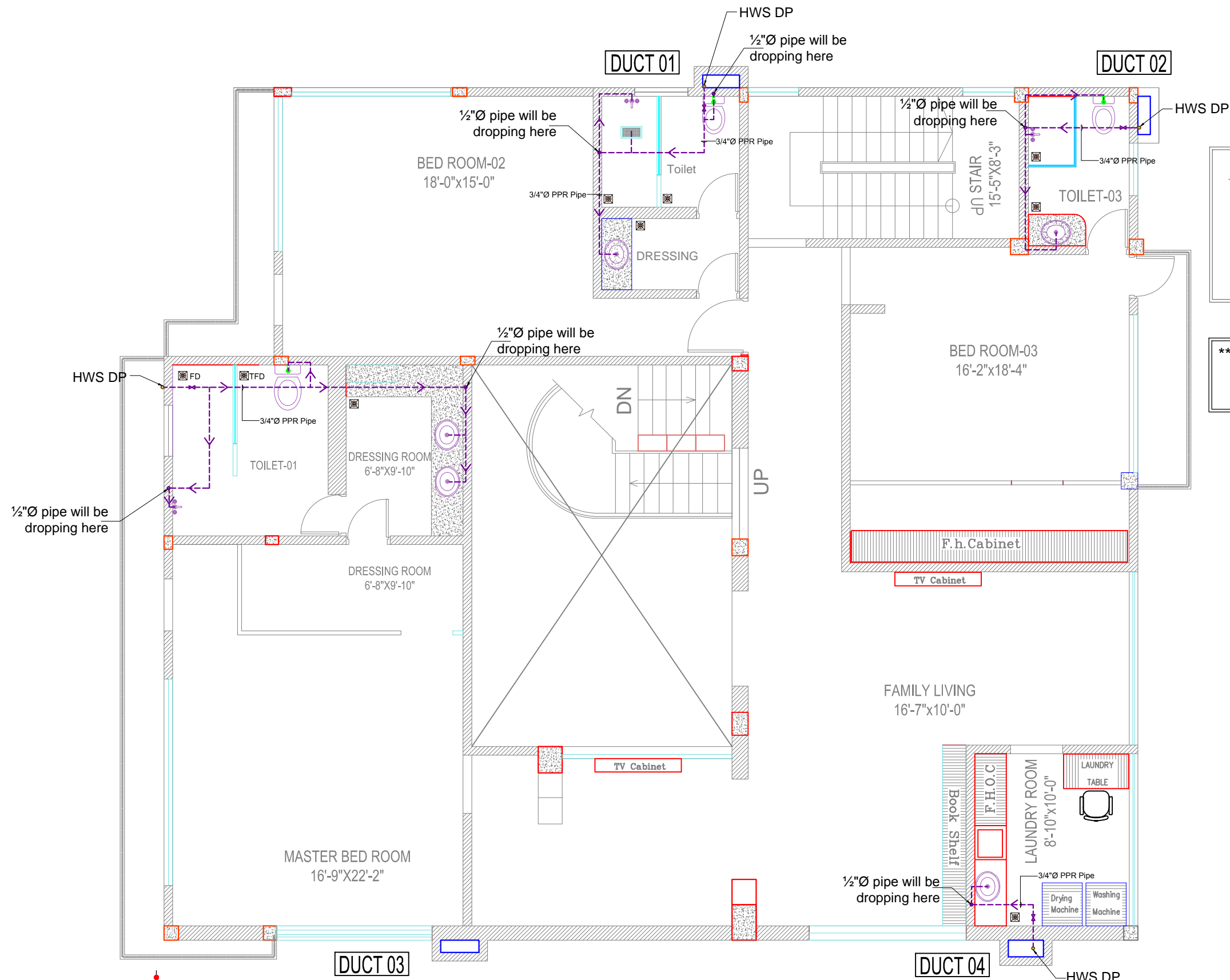
- HOT WATER SUPPLY PIPE
- HOT WATER SUPPLY DOWN PIPE
- GATE VALVE
- REDUCING SOCKET

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

W N E S FIRST FLOOR PLAN HOT WATER SUPPLY LAYOUT.



