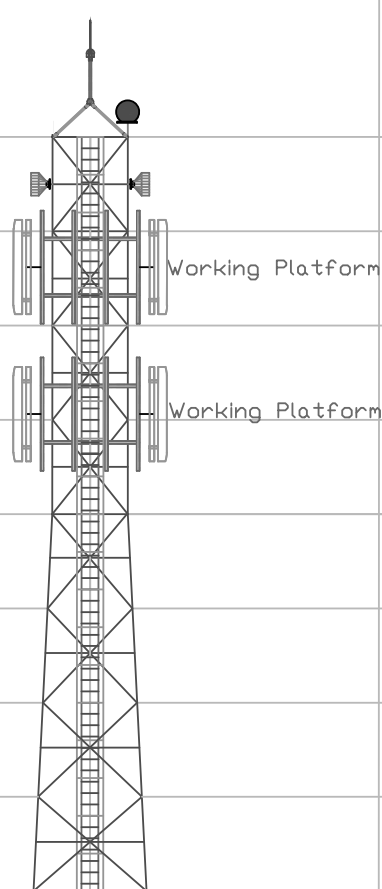
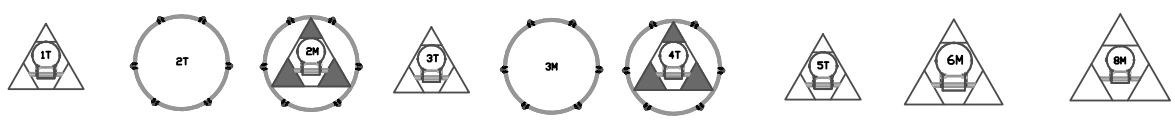


LEVEL		20000	17500	15000	12500	10000	7500	5000	2500	0000
FACE WIDTH	2000	2000	2000	2000	2000	2000	2250	2500	2750	3000
PLATFORM			Working Platform		Working Platform					
LEG JOINT NAME	A	B	C	D	E					
LEG LENGTH	2500	2500	2500	2500	2500	2503	2503	2503	2503	2503
LEGS SIZE	65x65x5	70x70x5	80x80x8	100x100x8						
PANEL NO	1	2	3	4	5	6	7	8		
LENGTH (METER)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
DIAGONALS	50x50x4	50x50x4	50x50x4	50x5	50x50x4	50x50x4	50x50x4			
PANEL TOP- HORIZONTALS	50x50x4	50x50x4	50x50x4							
PANEL MID- HORIZONTALS	45x45x04	45x45x04	50x50x4	50x50x4	50x50x4	50x50x4	50x50x4			
PLAN BRACING	50x50x4	50x50x4	50x50x4	50x50x4	50x50x4	50x50x4	50x50x4			
SEC. BRACING										



PLAN VIEWS



- 1) Remote Radio Head- 6nos (Total Weight 102kgs.)
- 2) Sectoral Antennas - 6nos (Total Weight 210kgs.)
- 3) Microwave Antennas (0.6m)-2nos (Total Weight 40kgs.)

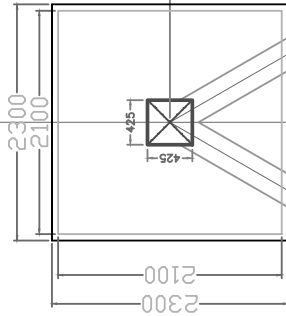
TITLE	20 METER TOWER	Wind Speed	180 KMPH	Design	TIA/EIA-222 G
SUB. TITLE	TRIANGULAR ANGULAR TOWER	Deflection	< 1.0 Degree	Rev:	1
Drawing No.	BT-2023-02	Loading	352 kgs.	Drawn Date	19-11-2022
BHUTAN TELECOM LTD. BHUTAN			Tower Weight 3050 kgs.		

