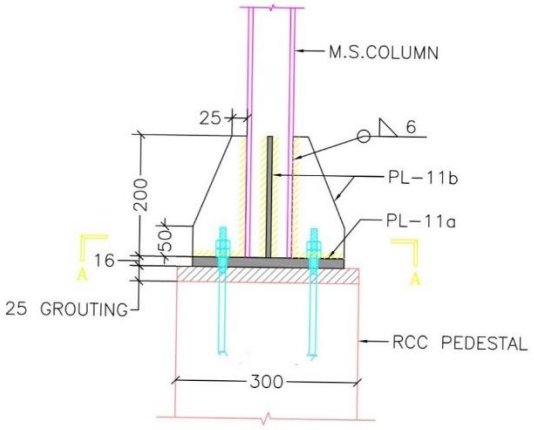
Structural Facts-&-Figures for Rooftop installations

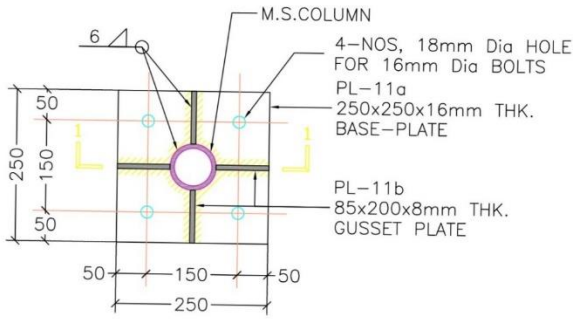
Vertical loads (DL + LL) = Maximum 340 Kg/ leg spread over the area of 62500MM^2. This translate to merge .54KG/CM^2 or 0.054N/MM^2.

Horizontal force /load for uplift load and moments (especially for wind):

1. As structure is assumed to be pin at base there will be NO moment transferred to the supporting points.
2. The horizontal force of total 800KG will be distributed among the four legs equally spread the area of 250MM*250MM MS plate each leg.
3. Up-lift force caused by total thrust of 800KG at each leg will be 2000KG or 20KN. Our system is sufficiently strong to transfer the load very safely. The system is designed to take tension upto 75KN through its 16 Diameter *4 anchor bolts per plate.



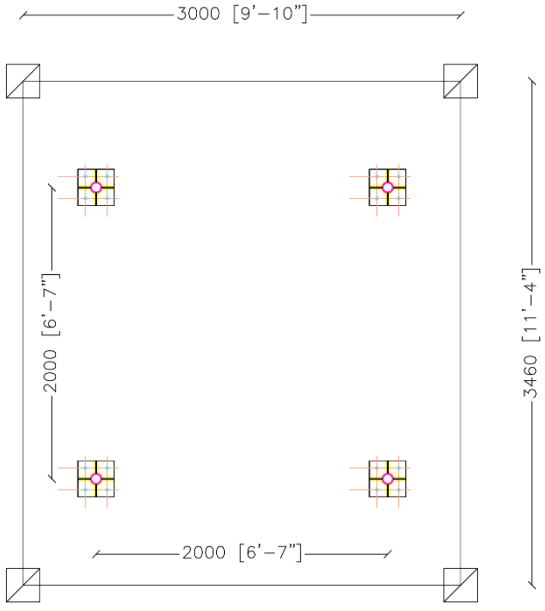
4. Further, your 130MM thick slab can sustain upto 130KN vertical load either downward or upward (is transferred to it via 250MM * 250MM MS Plate). Our system load is merely 20KN load which just 15% of 130KN.



5. The near-by arrangement of structural beams and columns of existing building will further help to transfer the load from the slab to the foundation of the building without any difficulties.
6. SWS – the **S**mall **W**indmill **S**ystem, being a patented 'non-PMG, Direct-drive and No-load start' has **No Starting Torque** and hence has **No Wake-losses**. Even after the smooth initial start, during the generation, SWS's "dynamic loading and intelligent unloading" ensures linear acceleration/ retardation, this further protects the structure and foundation from vibration.

