

400KV TOWERS



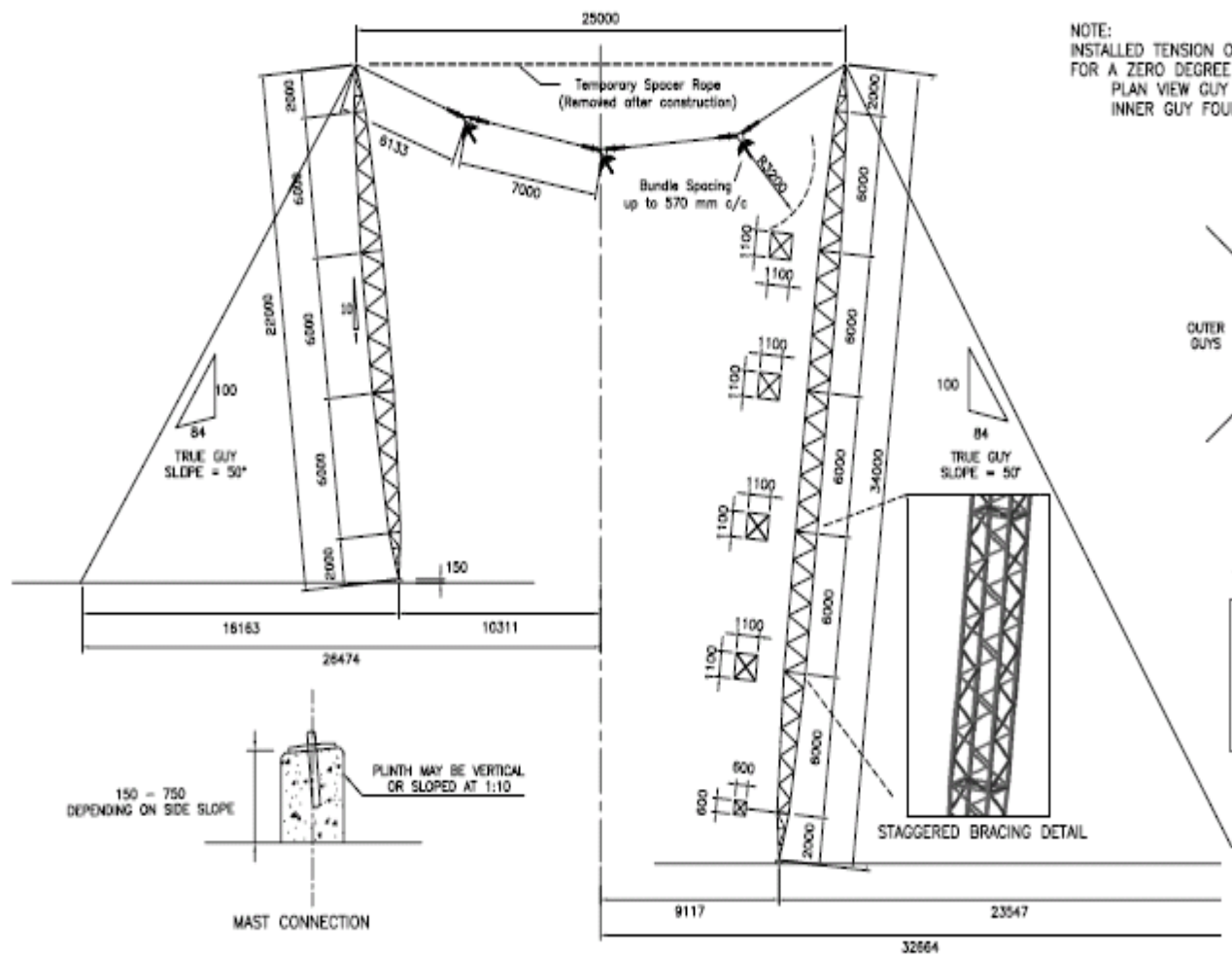
MAX HEIGHT = 40M

WIDTH AT TOP = 17.2M

WIDTH AT BOTTOM = 9M

PHASE CONDUCTOR	QUAD "ZEBRA"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	400m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 190kN Susp 300kN Strain

