

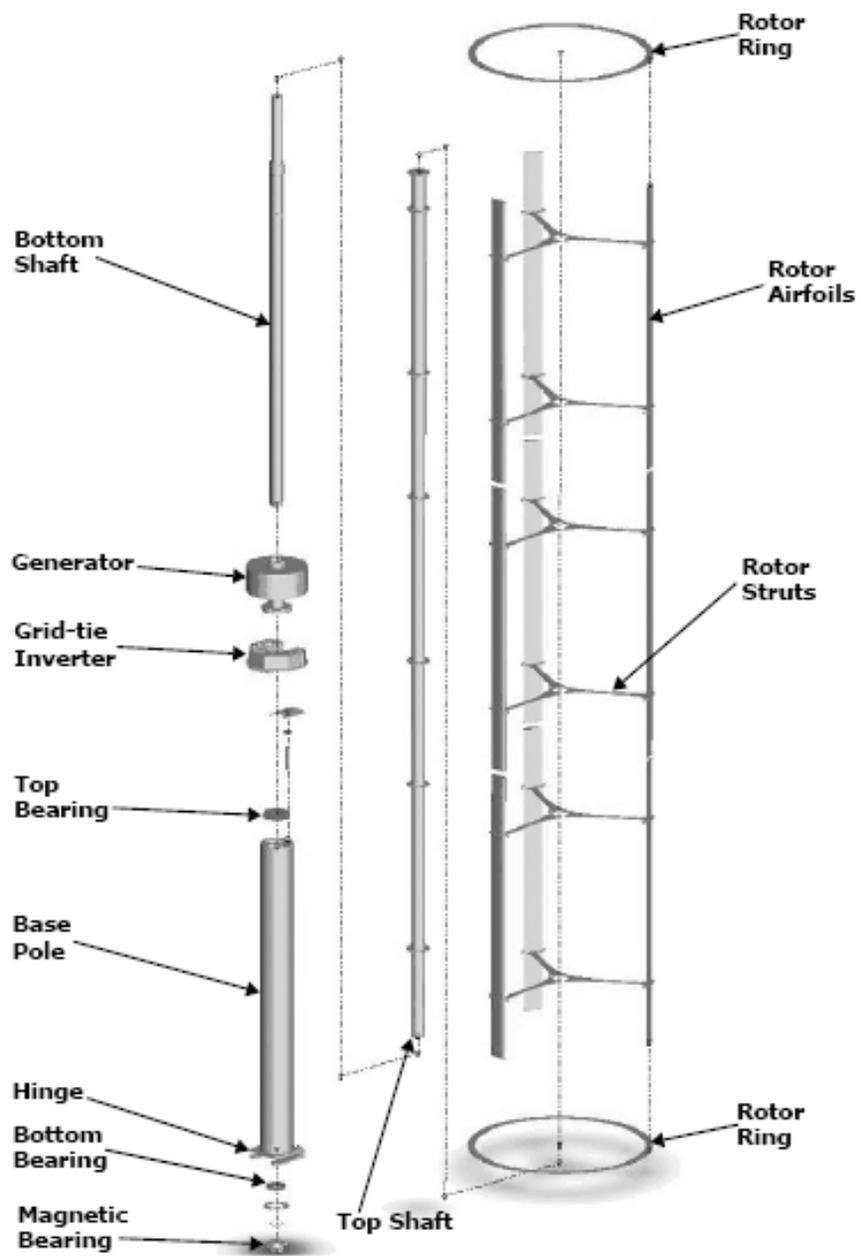


Contractors Building Supply, Inc.

A Green Company

THE FIRST REAL RESIDENTIAL WIND APPLIANCE

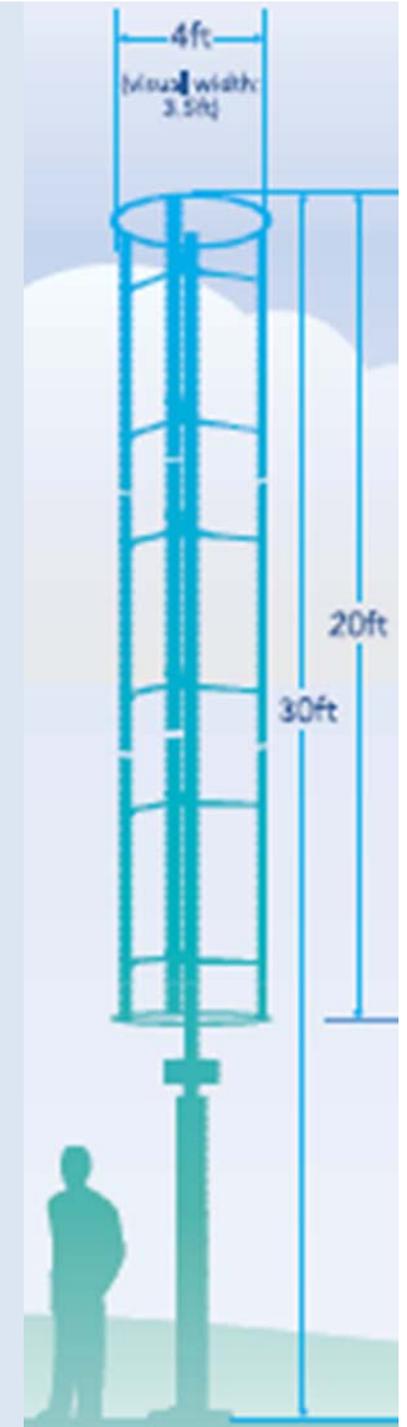
Windspire





Key Features:

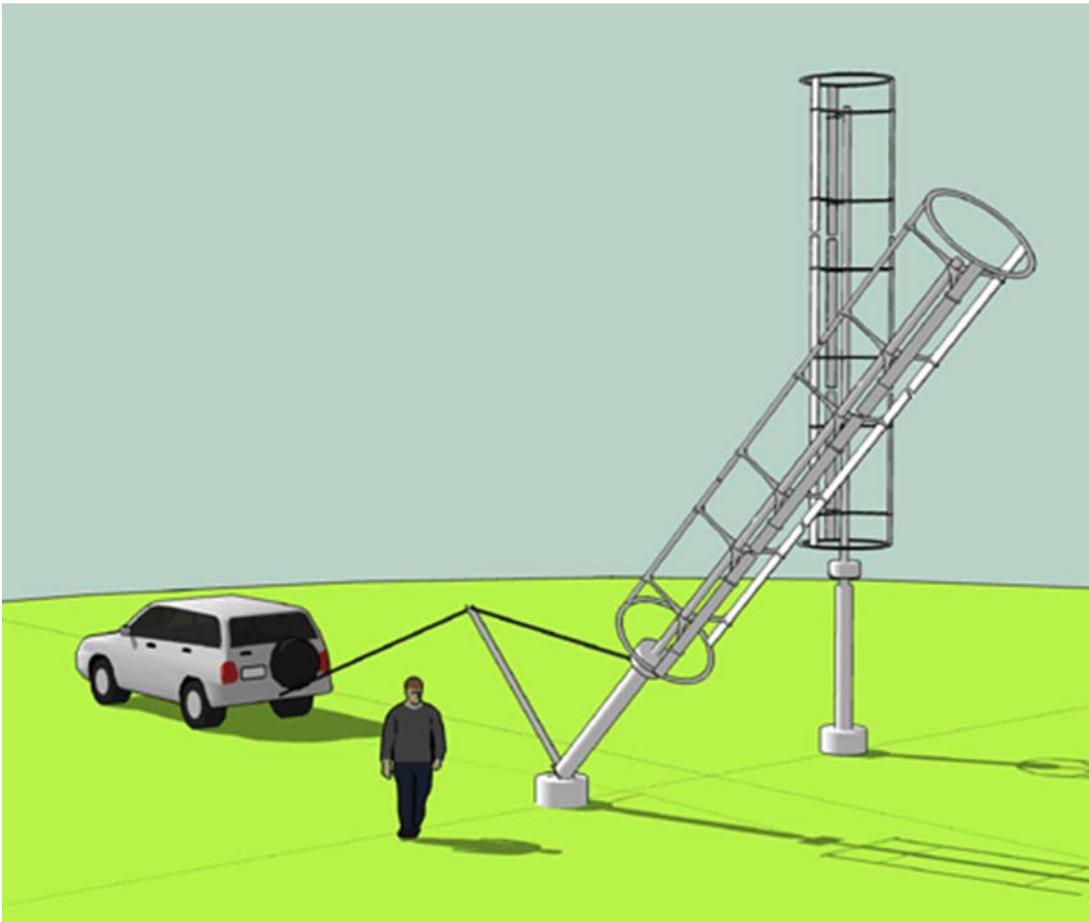
- Clean Renewable Energy
- Complete Wind Power System
- Sleek, Attractive Design
- Cost Effective
- Silent Operation
- Made in the USA
- Made from Recycled Materials
- Low Profile, only 30 Feet Tall
- Annual Energy ~ 2000+ kWh/yr
- Grid-Ready, Plug 'n Produce™
- Integrated Inverter
- High Efficiency Generator
- Hinged Monopole Makes Installation Simple
- Wireless Performance Monitor
- Maintenance-Free
- Independently Tested
- IEEE & UL Certified
- Popular Science "Best of What's New 2008" Award



Windspire® Specifications

Annual Energy Production (AEP)	2000 kWh ¹	General
Instantaneous Power Rating (IPR)	1.2 kW (1200 watts) ²	
Standard Unit Height	30 ft 9.1 m (pole extension options available)	
Total Weight	624 lb 283 kg	
Unit color	Soft Silver	
Sound output	6 dBA above ambient (15 mph wind, 6 ft from base)	
Warranty	5 Year Limited	Rotor
Rotor Type	Vertical Axis - Low Speed Giromill	
Rotor Height / Diameter	20 ft 6.1 m / 4 ft 1.2 m	
Swept Area	80 sq ft 7.43 sq m	
Max Rotor Speed	400 RPM ³	
Tip Speed Ratio	2.3	
Speed Control	Redundant Electronic	Electronics
Wind Tracking	Instantaneous	
Generator	High Efficiency Brushless Permanent Magnet	
Inverter	Inverter Custom Integrated Grid Tie 120 VAC 60 Hz	
Inverter Certification	Meets IEEE 1547.1; UL 1741	Wind Ratings
Performance Monitor	Integrated Wireless Zigbee Modem	
Cut-in Wind Speed	8 mph 3.6 m/s	
AEP Average Wind Speed	12 mph 5.4 m/s	
IPR Rated Wind Speed	25 mph 11.2 m/s	Construction
Survival Wind Speed	105 mph 47 m/s	
Foundation	Poured Concrete	
Foundation Size	2 ft diameter by 6 ft base ⁴	
Rotor Material	Recycled Aircraft Grade Extruded Aluminum	
Monopole/Structure Material	Recycled High Grade Steel	
Paint	2 Coats, Corrosion-Resistant Industrial Grade Paint	
Coatings	Rust Veto & Zinc Olive Drab	

The Windspire is designed as a complete system —

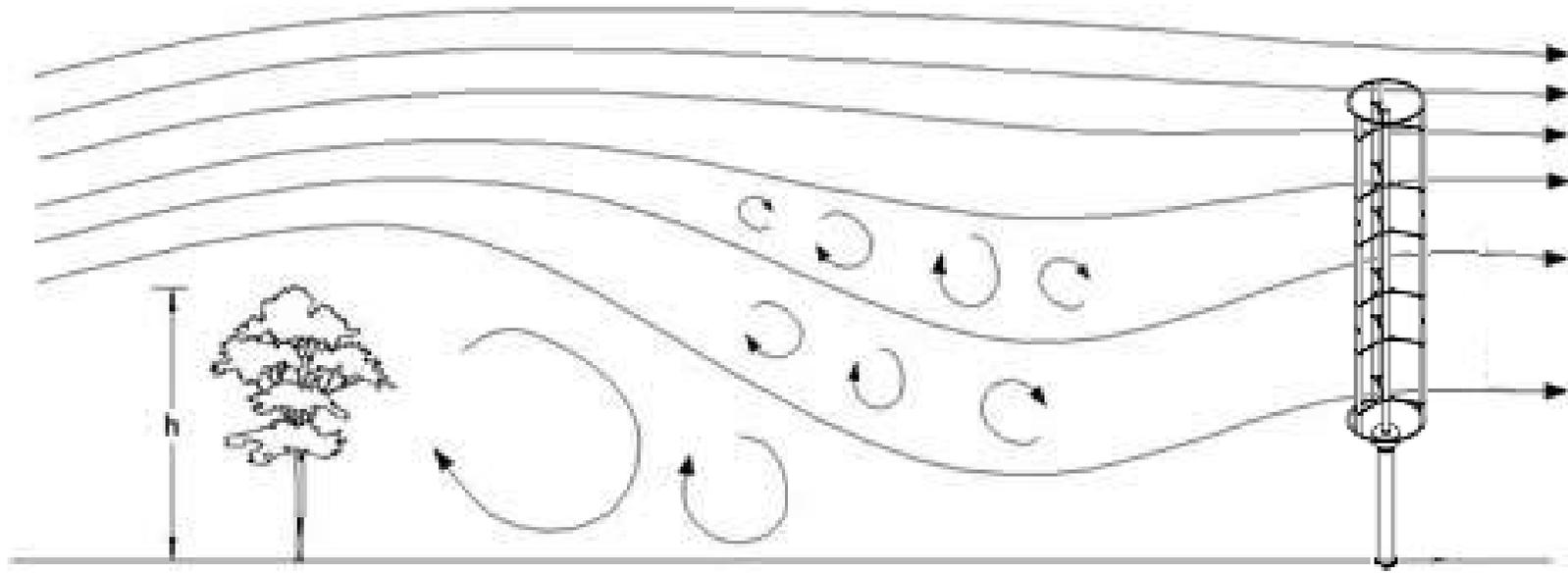


The rotor, generator, inverter, and even the structure is tied into one package.