<i>: Corporate Office :</i>	<i>: Drawing Title :</i>	<i>: Client Name :</i>	<i>: Project Address :</i>	<i>Sales Officer</i>	<i>Designer By :</i>	<i>: Date :</i>
203/1 (4th Floor), Shenpara Parbata, Begun Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757, Web : www.artistic-bd.com	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesen	12.08.2017
					B.Sc Engineer (Civil) A-18414	



LEGEND

- HOT WATER SUPPLY PIPE
- HOT WATER SUPPLY DOWN PIPE
- GATE VALVE
- REDUCING SOCKET

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

W N E S SECOND FLOOR HOT WATER SUPPLY LAYOUT.



: Corporate Office :
 203/1 (4th Floor), Shenpara Parbata, Begum
 Rokeya Sarani, Mirpur-10, Dhaka-1216.
 Tel : 9003777, 9037922, Hotline : 01730374757,
 Web : www.artistic-bd.com

: Drawing Title :
 Layout Plan

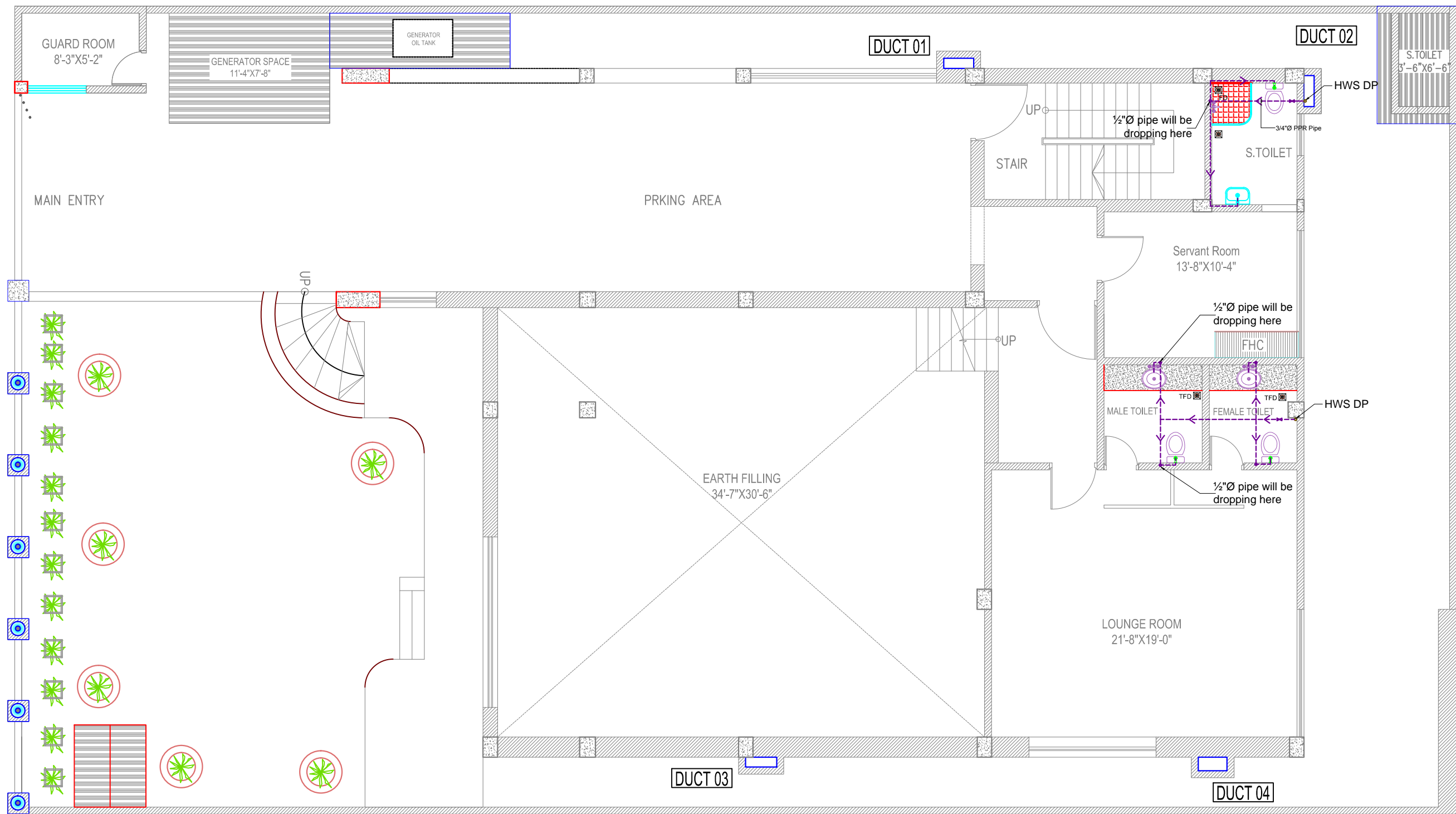
: Client Name :
 U.S.Embassy , Dhaka.