400KV TRANSPOSITION TOWER SELF SUPPORTING SUSPENSION- 518E



NOTE:
INSTALLED TENSION 0
FOR A ZERO DEGREE
PLAN VIEW GUY
INNER GUY FOUR

TABLE OF MAST EXTENSIONS

ATTACHMENT HEIGHT	MAST LENGTH	MAST HEIGHT	MAST COMPOSITION	WEIGHT PER MAST (kg)
17.2	22	21.9	STANDARD TOWER	1554
18.4	23.2	23.1	STANDARD + 1.2M EXTENSION	1667
19.6	24.4	24.3	STANDARD + 2.4M EXTENSION	1752
20.8	25.6	25.5	STANDARD + 3.6M EXTENSION	1817
22.0	26.8	26.7	STANDARD + 4.8M EXTENSION	1883
23.2	28	27.9	STANDARD + 6.0M EXTENSION	1949
24.3	29.2	29.1	STANDARD + 7.2M EXTENSION	2015
25.5	30.4	30.2	STANDARD + 8.4M EXTENSION	2147
26.7	31.6	31.4	STANDARD + 9.6M EXTENSION	2212
27.9	32.8	32.6	STANDARD + 10.8M EXTENSION	2278
29.1	34	33.8	STANDARD + 12.0M EXTENSION	2343

528C CROSS ROPE STRAIN TOWER



MAX HEIGHT = 40M

WIDTH AT TOP = 23.4M

WIDTH AT BOTTOM = 1M

PHASE CONDUCTOR	QUAD "ZEBRA"
EARTH CONDUCTOR	TWO x 19/2.65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	400m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 190kN Susp 300kN Strain

520B GUYED VEE SUSPENSION TOWER



MAX HEIGHT = 40M

WIDTH AT TOP = 22.4M

WIDTH AT BOTTOM = 13M

PHASE CONDUCTOR	TWIN "DINO"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	375m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 120kN Susp 190kN Strain

517A TOWER SELF SUPPORTING SUSPENSION



529A/C

MAX HEIGHT = 43M

WIDTH AT TOP = 35M

WIDTH AT BOTTOM = 27M

GUY ANCHOR =41M FROM CENTERLINE

PHASE CONDUCTOR	TRIPLE 'TERN"
EARTH CONDUCTOR	TWO x 19/2,7
CONDUCTOR ATTACHMENT HEIGHT	33.3m
NOMINAL DESIGN SPAN	500m?
WIND PRESSURE ON CONDUCTORS	As determined by CSIR Loading Code
WIND PRESSURE ON TOWERS / POLE	As determined by CSIR Loading Code
INSULATORS: GLASS/ COMPOSITE	120kN

529A CROSS ROPE SUSPENSION TOWER



MAX HEIGHT = 35M

WIDTH AT TOP = 23.2M

WIDTH AT BOTTOM = 18M

PHASE CONDUCTOR	TWIN "DINO"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	375m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 120kN Susp 190kN Strain

