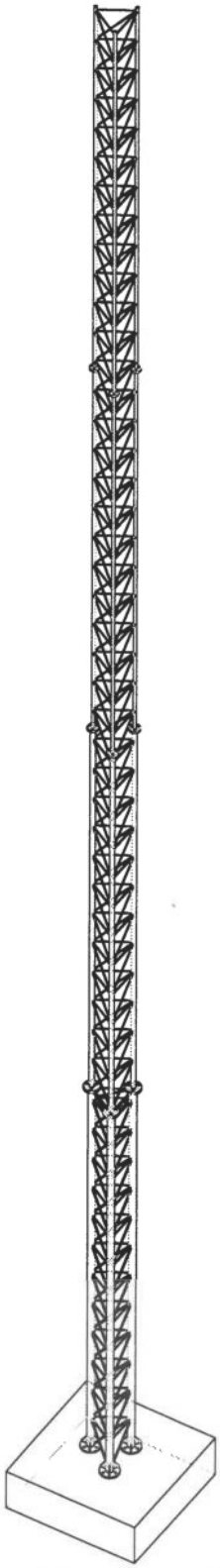
Wifi ISP - Lights Weight Tower



24m MAST 3D VIEW

DESIGN NOTES:

1) WIND LOAD

SABS 0160-1989

Cat 3
Class B
Wind speed = 40m/sec
Return period = 1.50 year
Height above sea level = 1500m
Artificial height = 0m

2) ANTENNA LOADING

$1m^2$ Evenly distrubuted from 20 - 24m
Cf = 1,2

Feeder cables: Total of 150mm wide for full length of the structure

3) LOAD FACTORS @ U.L.S

Own weight of structure x 1.2
Wind load x 1,3

4) WIND LOAD DUE TO MEMBERS

Calculated from Table 19 SABS 0160-1989

5) SOFTWARE PROGRAM USED

Calculation of wind load : Attached schedule

Structural analysis: Latest version of PROKON

6) DEFLECTIONS

Max deflection at 0,7 x Wind load = 1,5% of the height

7) CONNECTIONS:

Bolt end distance for M16 & M20 bolts = 40mm
Bolt pitch for M16 & M20 bolts = 70mm

M16 & M20 bolts to be GR 8.8

M12 bolts to be GR 8.8

8) CONNECTIONS IN LEGS: As shown

9) CONNECTION IN OTHER MEMBERS:

Up to and including 90x60x5mm L = 1 No M16 GR 8.8 bolt, single shear

Up to 90x90x6mm L = 1 No M20 GR 8.8 bolts, single shear

10) STRUCTURAL STEEL

All angle members to be Gr S355 JR
All connection plates to be min of Gr 300 steel
Ladder : Gr 300 steel

11) FOUNDING MATERIAL

Founding material to have a min of 150 kPa bearing capacity

NOTES:
1. ALL WORK TO BE IN ACCORDANCE WITH THE RELEVANT SANS CODES

2. ALL STRUCTURAL STEELWORK TO BE IN ACCORDANCE TO:

GRADE OF STRUCTURAL STEEL:

-HOT ROLLED SECTION GRADE S355JR TO EN 10025 , WELDABLE STRUCTURAL STEELS

-COLD FORMED SECTIONS: GR. S275JR

-HOLLOW SECTIONS GR. 350WA TO SANS1431

-MILD STEEL GR. 300WA TO SANS1431

DESIGN IN ACCORDANCE WITH:

SANS 10162-1:2005,THE STRUCTURAL USE OF STEEL, PART1: LIMIT-STATES DESIGN OF HOT-ROLLED STEELWORK.

SANS 1062-2:2011(EDITION 2): THE STRUCTURAL USE OF STEEL, PART2: LIMIT-STATES DESIGN OF COLD FORMED STEELWORK.

WELDS:
ALL WELDS TO BE IN ACCORDANCE WITH SANS 10044-1:2004, WELDING.
Alt: AWS D1.1

3. A MINIMUM OF 8mm THICK PLATE TO BE USED FOR STRUCTURAL CONNECTIONS, U.O.N.

4. BOLT SPECIFICATIONS
H.D BOLTS: HOT DIPPED GALVANISED BOLTS TO BE Gr4.8
ALL OTHER BOLTS TO BE GR8.8

5. ALL CONNECTIONS TO BE BOLTED, AND NO SITE WELDING WILL BE ALLOWED, U.O.N

6. ALL STRUCTURAL BOLTED CONNECTIONS TO HAVE A MIN. EDGE DISTANCE OF 1,5XDia. OF THE BOLT AND A BOLT PITCH OF 3XDia. OF THE BOLT

7.ABBREVIATIONS
-C.H.S = CIRCULAR HOLLOW SECTION
-S.H.S = SQUARE HOLLOW SECTION
-PLT,PL&PI = PLATE
-FL = FLAT BAR
-D = DIAMETER