7. Similarly the low & constant speed (within 100 RPM) protects the system from the impact of high momentum and also makes the yawing (in the line of wind, 360° rotation on vertical axis) jerk-free.
8. SWS, since "always-already remains in the state-of-motion" hence can absorbs otherwise 'structure damaging pushing force of wind', by converting the same potential energy of wind into rotation -Kinetic Energy.
9. Lattice light weight yet strong Tower is made-up of round MS hollow pipes so that most of the wind can pass through without any resistance, this drastically minimizes the horizontal thrust on the entire surface area of tower leading to little counter forces on the foundation.
10. Broad base of 2M*2Meter and the extended foundation MS plates distributes the static load over the large surface area further leads to minimum pin-pointed load on the roof-top.
11. Special foundation & mounting – practically clamps the very large & heavy weight roof-slab, there-by providing upto 10 times the counter weight against the static and the dynamic system weight.

A typical roof-top most of the time resembles the following:



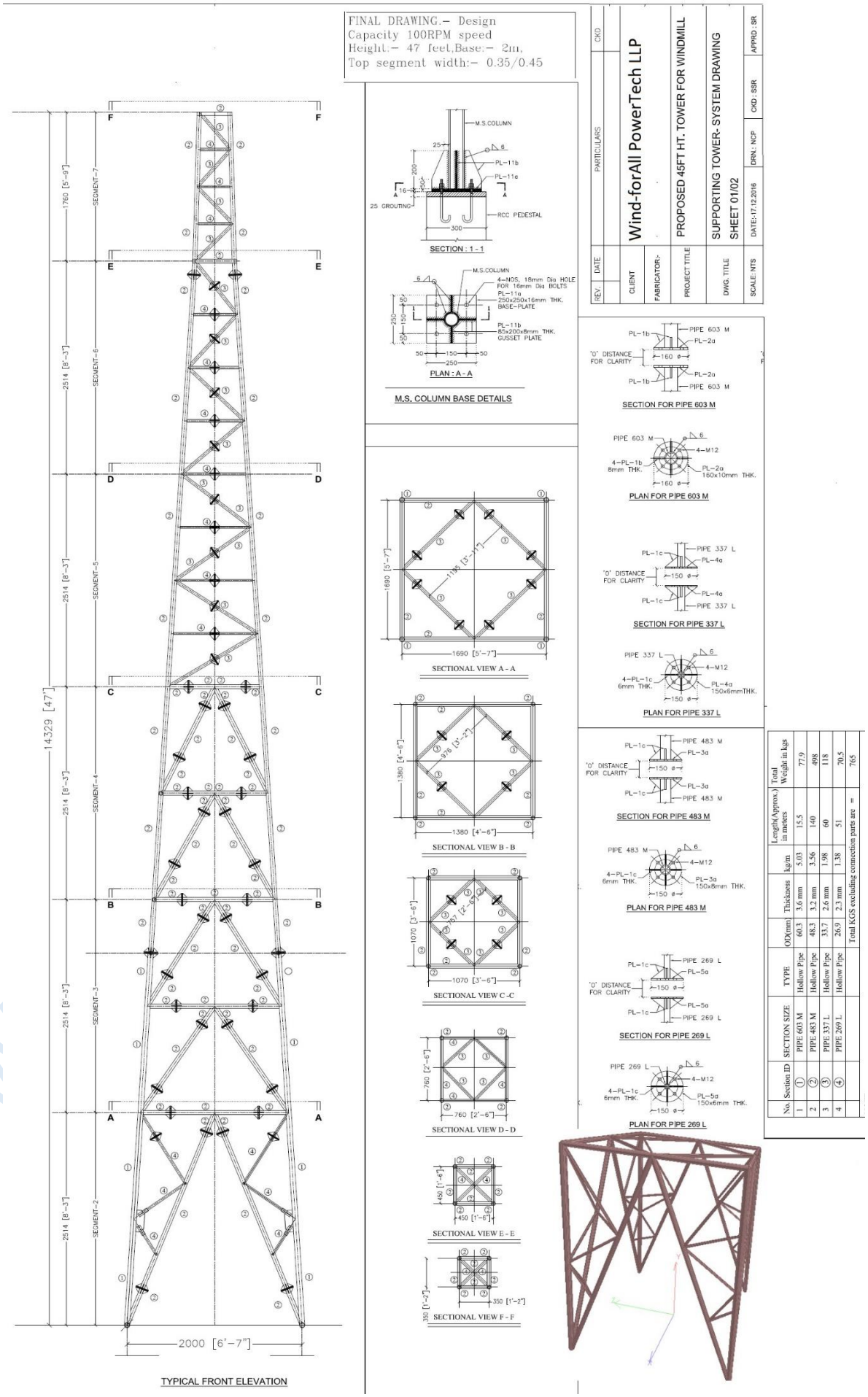
Will have (width - 130MM) four columns and three beams apt to absorb and transmit most of the static & dynamic load to the building's strong foundation, as shown below:

Other Vitals:

	Components	Static (KG)	Dynamic (KG)
1	On-the-top	550	900
2	Tower	900	1250

Tower Height: 15M;
Base: 2*2 M;
Swept Diameter: 8M;
RPM: max 120

- Note: It is advised to counter-check with the engineer.


FINAL DRAWING.– Design
Capacity 100RPM speed
Height:– 47 feet,Base:– 2m,
Top segment width:– 0.35/0.45
REV.
DATE
PARTICULARS
CKD
CLIENT
Wind-forAll PowerTech LLP
FABRICATOR:-
PROJECT TITLE
PROPOSED 45FT HT. TOWER FOR WINDMILL
DWG. TITLE
SUPPORTING TOWER- SYSTEM DRAWING
SHEET 01/02
SCALE: NTS
DATE:-17.12.2016
DRN.: NCP
CKD : SSR
APPRD : SR
M.S.COLUMN
PL-11b
PL-11a
RCC PEDESTAL
25 GROUTING
SECTION : 1 - 1
4-NOS, 18mm Dia HOLE FOR 16mm Dia BOLTS
PL-11a 250x250x16mm THK. BASE-PLATE
PL-11b 85x200x8mm THK. GUSSET PLATE
PLAN : A - A
M.S. COLUMN BASE DETAILS
PIPE 603 M
PL-2a
'0' DISTANCE FOR CLARITY
SECTION FOR PIPE 603 M
4-M12
4-PL-1b 8mm THK.
PL-2a 160x10mm THK.
PLAN FOR PIPE 603 M
PIPE 337 L
PL-4a
PL-1c
SECTION FOR PIPE 337 L
4-PL-1c 6mm THK.
PL-4a 150x6mmTHK.
PLAN FOR PIPE 337 L
PIPE 483 M
PL-3a
SECTION FOR PIPE 483 M
4-PL-1c 6mm THK.
PL-3a 150x8mm THK.
PLAN FOR PIPE 483 M
PIPE 269 L
PL-5a
SECTION FOR PIPE 269 L
PLAN FOR PIPE 269 L
SECTIONAL VIEW A - A
SECTIONAL VIEW B - B
SECTIONAL VIEW C -C
SECTIONAL VIEW D - D
SECTIONAL VIEW E - E
SECTIONAL VIEW F - F
SEGMENT-7
SEGMENT-6
SEGMENT-5
SEGMENT-4
SEGMENT-3
SEGMENT-2
14329 [47']
2000 [6'-7"]
TYPICAL FRONT ELEVATION
No. | Section ID | SECTION SIZE | TYPE | OD(mm) | Thickness | kg/m | Length(Approx.) in meters | Total Weight in kgs
1 | ① | PIPE 603 M | Hollow Pipe | 60.3 | 3.6 mm | 5.03 | 15.5 | 77.9
2 | ② | PIPE 483 M | Hollow Pipe | 48.3 | 3.2 mm | 3.56 | 140 | 498
3 | ③ | PIPE 337 L | Hollow Pipe | 33.7 | 2.6 mm | 1.98 | 60 | 118
4 | ④ | PIPE 269 L | Hollow Pipe | 26.9 | 2.3 mm | 1.38 | 51 | 70.5
Total KGS excluding connection parts are = 765