517F TOWER CLOSING SPAN TOWER OR ANGLE STRAIN TOWER



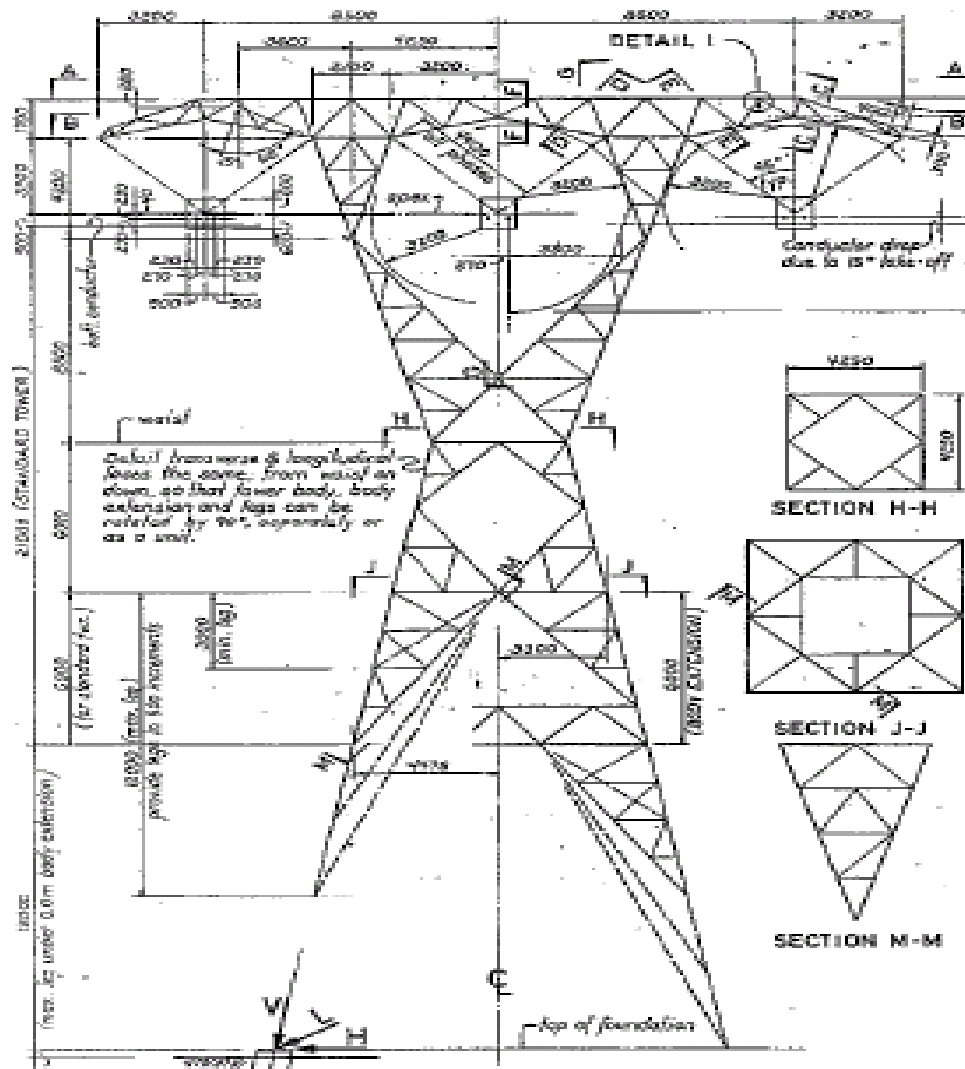
MAX HEIGHT = 35M

WIDTH AT TOP = 22M

WIDTH AT BOTTOM = 16M

PHASE CONDUCTOR	TWIN "DINO"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	375m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 120kN Susp 190kN Strain

