Towers

SELF SUPPORTING TOWERS

Self-supporting galvanized steel towers are supported on ground or on roof. They act as cantilever trusses in carrying wind and
seismic loads.

- Ground based towers.....Height ranging from 18 mtr. to 100 mtr. for various loads. Roof top towers ..... Height ranging from 12 mtr. to 30 mtr. for various loads.
- Monopoles..... Height ranging from 3mtr. to 12mtr.
- Special Design Mounts.....For any type of Tower Antenna/Loading.
- Specially Designed Antenna Support.

TYPES OF SELF SUPPORTING TOWERS

- Based on cross section of tower

1. Square Towers.
2. Rectangular Towers.
3. Triangular Towers.
4. Delta Towers.

- Based on type of material sections

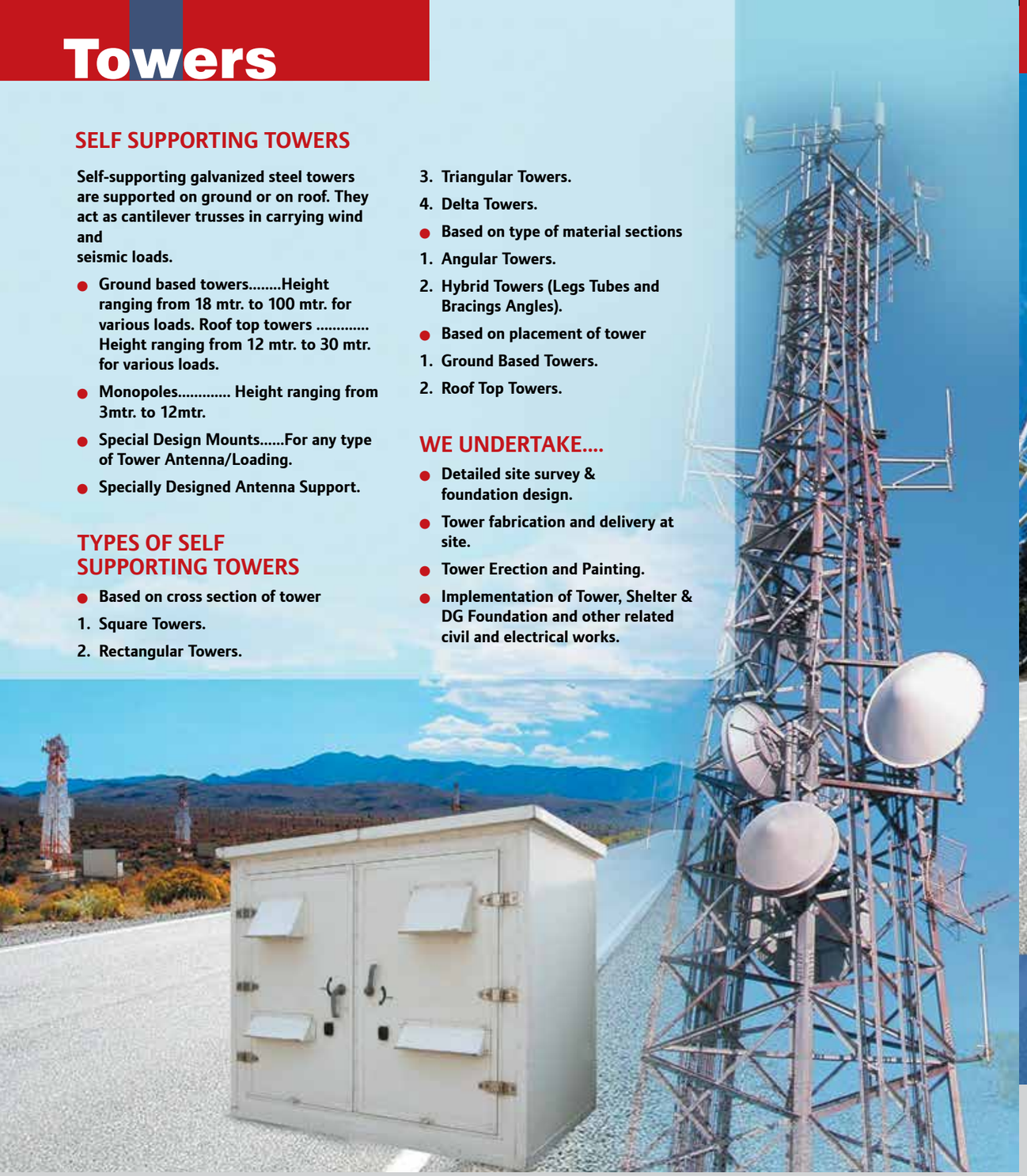
1. Angular Towers.
2. Hybrid Towers (Legs Tubes and Bracings Angles).

- Based on placement of tower

1. Ground Based Towers.
2. Roof Top Towers.

WE UNDERTAKE....