: Project Address :
 Gulshan -2,Road -63,
 House -24, Polyvilla .

Sales Officer

Designer By :
 Engr. Md. Zakir Hoesn
 B.Sc Engineer (Civil)
 A-18414

: Date :
 12.08.2017



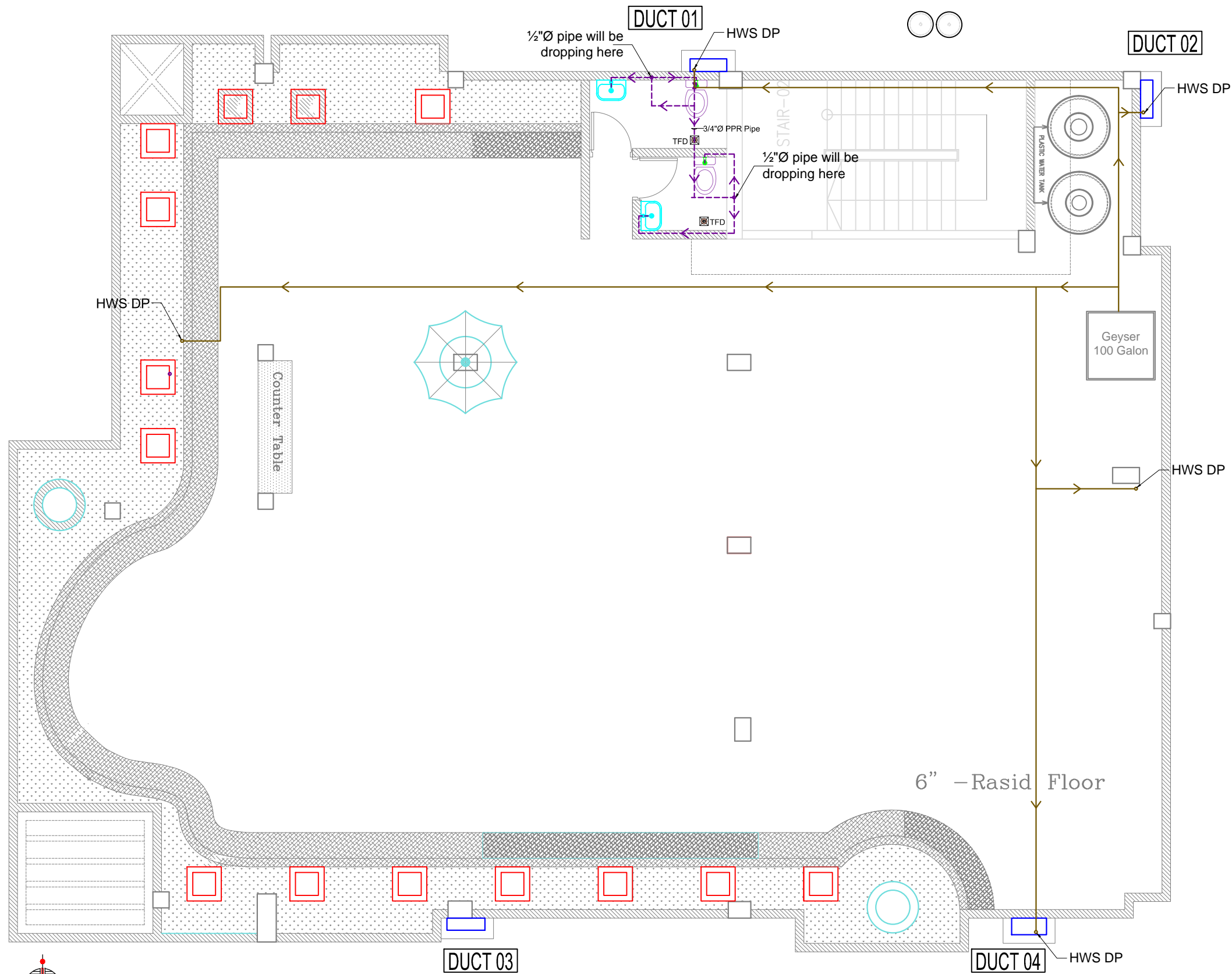
GROUND FLOOR HOT WATER SUPPLY LAYOUT.

** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.

LEGEND	
	HOT WATER SUPPLY PIPE
	HOT WATER SUPPLY DOWN PIPE
	GATE VALVE
	REDUCING SOCKET



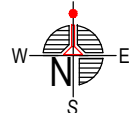
: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Sales Officer	Designer By :	: Date :
203/1 (4th Floor), Shenpara Parbata, Begun Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757, Web : www.artistic-bd.com	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesn	12.08.2017
					B.Sc Engineer (Civil) A-18414	



** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.

LEGEND

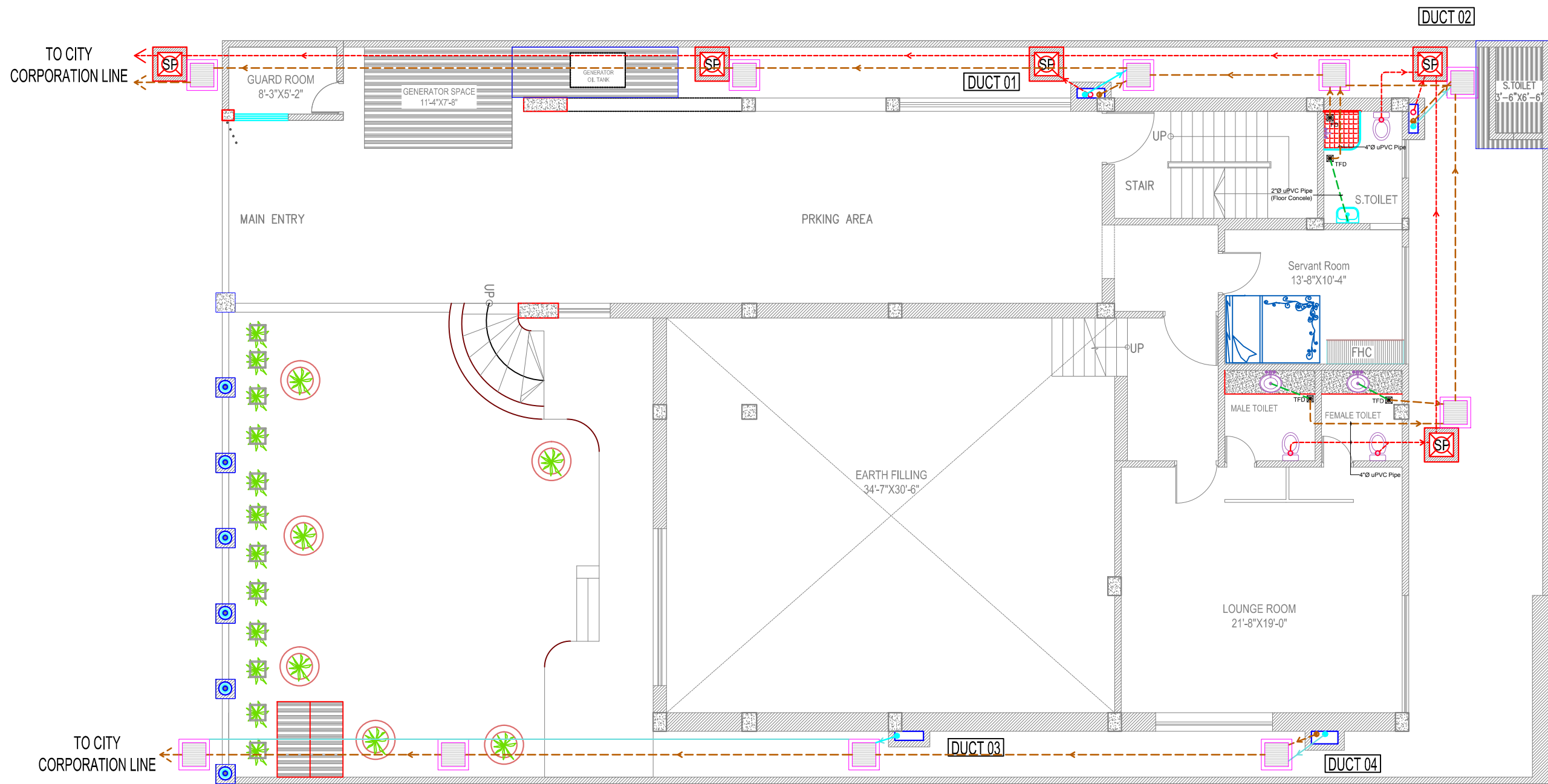
- HOT WATER SUPPLY PIPE
- → HOT WATER SUPPLY DOWN PIPE
- ⊗ → GATE VALVE
- ▶ → REDUCING SOCKET