517E SELF SUPPORTING STRAIN TOWER



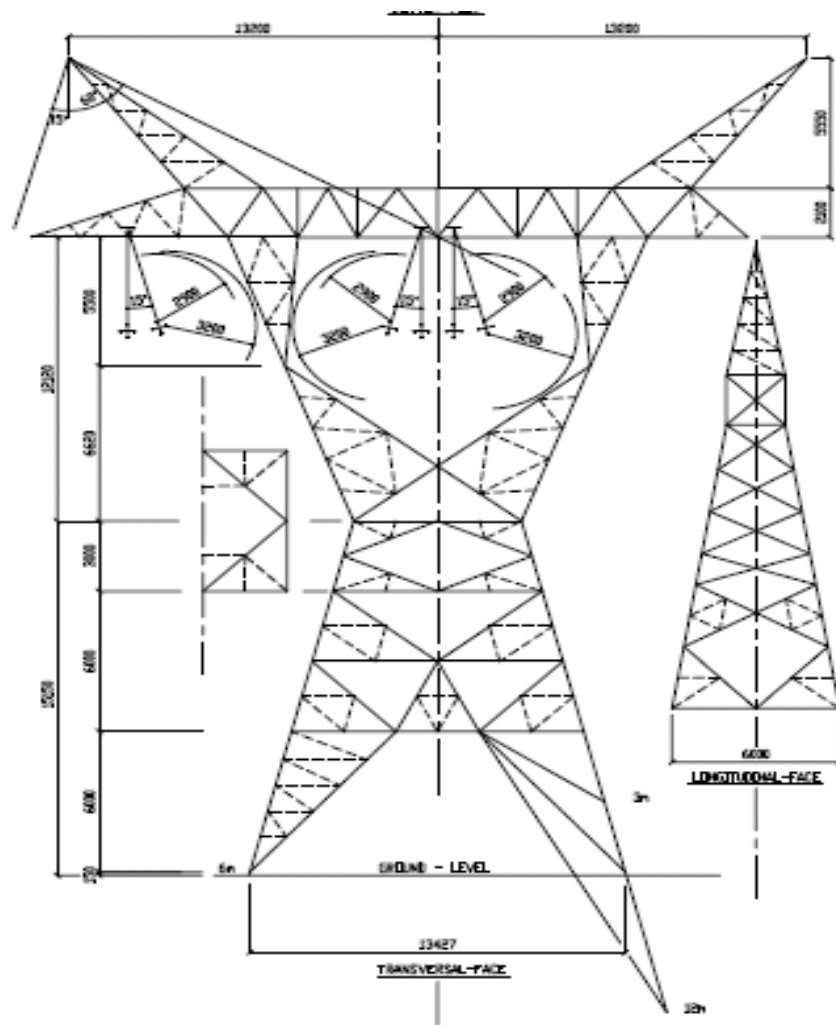
MAX HEIGHT = 40M

WIDTH AT TOP = 24M

WIDTH AT BOTTOM = 16M

PHASE CONDUCTOR	QUAD "ZEBRA"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	400m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 190kN Susp 300kN Strain