- Detailed site survey & foundation design.
- Tower fabrication and delivery at site.
- Tower Erection and Painting.
- Implementation of Tower, Shelter & DG Foundation and other related civil and electrical works.



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ZEP Shelter & Tower

Redefining standards

....through proactive technology

Features of Zep Telecommunication Shelter

Panels
Rigid high quality PU-foam sandwiched between pre-coated steel or aluminium sheets, using state-of-the-art high pressure injection machine.

Walls
Formed by joining panels with eccentric cam-locks.

Floor
Suitably reinforced panels to bear minimum 2000 kg/m² load or as desired by customers.

Roof
Roof panels covered with specially designed sunroof for better insulation and to eliminate leaks.

Door
Made of insulated panel with extruded aluminium profiles. The closure is by means of three-point locking system and an espagnolette-locking cylinder provides a dust proof enclosure. The door has pick proof security studs, (i.e even if door hinges are removed, the door panel cannot be taken out).

Joining
Wall panels are joined together with camlocks and outer angles to form a monocoque frame for structural stability.

Sealing
All joints are sealed with high quality sealants.

Assembly
Can be assembled at site within 3 days or at customer's warehouse and then taken to site.

Size
Tailor made to customer's specification.

Mobility
Zep shelters can be easily transported on trailers and can be fork or crane lifted using specially designed skids on demand.

Foundation
Our standard shelters do not require an elaborate base frame. ISMB's are placed on concrete pillars which are cast in-situ at site.

Wind Load Factor
Upto 160-180 kmph. (It is important to have regular check-ups of the mounting arrangement) Seismic shock bearing capability: Suitable for seismic zone 4.

For other zones, special design can be adopted on request.

Skids
High quality skids made of ISMB for lifting of the shelters, if required.

Mounting of Equipment
Extruded aluminium alloy C-rails for mounting of equipment, cable ladder, tube lights etc. provides immense flexibility to re-locate equipment and fixtures of different heights and dimensions without drilling holes in the shelter walls, ceiling and floor.

We define Zep Shelters as Protective Cells for the integration of high quality equipment.

Electrical mounting and equipment using aluminium alloy C-rails

Zep door with a three way espagnolette locking system

PUF Panel Thickness Selection Guide

Thermal conductivity of polyurethane K=0.023 W/m² °C

Thickness in mm			50	60	80	100	120	150	180	200
Useful U(W/m² °C)			0.460	0.383	0.288	0.230	0.1920	0.153	0.128	0.115
T	10	Q= Thermal Transmission in W/m²	4.60	3.83	2.88	2.30	1.92	1.53	1.28	1.15
E	15		6.90	5.75	4.32	3.45	2.88	2.29	1.92	1.72
M	20		9.20	7.66	5.76	4.60	3.84	3.06	2.56	2.30
P	25		11.50	9.58	7.20	5.75	4.80	3.82	3.20	2.87
	30		13.80	11.49	8.64	6.90	5.76	4.59	3.84	3.45
V	35		16.10	13.40	10.08	8.05	6.72	5.36	4.48	4.02
A	40		18.40	15.32	11.52	9.20	7.68	6.12	5.12	4.60
R	45		20.70	17.23	12.96	10.35	8.64	6.89	5.76	5.17
I	50		23.00	19.15	14.40	11.50	9.60	7.65	6.40	5.75
A	55		25.30	21.06	15.84	12.65	10.56	8.41	7.04	6.32
T	60		27.60	22.98	17.28	13.80	11.52	9.18	7.68	6.90
I	65		29.90	24.90	18.72	14.95	12.48	9.94	8.32	7.47
O	70		32.20	26.81	20.16	16.10	13.44	10.71	8.96	8.05
N	75		34.50	28.72	21.60	17.25	14.40	11.47	9.60	8.62
=	80		36.80	30.64	23.04	18.40	15.36	12.24	10.24	9.20
Δt	85		39.10	32.55	24.48	19.55	16.32	13.00	10.88	9.77
	90		41.40	34.47	25.92	20.70	17.28	13.77	11.52	10.35

Allowable Thermal Transmission 10 to 12 W/m²

Properties of CFC Free Polyurethane Foam

Density	40 ± 2 Kg/m3
Compressive Strength (at 10% deformation)	2.1 Kg/Cm2
Adhesion Strength (Foam to Steel)	3.0 Kg/Cm2
Tensile Strength	4.0 Kg/Cm2
Dimensional Stability (48 Hours)	
-25 Deg.C	0.1%
+ 38 Deg C and 90 Rh	0.1%
+ 90 Deg. C	
Temperature Range	-180 Deg. C to 100 Deg. C
Thermal Conductivity At 10 Deg. C Mean Temperature	0.02 w/mk

Fire Properties

Extent of Burn as per B.S. 4735	Max 100mm
Type	Self Extinguishing
Water Absorption	0.2% at max R.H. 98%
Water Vapour Permeability	5.5 ng/Pasm as per 'S' 11239 part-12