ROOF TOP FLOOR HOT WATER SUPPLY LAYOUT.



Corporate Office :	Drawing Title :	Client Name :	Project Address :	Sales Officer :	Designer By :	Date :
203/1 (4th Floor), Shenpara Parbata, Begun Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757, Web : www.artistic-bd.com	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesn B.Sc Engineer (Civil) A-18414	12.08.2017



N
GROUND FLOOR SANITARY SYSTEM LAYOUT

**** Any type of Architectural & Structural decision should not be follow from this Plumbing drawing.**

LEGEND

- u.PVC PIPE for Storm Line
- u.PVC PIPE for Sewerage Line
- u.PVC PIPE for Waste water Line
- SP Storm Water Pit
- SP Soil Pit



: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Sales Officer	Designer By :	: Date :
203/1 (4th Floor), Shenpara Parbata, Begun Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757, Web : www.artistic-bd.com	Layout Plan	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .		Engr. Md. Zakir Hoesen	12.08.2017
					B.Sc Engineer (Civil) A-18414	

Lighting Protection System (LPS)

U.S.Embassy

Gulshan -2,Road -63, House -24, Polyvilla .Dhaka , Bangladesh.



<i>: Corporate Office :</i>	<i>: Drawing Title :</i>	<i>: Client Name :</i>	<i>: Project Address :</i>	<i>Designer By :</i>	<i>Checked By</i>	<i>: Date :</i>
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Lightning Protection System Design	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .	Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	Engr. Shamsul Huda B.Sc Engineer (EEE),CUET FIEB - 12425	29.07.2017

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4. LPS in details (E & F)	04
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6. Isometric view for LPS (3D View).....	06



<i>: Corporate Office :</i>	<i>: Drawing Title :</i>	<i>: Client Name :</i>	<i>: Project Address :</i>	<i>Designer By :</i>	<i>Checked By</i>	<i>: Date :</i>
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Lightning Protection System Design	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .	Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	Engr. Shamsul Huda B.Sc Engineer (EEE),CUET FIEB - 12425	29.07.2017

* General Information for Lighting Protection System (LPS) Installation:

1. LPS Method : Used Conventional LPS Method (NFPA 780 2014 edition & BNBC 2006).
2. Material Class : Class-I
3. Type of Roof : Combination of Multi Level (Flat) Roof
4. Building Height : 33 ft - 6 inch
5. Highest Structure Height : 62 ft - 3 inch
6. Roof Top Area : 3194.5 sft
7. Total Perimeter : 241.5 ft
8. Total Air Terminal : 12 nos.
9. Total Down Conductor : 3 nos.
10. Total Grounding Electrode : 3 nos.
11. Air Terminal (Class-I) : 600 mm or 24 inch Height; 9.5 mm or 3/8 inch dia Cu Rod
12. Roof Conductor Size (Class-I) : 29 mm² Cu WIRE (same for both Main & Inter Connected Roof Conductor)
13. Down Conductor Size (Class-I) : 29 mm² Cu WIRE

$$\text{Total Down Conductor} = \frac{\text{Total Perimeter}}{100} = \frac{241.5}{100} = 2.42 \approx 3 \text{ nos.}$$

Note: Copper (Cu) shall be used as materials for Air Terminal, Down Conductor, Main Roof Conductor & Inter Connected Conductor.






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Note: Copper (Cu) shall be used as materials for Air Terminal, Down Conductor, Main Roof Conductor & Inter Connected Conductor.