518A SELF SUPPORTING SUSPENSION TOWER



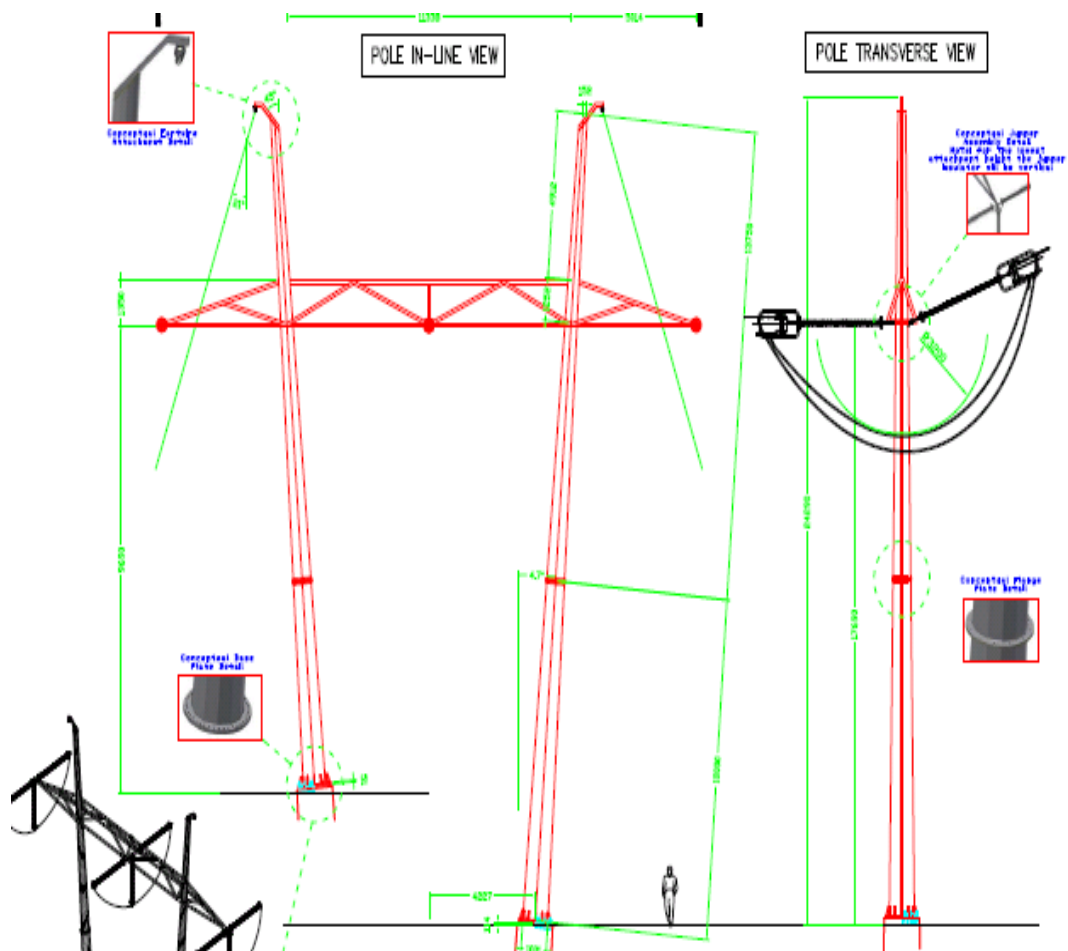
MAX HEIGHT = 42M

WIDTH AT TOP = 27M

WIDTH AT BOTTOM = 14M

PHASE CONDUCTOR	QUAD "ZEBRA"
EARTH CONDUCTOR	TWO x 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	21m
NOMINAL DESIGN SPAN	400m
WIND PRESSURE ON CONDUCTORS	850Pa
WIND PRESSURE ON TOWERS / POLE	2100Pa
INSULATORS:	GLASS 190kN Susp 300kN Strain