“Every component is optimized so that the overall system efficiency can be maximized.”

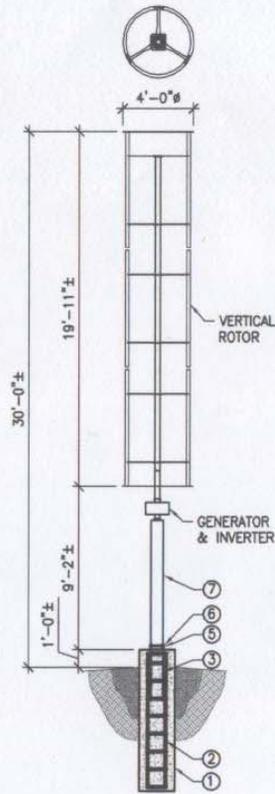
SITING A WINDSPIRE

WHILE THE MULTI-DIRECTIONAL VERTICAL AXES DESIGN PROVIDES A UNIQUE ABILITY FOR THE WINDSPIRE TO OPERATE IN TURBULENT WINDS. PROPER SITING IS STILL IMPORTANT FOR PRODUCTION. IT IS BEST TO BE 20 FEET ABOVE ANYTHING WITH IN 200 FEET

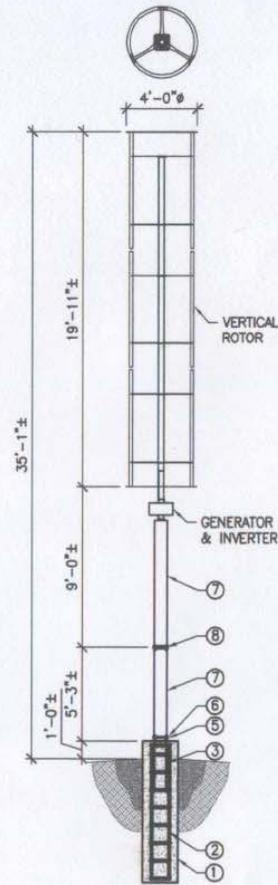


TOWER EXTENSIONS

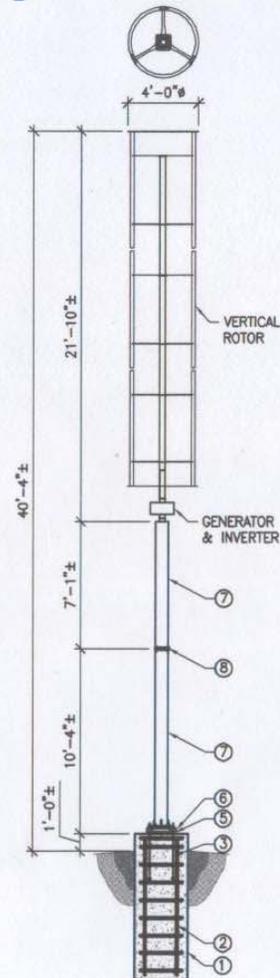
0,5,10,15,20



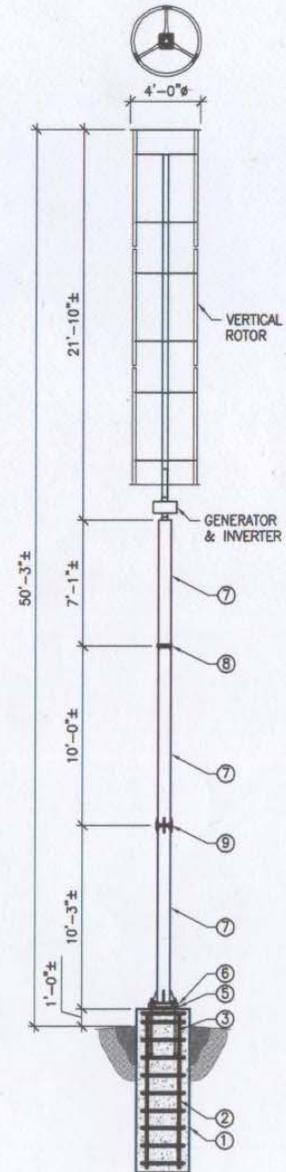
STANDARD WINDSPIRE
30' HT.