*** Legend**

Name of Symbol	Symbol
	Class I
Isometric View of Air Terminal (Cu)	
Roof Conductor (Cu)	
Down Conductor (Cu)	
Earth Pit	
Test Link	

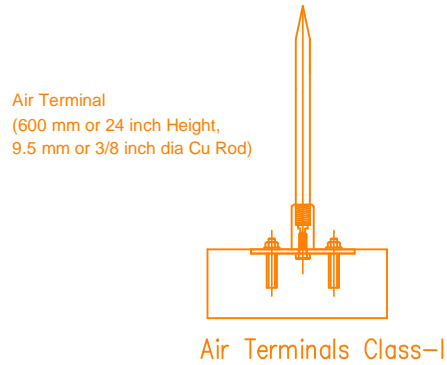
*** Risk Index Calculation for Lightning Protection System: (Table: 8.2.12 Art. 2.9, BNBC 2006)**

Index	Name	Description	Factory Points
A	Use of Structure	Houses and similar buildings	4
B	Type of Construction	Reinforced concrete with nonmetal roof	2
C	Consequential Effects	Ordinary domestic or office building, factories and workshops not containing valuable materials	2
D	Degree of Isolation	Structure located in a large area having structures or trees of similar or greater height	2
E	Type of Terrain	Flat terrain at any level.	2
F	Height of Structure	(18 m ~ 24 m)	8
G	Lightning Prevalence	Over 21/years	21
Total risk index figure:			41

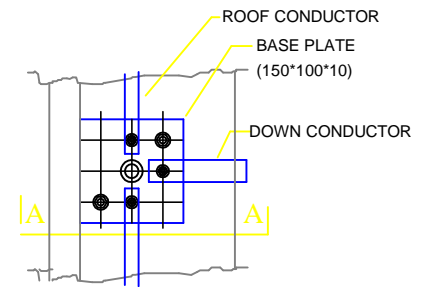
Remarks: As per BNBC if Risk Index figure is around 40 or higher then LPS need to install on the building. So, need to install Lightning Protection System.

LIGHTNING PROTECTION SYSTEM IN DETAILS (A, B, C & D)

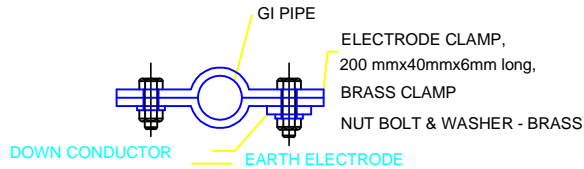
(DESIGN IS DONE AS NFPA 780 : 2014)



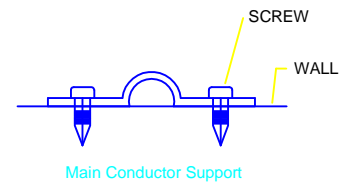
DETAIL-A



**PLAN OF AIR TERMINAL
DETAIL-B**



DETAIL-C



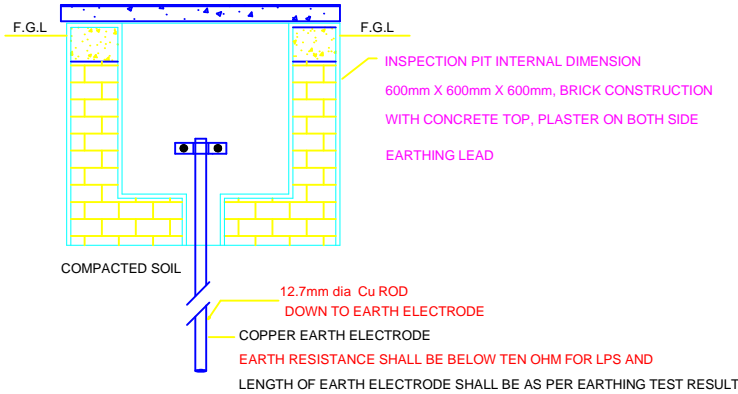
DETAIL-D

Note: All metal part (i.e. Column Re-bar, Pipe Lines, etc.) shall be connected with LPS through Bonding Conductor.