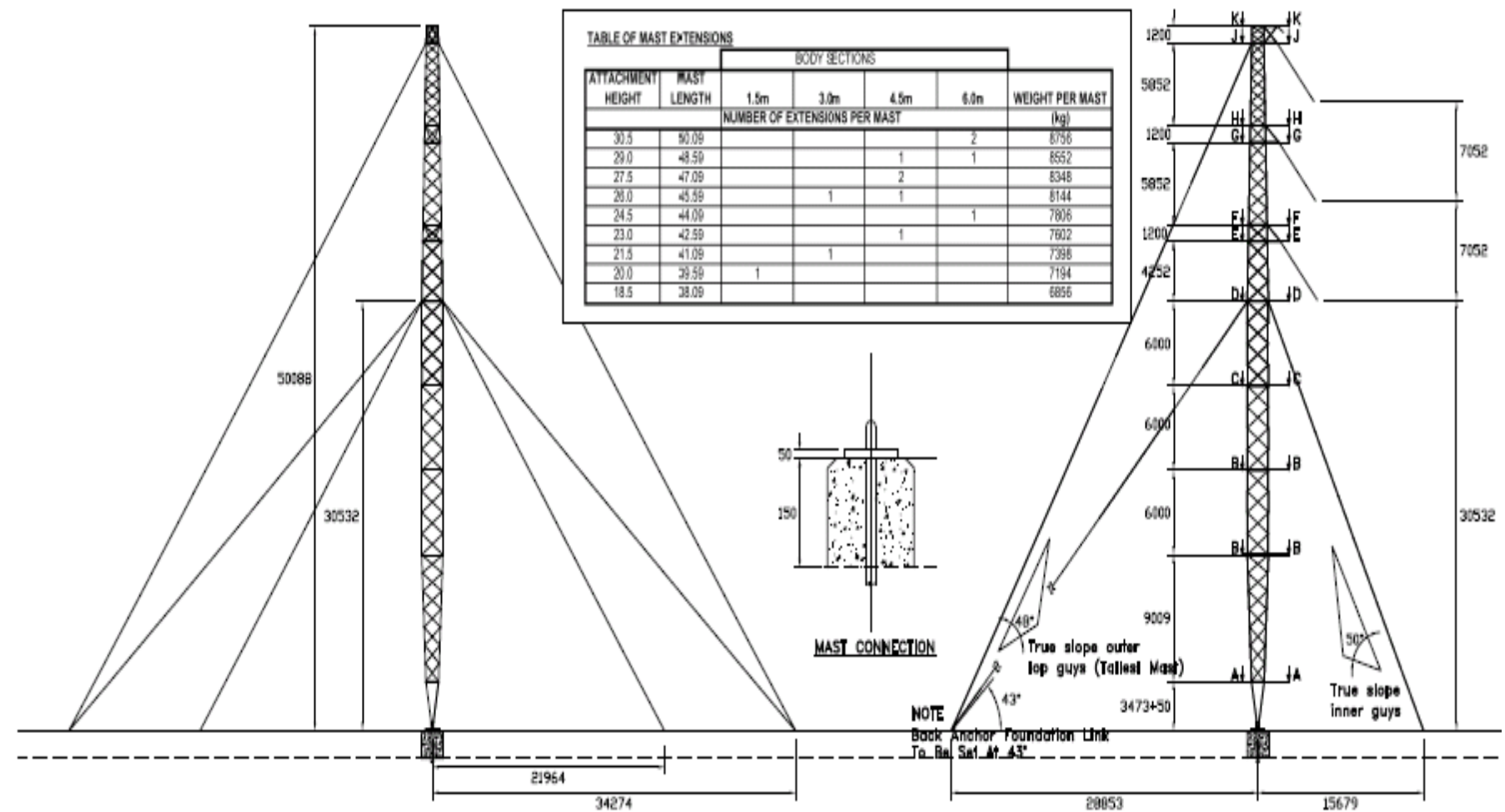
518D SELF SUPPORTING STRAIN TOWER



541C IN LINE STRAIN TOWER

Pole Information:

Structure Code:	541C
Phase Conductor:	Triple Dinosaur
Shield Wire:	Panther
Design Wind Span:	200m
Design Weight Span:	400m
Design Electrical Span:	N/A
Min. horizontal distance btw phases:	4.80m
Vertical Ph-Ph Spacing:	N/A
Vertical Top Ph-Pole Top Spacing:	3.20m
CAH:	13m - 9m
Total Length:	30.4m - 20.4m
Sides:	12
Design Angle:	0 - 15 degrees
Tip Dia. :	250mm
Base Dia. :	1150mm
Wall Thickness:	102mm



528D SINGLE MAST STRAIN TOWER

275KV TOWERS



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM =8M

PHASE CONDUCTOR	TWIN "ZEBRA" 0.4 SCA
EARTH CONDUCTOR	TWO 19/.104
CONDUCTOR ATTACHMENT HEIGHT	
NOMINAL DESIGN SPAN	1200 ft
WIND PRESSURE ON CONDUCTORS	0.6 x 15 000 lbs/sq ft
WIND PRESSURE ON TOWERS / POLE	15 000 lbs/sq ft
INSULATORS:	GLASS 15 000 lbs 10" x 5 3/4" SUSP 30 000 lbs 11" x 6 1/4" STRAIN

275kV Self Supporting Strain Tower-419



MAX HEIGHT = 35M

WIDTH AT TOP = 15M

WIDTH AT BOTTOM = 1M

PHASE CONDUCTOR	TWIN ' BEAR'
EARTH CONDUCTOR	TWO 19/2,65
CONDUCTOR ATTACHMENT HEIGHT	19,3m
NOMINAL DESIGN SPAN	380
WIND PRESSURE ON CONDUCTORS	1,5 x 800 Pa
WIND PRESSURE ON TOWERS / POLE	1,5 x 2000 Pa
INSULATORS:	70 kN SUSP 120kN STRAIN
GLASS	