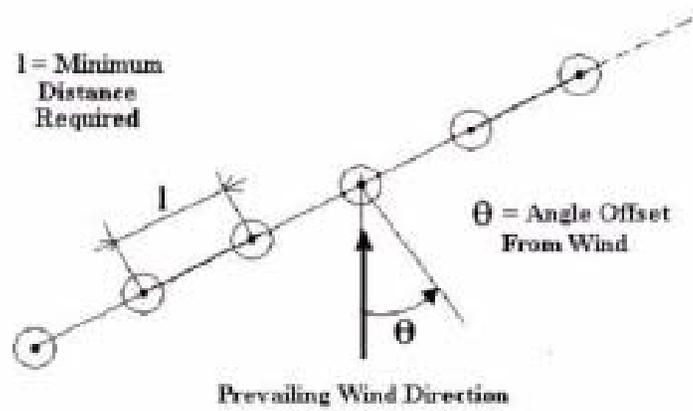
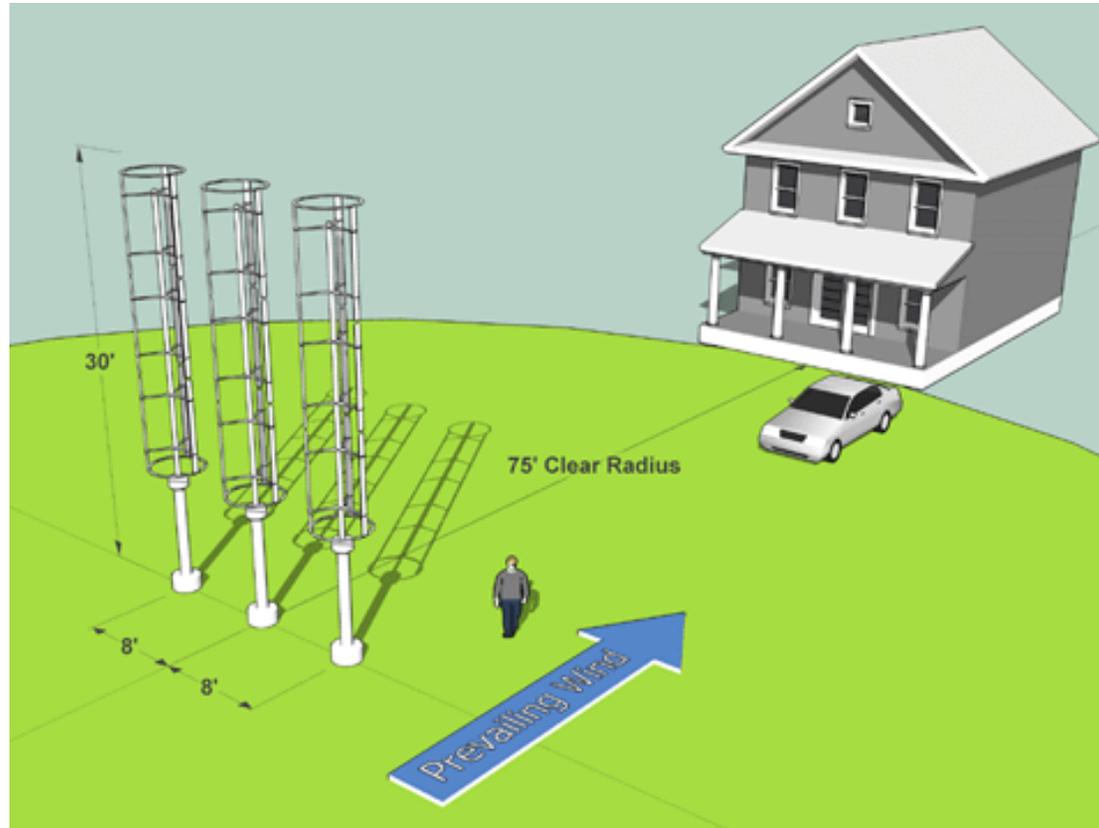
WINDSPIRE W/ 5' EXTENSION
35' HT.



WINDSPIRE W/ 10' EXTENSION
40' HT.



WINDSPIRE W/ 20' EXTENSION
50' HT.

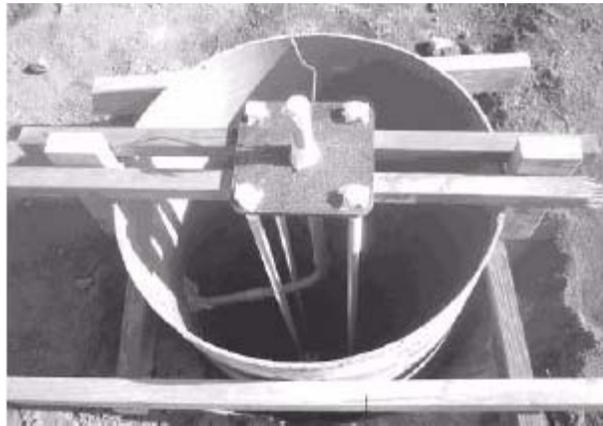


BEFORE STARTING A PROJECT

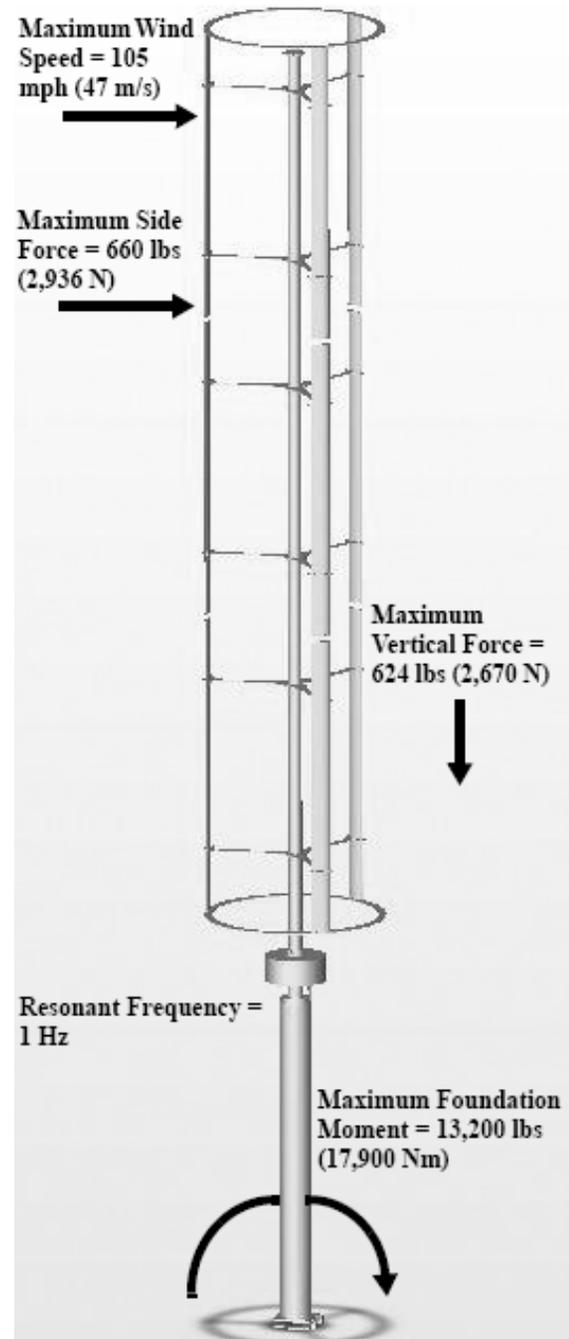
- *What are the zoning requirements in your area?*
- *Obtain a Interconnection Application from your Utility*
- *Obtain building and electrical permits from your city. Home owners or work with a local contractor.*
- *Call Miss dig*