: Corporate Office :	: Drawing Title :	: Client Name :	: Project Address :	Designer By :	Checked By :	: Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216. Tel : 9003777, 9037922, Hotline : 01730374757,	Lightning Protection System Design	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .	Engr. Md. Rezaul Karim B.Sc Engineer (EEE)	Engr. Shamsul Huda B.Sc Engineer (EEE),CUET FIEB - 12425	29.07.2017

LIGHTNING PROTECTION SYSTEM IN DETAILS (E & F)

(DESIGN IS DONE AS NFPA 780 : 2014)



INSPECTION PIT , EARTH ELECTRODE FOR SYSTEM EARTHING.

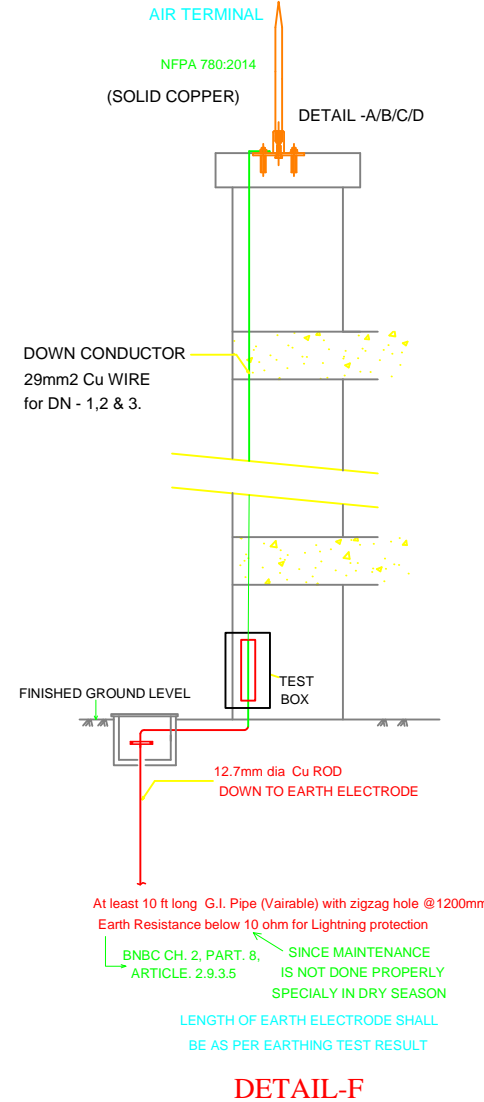
Note: Earth Resistance should be below 10 ohm for LPS earthing

BNBC CH. 2, PART. 8, ARTICLE. 2.8.3.5 a

DETAIL-E

Note: All metal part (i.e. Column Re-bar, Pipe Lines, etc.) shall be connected with LPS through Bonding Conductor.

CLASS-I AIR TERMINAL AND EARTHELECTRODE FOR LIGHTNING PROTECTION.



At least 10 ft long G.I. Pipe (Vairable) with zigzag hole @1200mm Earth Resistance below 10 ohm for Lightning protection

BNBC CH. 2, PART. 8, ARTICLE. 2.9.3.5 SINCE MAINTENANCE IS NOT DONE PROPERLY SPECIALLY IN DRY SEASON

LENGTH OF EARTH ELECTRODE SHALL BE AS PER EARTHING TEST RESULT

DETAIL-F

Coverage Calculation Details Sheet

We know,

$$d = \sqrt{h_1(2R - h_1)} - \sqrt{h_2(2R - h_2)}$$

Here,

R = 150 ft (rolling sphere radius)

h₁ = 64.25 ft (Height of Metal Tower including 2' AT)

h₂ = 37 ft (2nd Floor Roof Height including Parapet Wall)