275KV 436B GUYED VEE SUSPENSION TOWER



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

275kV SELF SUPPORTING SUSPENSION TOWER-430A



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

275kV SELF SUPPORTING SUSPENSION TOWER-430B



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

PHASE CONDUCTOR	TWIN "ZEBRA" 0.4 SCA
EARTH CONDUCTOR	TWO 19/104
CONDUCTOR ATTACHMENT HEIGHT	
NOMINAL DESIGN SPAN	1200 ft
WIND PRESSURE ON CONDUCTORS	0.6 x 15 000 lbs/sq ft
WIND PRESSURE ON TOWERS / POLE	15 000 lbs/sq ft
INSULATORS:	GLASS 15 000 lbs 10" x 5 3/4" SUSP 30 000 lbs 11" x 6 1/4" STRAIN

275kV SELF SUPPORTING SUSPENSION TOWER-419P



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

275kV SELF SUPPORTING SUSPENSION TOWER-KV/14C



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

275kV SELF SUPPORTING SUSPENSION TOWER-KV/14A3



275kV SELF SUPPORTING STRAIN TOWER-422V

MAX HEIGHT = 27M

WIDTH AT TOP = 12M

WIDTH AT BOTTOM = 9M

PHASE CONDUCTOR	TWIN 0.25 SCA 6.35 or 'BEAR' TWIN 0.3 SCA 7.62 or 'GOAT' TWIN 0.4 SCA 10.16 or 'ZEBRA'
EARTH CONDUCTOR	TWO 7/0.128 3.25
CONDUCTOR ATTACHMENT HEIGHT	for 0.4 a) $\frac{Wt + 48'}{Wd + 121'}$ > 0.793
NOMINAL DESIGN SPAN	1200 ft
WIND PRESSURE ON CONDUCTORS	0.6x 15= 9lb per sq ft 718 Pa a) $\frac{Wt + 14.7m}{Wd + 36.8m}$ > 0.793
WIND PRESSURE ON TOWERS / POLE	700 Pa
INSULATORS:	GLASS 15 000 lbs 10" x 5 3/4" SUSP 30 000 lbs 10" x 6 1/4" STRAIN



MAX HEIGHT = 24M

WIDTH AT TOP = 16M

WIDTH AT BOTTOM = 8M

275kV SELF SUPPORTING SUSPENSION TOWER-KV/12A

Used for lighter conductors i.e. twin zebra.



MAX HEIGHT = 26M

WIDTH AT TOP = 21M

WIDTH AT BOTTOM = 9.5M

PHASE CONDUCTOR	QUAD 'BEAR' or 'ZEBRA' 0.25SCA or 0.04SCA
EARTH CONDUCTOR	TWO 19/.104
CONDUCTOR ATTACHMENT HEIGHT	1 200 ft
NOMINAL DESIGN SPAN	1 200 ft BEAR
WIND PRESSURE ON CONDUCTORS	0,6x 15= 9lbs / sq ft 15lb per sq ft
WIND PRESSURE ON TOWERS / POLE	700 Pa
INSULATORS:	GLASS 25 000 lbs 10" x 5 3/4" SUSP 30 000 lbs 11" x 6 1/4" STRAIN

275kV SELF SUPPORTING STRAIN TOWER-426V



MAX HEIGHT = 25M

WIDTH AT TOP = 21M

WIDTH AT BOTTOM = 8M

PHASE CONDUCTOR	QUAD 'ZEBRA'	
EARTH CONDUCTOR	TWO 19/2,65	
CONDUCTOR ATTACHMENT HEIGHT	365 700 Pa 700 Pa	
NOMINAL DESIGN SPAN		
WIND PRESSURE ON CONDUCTORS		
WIND PRESSURE ON TOWERS / POLE		
INSULATORS:	GLASS	120 kN SUSP 120 kN STRAIN