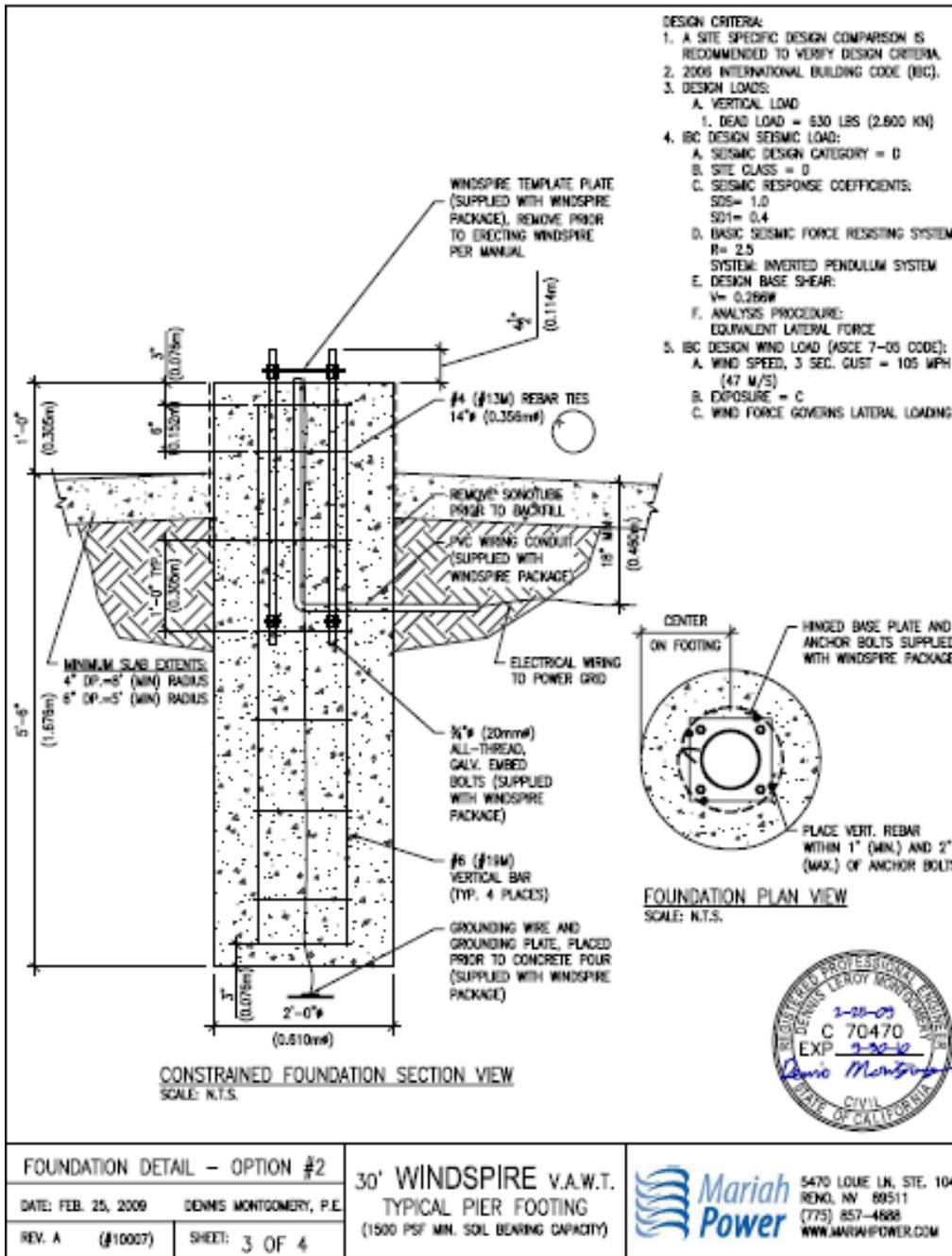


GROUNDING PLATE



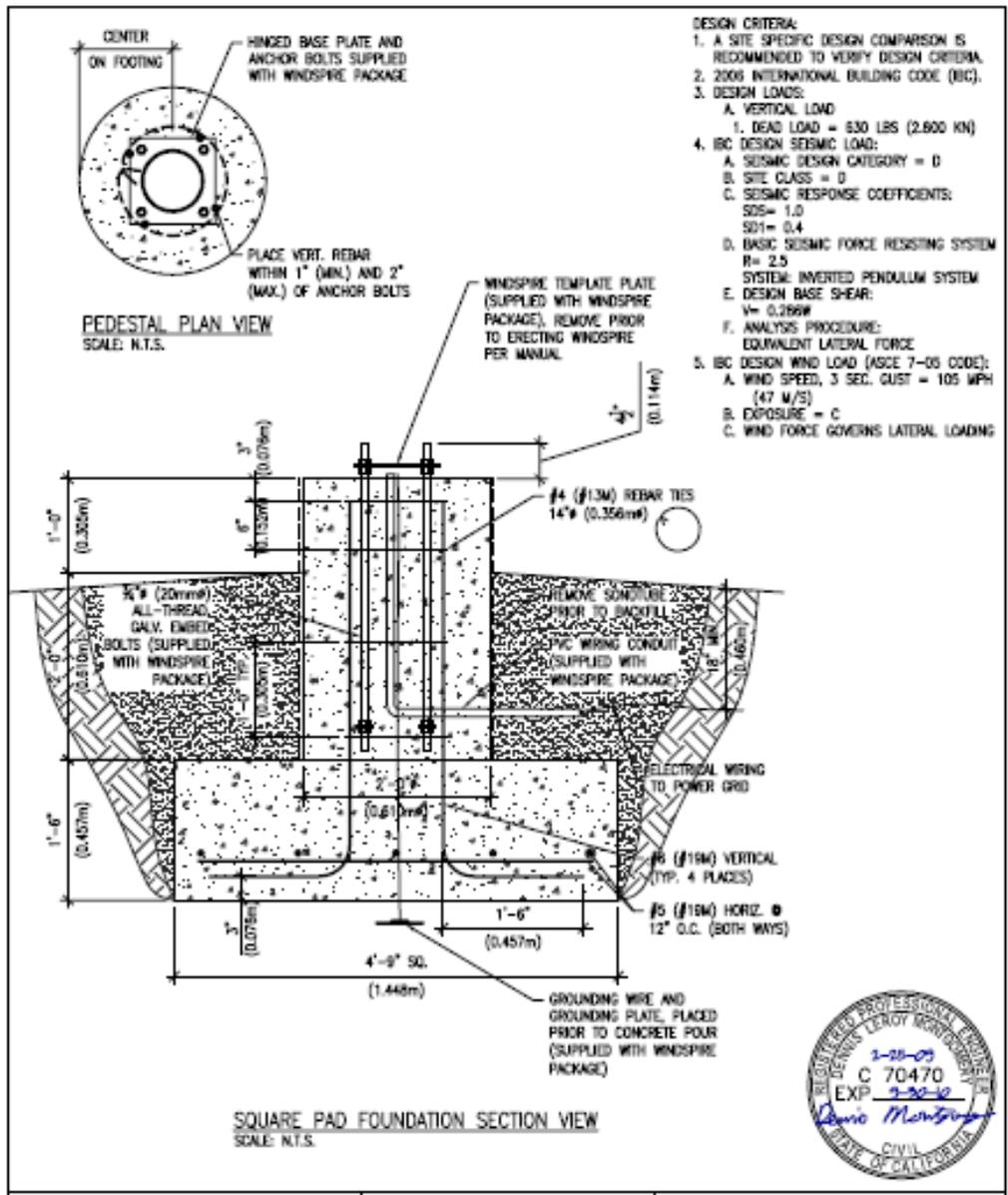
BOLT TEMPLATE





PIER FOUNDATION

FOUNDATION DETAIL - OPTION #2		30' WINDSPIRE V.A.W.T. TYPICAL PIER FOOTING (1500 PSF MIN. SOIL BEARING CAPACITY)	 5470 LOUIE LN, STE. 104 RENO, NV 89511 (775) 857-4888 WWW.MARIAHPOWER.COM
DATE: FEB. 25, 2009	DENNIS MONTGOMERY, P.E.		
REV. A (#10007)	SHEET: 3 OF 4		