Bhutan Telecom 2023 Project

Technical Specification sheet of 20 mtr. 3 Legged Angular Tower BT-2023-02

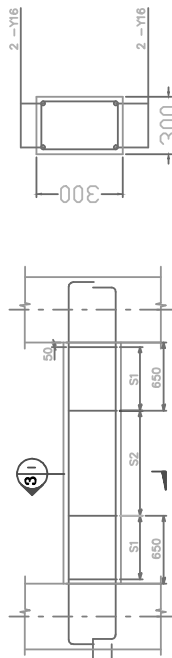
S.N o.			DETAILS	REMARK
1		DESIGN SPECIFICATION	(ANSI/TIA-222G)	
	1.1	Design Wind Velocity		
		Survival	180 KMPH	
	1.2	Twist & Sway	Less than 1.0 degree	
	1.3	Factor of Safety	1.2 For Dead Load	
			1.6 For Wind Load	
	1.4	Antenna Loading	352 Kg	
		Remote Radio Head	6 Nos (17 Kg)	102 Kg
		Sectorial Antenna	6 Nos (35 Kg)	210 Kg
		MW Antenna	2 Nos 0.6 m Dia (20 Kg)	40 Kg
	1.5	Antenna Mounting Structure	GSM mount - 6 Nos MW Mount - 2 Nos	
2		Obstruction Light System		
	2.1	No .Of Obstruction Light Lamp&Watts	1 No. LED Type	
	2.2	Power Cable Type&Length	2.5 Sqmm x 30 mtr. Length	2 core armoured
3		Lighting Protection		
	3.1	Lightning Arrestor	1.2mtr long	1 nos
4	4.1	Structure Of Tower	Self Suppprtng 3 legged Angular construction with vertical ladder in the center intergrated with cable tray & horizontal cable tray from tower to Building	
	4.2	Main Leg	90 Degree Angle	
	4.3	Bracing	90 Degree Angle	
	4.4	Climbing Ladder	450 mm Rung Width, 300mm Rung space & 700mm Hoop	
	4.5	Cable Tray Verticle	450 mm Width	along the tower Height
	4.6	Cable Tray Horizontal	450 mm Width	6 MTR.
	4.7	Platforms		
		Working	2 Nos	
		Rest	0	
5		Foundation bolt & Template	As Per Tower Design	Included
	5.1	Bolts & Nut with spring &	Hot Dipped Galvanized Property Class 5.6	Extra 5% will be provided
	5.2	Plane washer	As per Standard ASTM A 153	
	5,3	Hot Dipped Galvanization	As per Standard ISO 1461	85 Microns
6	6.1	Weight Per Tower	3050 Kgs	(+/-) 5%
	6.2	Drawing No	BT-2023-02	

Q OF TOWER



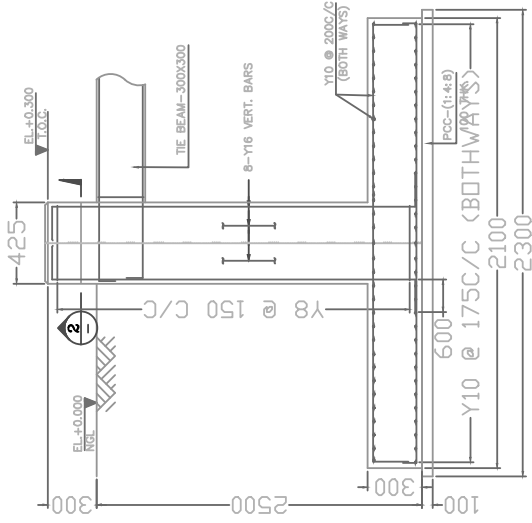
TOWER
20M HIGH

FOUNDATION KEY PLAN

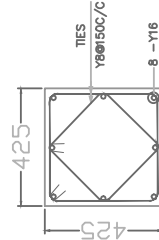


TIE BEAM (TYP DETAILS)