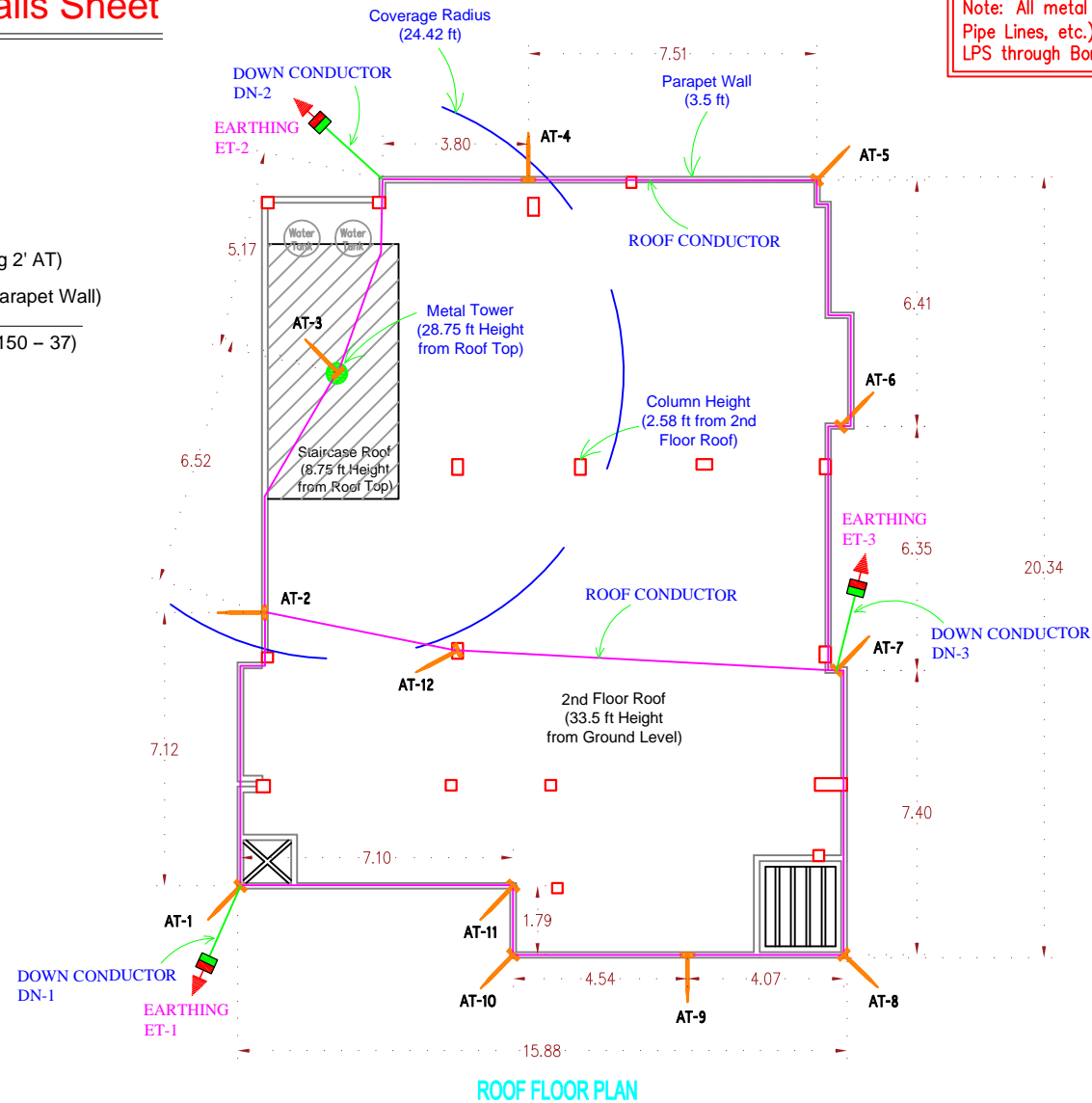
$$d = \sqrt{64.25 \times (2 \times 150 - 64.25)} - \sqrt{37 \times (2 \times 150 - 37)}$$

$$d = 123.07 - 98.65$$

$$d = 24.42 \text{ ft}$$

Lightning Protection System Layout Drawing

Note: All metal part (i.e. Column Re-bar, Pipe Lines, etc.) shall be connected with LPS through Bonding Conductor.



Corporate Office :	Drawing Title :	Client Name :	Project Address :	Designer By :	Checked By :	Date :
203/1 (4th Floor), Shenpara Parbata, Begum Rokeya Sarani, Mirpur-10, Dhaka-1216.	Lightning Protection System Design	U.S.Embassy , Dhaka.	Gulshan -2,Road -63, House -24, Polyvilla .	Engr. Md. Rezaul Karim	Engr. Shamsul Huda	29.07.2017
Tel : 9003777, 9037922, Hotline : 01730374757,				B.Sc Engineer (EEE)	B.Sc Engineer (EEE),CUET FIEB - 12425	