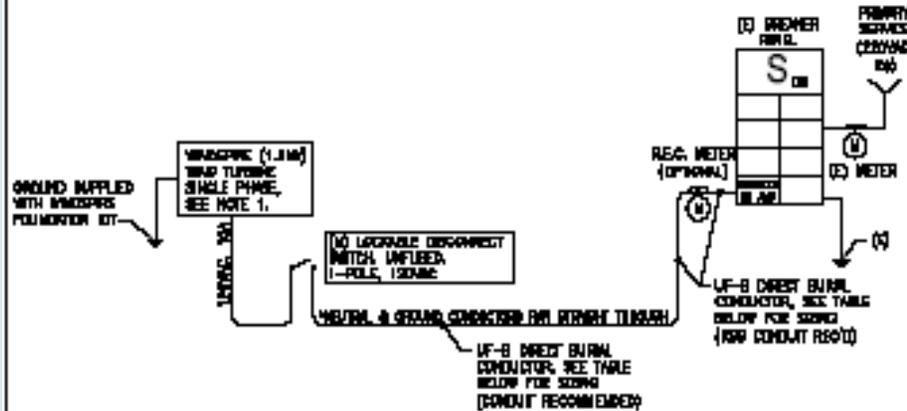


PAD // PEIR

FOUNDATION DETAIL - OPTION #3		30' WINDSPIRE V.A.W.T. TYPICAL PIER FOOTING (1500 PSF MIN. SOIL BEARING CAPACITY)	5470 LOUIE LN, STE. 104 REMO, NY 89511 (775) 857-4888 WWW.MARIAHPOWER.COM
DATE: FEB. 25, 2009	DENNIS MONTGOMERY, P.E.		
REV. A (#10007)	SHEET: 4 OF 4		

WIRING DIAGRAM

1,2KW WINDSPIRE
SINGLE CONNECTION, SINGLE PHASE



ELECTRICAL NOTES

1. SELF-CONTAINED WINDSPIRE, UL 1741 LISTING REPORT #312576282T-001a MANUFACTURED BY TECHNOLOGY DRIVEN PRODUCTS.
2. ALL EQUIPMENT IS NEW UNLESS OTHERWISE NOTED.
3. CONDUIT ENTRY/CONNECTION TO ELECTRICAL ENCLOSEURES SHALL BE SUITABLE FOR DRINKING WATER AND SHALL BE SEALED AGAINST ENVIRONMENT.
4. ALL EXPOSED CONDUIT SHALL BE UV RESISTANT PVC OR RIGID POLYESTER (RIGID).
5. INSTALLATION TO COMPLY WITH NEC, INCLUDING BUT NOT LIMITED TO SECTIONS 90.10(A)(2) AND 90.10.11.
6. DISCONNECT CIRCUIT BREAKER FOR WIND TURBINE SHALL BE INSTALLED AT EITHER (L) OR (R) BOTTOM CORNER OF CIRCUIT BREAKER PANEL, FOR NEC REQUIREMENTS.
7. THE SUMMATION OF ALL CIRCUIT BREAKERS (AMPERAGE) WITHIN THE PANEL SHALL NOT EXCEED 120% OF THE BREAKER PANEL AMPERAGE RATING.
8. VERIFY WITH LOCAL UTILITY COMPANY REGARDING ANY ADDITIONAL WIRING OR DISCONNECT REQUIREMENTS.
9. ELECTRICAL INSTALLATION SHALL BE COMPLETED BY A LICENSED ELECTRICIAN.
10. DO NOT CONNECT TO AN AC LOAD CENTER (CIRCUIT BREAKER PANEL) THAT IS EQUIPPED WITH MULTIPLE BRANCH CIRCUITS AND/OR GFCI PROTECTED CIRCUITS.

# OF WINDSPIRE UNITS	CONDUCTOR DESIGN (A)	CONDUCTOR SIZE (AWG)	MINIMUM CONDUCTOR RUN (FEET)
1	10 12D	10	180
1	10 12D	8	290
1	10 12D	6	470
1	10 12D	4	740
1	10 12D	3	920

1. CONDUCTOR (COPPER) RUNS SHALL BE VERIFIED BY ELECTRICIAN OR QUALIFIED DESIGNER FOR SITE SPECIFIC CONDITIONS.
2. CONNECTION OF MULTIPLE WINDSPIRES TO A SINGLE CONDUCTOR RUN, WILL MULTIPLY THE CONDUIT CURRENT (A) BY THE NUMBER OF WINDSPIRES AND SHALL REDUCE THE MAXIMUM RUN TO BE THE SINGLE LIMIT RUN DISTANCE DIVIDED BY THE NUMBER OF UNITS (EXAMPLE) 4 UNITS = 400; FOR 3% MAX. RUN = 100/4 = 25 FT).

DATE: APRIL 28, 2020		SINGLE WINDSPIRE V.A.W.T. 1.2KW WIRING DIAGRAM	5430 LOUIS LAFAYETTE MOBILE, AL 36611 (256) 867-1888 info@mariah-power.com
OWNER: OLM	DRG. NO. 100001P		
REV. 1	SHEET: 1 OF 1		

AN ACCESSIBLE LOCKABLE AC DISCONNECT MUST BE PROVIDED FOR THE UTILITIES

FAQ

Is the Windspire® Independently Tested and Certified?

The Windspire is independently tested at Windward Engineering in Spanish Fork, Utah. This testing allows customers to know what level of power production to expect from specific wind ranges. The Windspire received ETL certification as of March 2008 for the U.S. and Canada, which includes UL and IEEE testing.

Are There Specific Requirements for Potential Customers?

A Windspire® site requires land with unobstructed wind and adequate space for installation. The Windspire® also needs at least class two winds – ideally class three (an average of 12 mph) – and a tie to the power grid.