275kV SELF SUPPORTING SUSPENSION TOWER-433B



MAX HEIGHT = 27M

WIDTH AT TOP = 22M

WIDTH AT BOTTOM = 12M

PHASE CONDUCTOR	QUAD 'ZEBRA'	
EARTH CONDUCTOR	TW0 19/2,65	
CONDUCTOR ATTACHMENT HEIGHT	365	
NOMINAL DESIGN SPAN		
WIND PRESSURE ON CONDUCTORS		
WIND PRESSURE ON TOWERS / POLE	700 Pa	
INSULATORS:	GLASS	120 kN SUSP 120 kN STRAIN

275KV SELF SUPPORTING STRAIN TOWER-433E-DESIGNED FOR QUAD ZEBRA



MAX HEIGHT = 24M

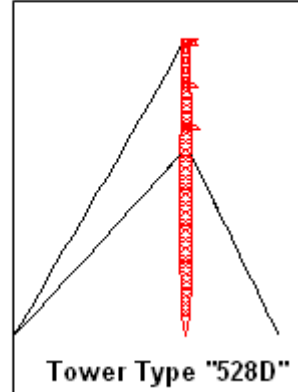
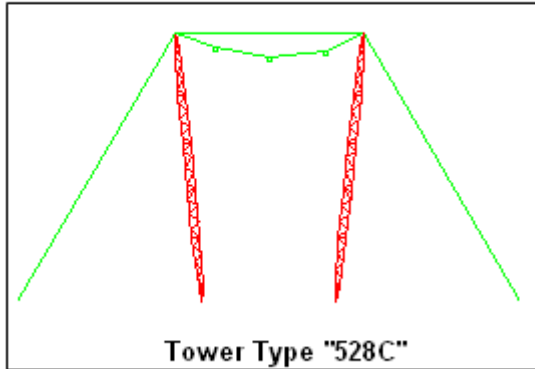
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WIDTH AT BOTTOM = 4M

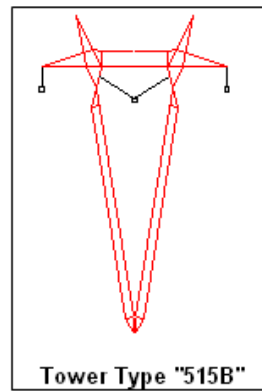
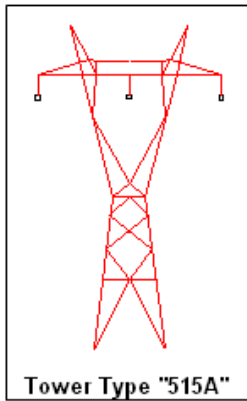
PHASE CONDUCTOR	QUAD 'ZEBRA' or 'BEAR' 0.04 SCA or 0.25 SCA
EARTH CONDUCTOR	TWO 19/104
CONDUCTOR ATTACHMENT HEIGHT	1 200 ft
NOMINAL DESIGN SPAN	600 ft ZEBRA 720 ft BEAR
WIND PRESSURE ON CONDUCTORS	0,6x 15= 9lbs / sq ft 15lb per sq ft
WIND PRESSURE ON TOWERS / POLE	700 Pa
INSULATORS:	GLASS 15 000 lbs 10" x 5 3/4" SUSP 30 000 lbs 11" x 6 1/4" STRAIN

275kV SELF SUPPORTING SUSPENSION TOWER-424A

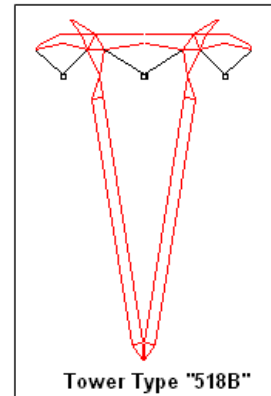
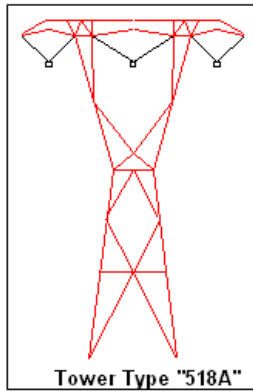
528 Tower Types



515 Tower Types



518 Tower Types



SERVITUDE WIDTHS

For 400kV 55m is a requirement.

For 275kV 47m is a requirement.