STIRRUP DETAILS
S1--2 LEGGED Y8 @ 100 C/C
S2--2 LEGGED Y8 @ 200 C/C

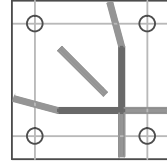


SECTION 1-1

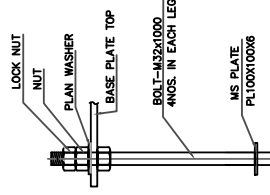


SECTION 2-2

COLUMN 425X425



BASE PLATE



ANCHOR BOLT

NOTES

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE
2. USE M20 GRADE CONCRETE AND F_y 415 GRADE FOR STEEL
3. CLEAR COVER TO MAIN REINFORCEMENT--
(C) 50MM FOR FOUNDATION (C) 25MM FOR BEAMS
(C) 40MM FOR COLUMNS (C) 50MM AT ENDS
4. PRIOR TO AND DURING CONCRETING ALL BOLTS SHALL BE SECURELY HELD IN POSITION BY USE OF TEMPLATE.
5. BEFORE COMMENCEMENT OF CONSTRUCTION USING THIS DESIGN, CLIENT/CONTRACTOR SHALL CARRY OUT DETAILED SOIL INVESTIGATION OF EVERY SITE.
6. THIS FOUNDATION DESIGN SHALL NOT BE USED IN CASE HIGHLY SOIL ARE FOUND AT ANY DEPTH DURING SOIL INVESTIGATION.
7. CONCRETE SHALL BE MECHANICALLY MIXED & VIBRATED.
8. SPLACING OF BARS SHALL NOT BE MORE THAN 50% AT ANY LOCATION.
9. PROPER CURING OF CONCRETE SHALL BE DONE.
10. BARS SHALL BE PLACED AS SHOWN IN THE DRAWING.
11. ANY DISCREPANCY SHOULD BE BROUGHT TO THE CONSULTANTS' ATTENTION.

GENERAL DETAILS

S.No	DESCRIPTION	DETAILS
1	SOIL BEARING CAPACITY	10.00 T/SQM
2	DRY DENSITY OF SOIL	1.75 T/SQM
3	ANGLE OF REPOSE	25.00 DEGREE

BILL OF MATERIALS

ITEM	UNIT	TOTAL
EXCAVATION	CUM	50.7
PCC-(1:4:8)	CUM	1.9
RCC-M20	CUM	6.0
STEEL-Fe415	KG	550

CHAIRS SHALL BE PROVIDED WHEREVER REQUIRED

REVISION NOTES

REV. NO.	DESCRIPTION	DATE	SIGN.
DRAWN	CHECKED	APPROVED	DATE
Bhutan Telecom	Bhutan Telecom	Bhutan Telecom	20-11-2022
NTS			

CLIENT: BHUTAN TELECOM LTD.
BHUTAN

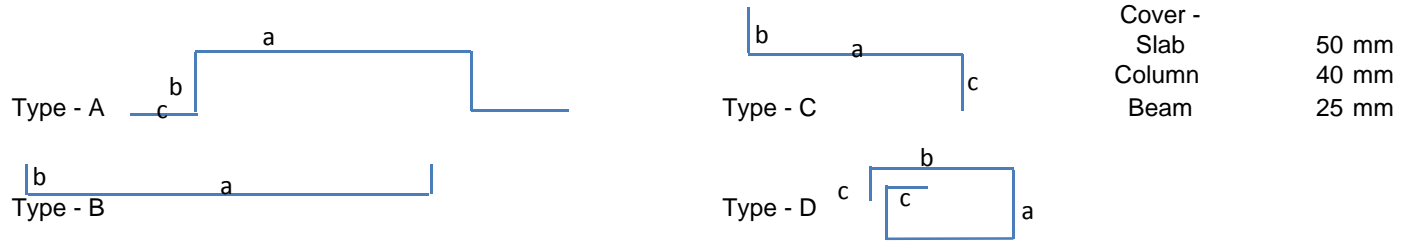
DESIGN BY: BHUTAN TELECOM LTD.
BHUTAN

PROJECT: GENERIC ISOLATED FOUNDATION DESIGN
BHUTAN

TITLE: FOUNDATION DETAILS FOR 20M HIGH TRIANGULAR TOWER
SEC: 10 T/SQM

DRAWING No.	SH. NO.	REV.
BT-2023-02		

Bar Bending Schedule of 20m high 3legged tower



Item	Position	Type	Dia. Of Rebar (mm)	Size	Size	Size	Length (mm)	Qty in Nos both ways or total	Unit wt (kg/m)	Total Weight of (kg)
				a (mm)	b (mm)	c (mm)				
Raft Slab	Top	B	B10	2000	150	-	2300	66	0.62	94
	Bottom	B	B10	2000	150	-	2300	78	0.62	111
Tie Beams	Top	B	B16	3153	300	-	3753	6	1.58	36
	Bottom	B	B16	3153	300	-	3753	6	1.58	36
	Strips	D	B8	250	250	80	1160	54	0.40	25
Column	Main	C	B16	2700	309	600	3609	24	1.58	137
	Ties	D	B8	317	317	80	1428	57	0.40	32
		D	B8	224	224	80	1057	57	0.40	24
								Total (5% extra considered)		550

* Chairs Shall be Provided whenever required

Notes :

1. Dimensions of Bars are along the Center Lines.
3. Splicing of Bars should not be more than 50%. Length of splice as per Standards.