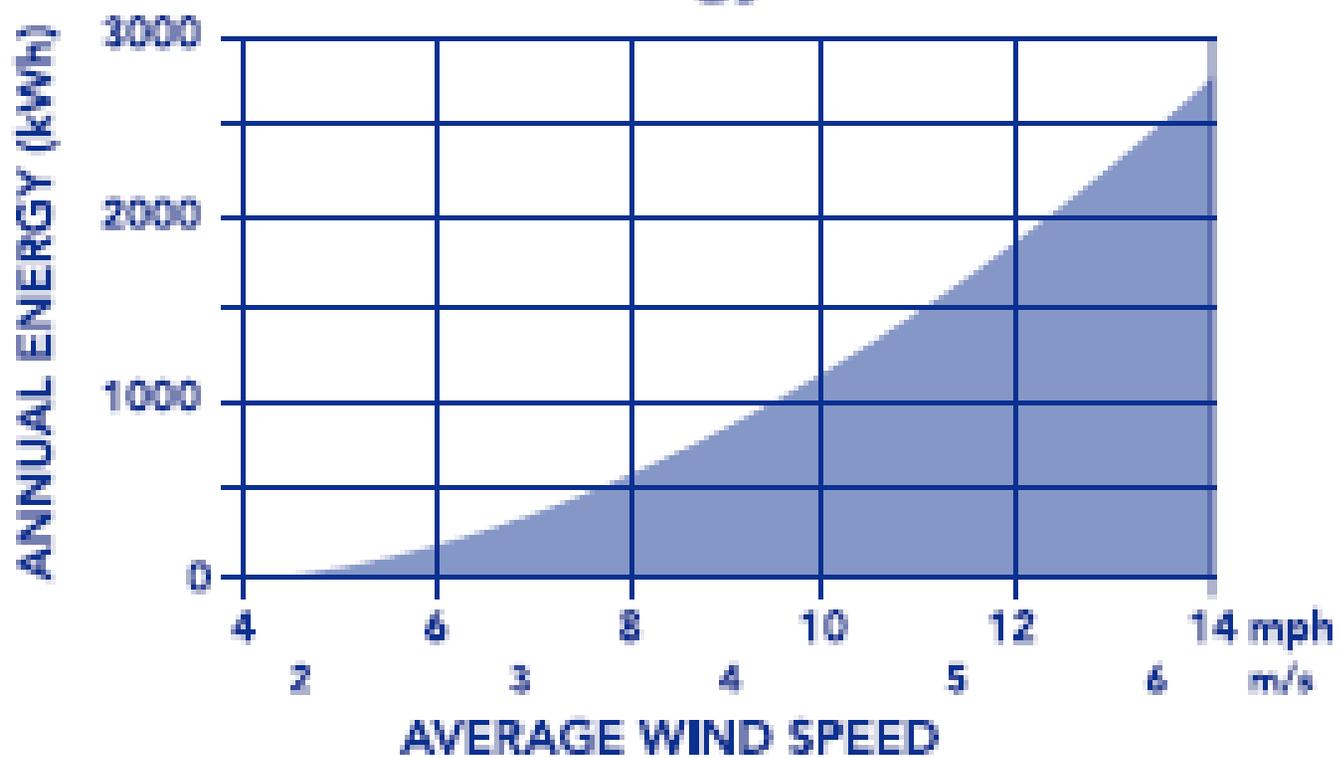
Is the Windspire® a Grid-Tie or Off-Grid Product?

The currently available Windspire is grid-tie, which requires the unit to be tied into the local utility grid. An off-grid version of the Windspire® is in development and will be available soon.

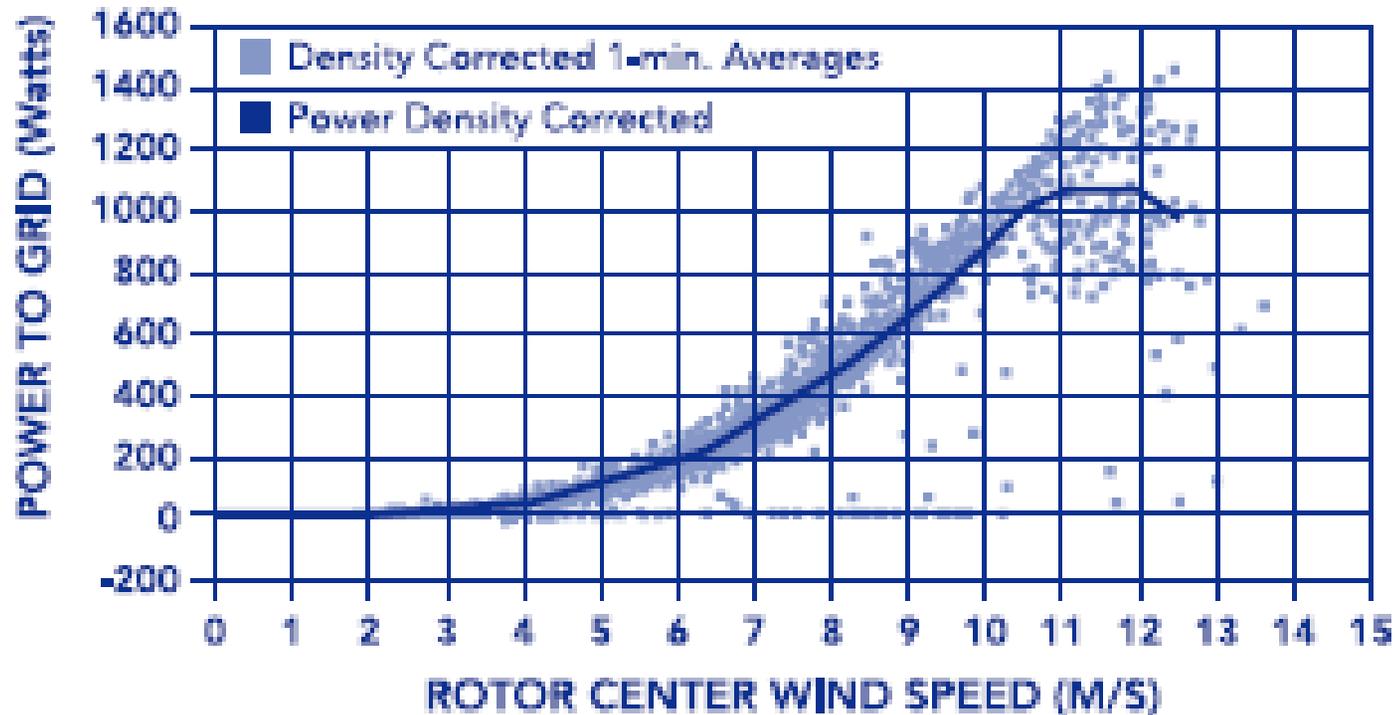
Is it Safe for Birds?

The Windspire® rotates at a lower speed than most wind turbines and is more visible to flying birds. So far, we have had no reports of collisions – and we have had one report of a nest built under an active unit.

Annual Energy Production



Power Curve



6 (meters / second) = 13.4mph

8 (meters / second) = 17.8 mph

10 (meters / second) = 22.3 mph



POWER TO INSPIRE

HIGH WIND VERSION OF WINDSPIRE® WIND TURBINE

New version will be able to sustain winds as high as 168 mph and will be able to operate in extreme weather conditions.

The High Wind Windspire is a 13-foot tall and 4-foot wide, propeller-free, vertical-axis wind turbine designed for harnessing wind power in extreme weather conditions.

The unit is rated at 1.1 kW in 30 mph and is estimated to produce 2066 kilowatt hours in 15 mph average wind speeds.



PRODUCTS IN DEVELOPMENT



Solar-Wind Street Lamps

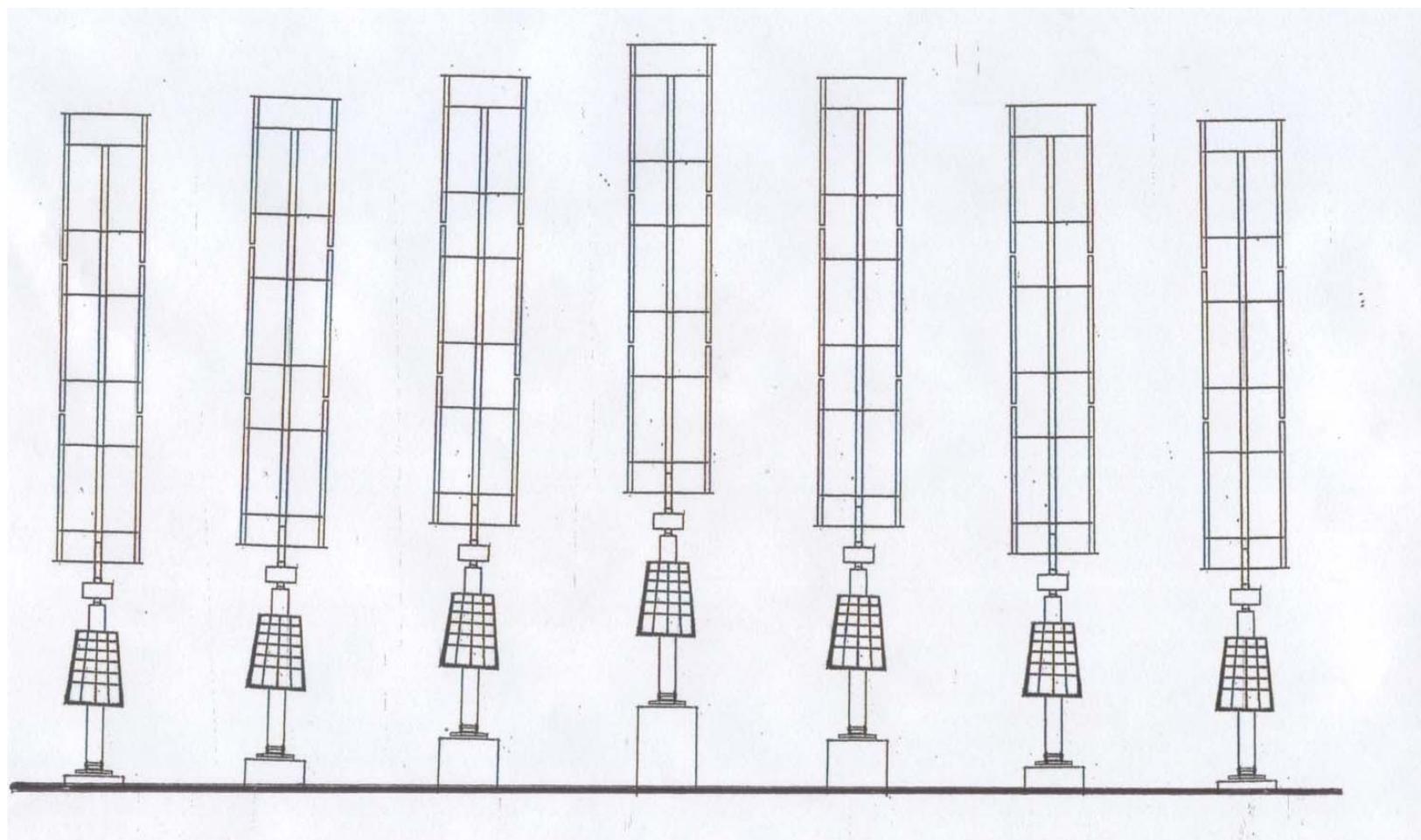
1.2 kW Low Wind	3 kW	3 kW Low Wind
Giromill	Giromill	Giromill
4000 kWh at 12 mph average wind	5400 kWh in 12 mph average wind	8200 kWh in 12 mph average wind
13	40	40
120, 220 VAC or 12-48 VDC	120, 220 VAC or 12-48 VDC	120, 220 VAC or 12-48 VDC
8mph	9 mph	9 mph
20 mph (9 m/s)	25 mph (11 m/s)	20 mph (9 m/s)
80 mph (35 m/s)	105 mph (47 m/s)	80 mph (35 m/s)
2.3	2.3	2.3
300 RPM	200 RPM	133 RPM
625 lbs (285 kg)	1000 lbs (455 kg)	1120 lbs (509 kg)
30 feet (9.1 m)	30 feet (9.1 m)	30 feet (9.1 m)
6 ft x 20 ft (1.83 m x 6.1 m)	8 ft x 20 ft (2.43 m x 6.1 m)	12 ft x 20 ft (3.66 m x 6.1 m)
120 sq ft. (11.2 sq m)	160 sq ft. (14.9 sq m)	240 sq ft. (22.3 sq m)
6 dB above ambient @ 6 ft, 15 mph winds	6 dB above ambient @ 6 ft, 15 mph winds	6 dB above ambient @ 6 ft, 15 mph winds
Air core Brush less PM	Air core Brush less PM	Air core Brush less PM
Integrated Grid Tie or DC version	Integrated Grid Tie or DC version	Integrated Grid Tie or DC version
20 years	20 years	20 years
5 years	5 years	5 years
none	none	none

CONTRACTORS BUILDING SUPPLY PRESENTS:

WIND AND SOLAR HYBRID



10KW NOM WIND AND SOLAR





YOUR NEW PRO-SOLAR SYSTEM AT A GLANCE

**THE GOLD STANDARD FOR
RENEWABLE ENERGY. SOLAR HOT WATER**