



Township of Hillsborough

COUNTY OF SOMERSET
MUNICIPAL BUILDING
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HILLSBOROUGH PLANNING & ZONING DEPARTMENT

SUSTAINABLE JERSEY RECERTIFICATION **ACTION: WIND ORDINANCE** **FILE 1: COPY OF WIND ORDINANCE**

Instructions: Submit the small wind ordinance as approved by the local governing body, including the date of adoption.

Attachments:

- Ordinance 2007-42 Small Wind Energy System, adopted December 26, 2007
- Ordinance 2009-19 Vertical Axis Wind Turbine, adopted July 14, 2009

ORDINANCE 2007-42

AN ORDINANCE TO AMEND CHAPTER 188 OF THE TOWNSHIP OF HILLSBOROUGH DEVELOPMENT REGULATIONS ORDINANCE TO PROVIDE A DEFINITION OF 'SMALL WIND ENERGY SYSTEM' AND TO ALLOW A 'SMALL WIND ENERGY SYSTEM' AS A CONDITIONAL USE

WHEREAS, wind energy, including wind energy systems with both existing and newly-developing technology, is a recognized alternative source of energy supported by the Federal and State governments; and

WHEREAS, the Municipal Land Use Law (NJSA 40:55D-2(n)) has a stated intent and purpose '*to promote utilization of renewable energy sources*'; and

WHEREAS, the Township of Hillsborough supports these efforts.

NOW, THEREFORE, BE IT ORDAINED by the Township Committee of the Township of Hillsborough, Somerset County, New Jersey, that Chapter 188 of the Township of Hillsborough Development Regulations Ordinance, be and the same is hereby amended as follows:

1. Amend Section 188-3 to include the following definitions:

TOTAL HEIGHT - means the vertical distance from ground level to the tip of a wind generator blade when the tip is at its highest point.

WIND TOWER - means the monopole, freestanding, or guyed structure that supports a wind generator.

WIND GENERATOR - means blades and associated mechanical and electrical conversion components mounted on top of the tower.

MET TOWER – means a meteorological tower to measure wind speeds and determine whether a site qualifies for a wind turbine.

SMALL WIND ENERGY SYSTEM- means an energy system which converts wind energy by means of a rotor into electrical power for the primary purpose of meeting all or a part of a dwelling's energy requirements. As used in these regulations, the primary application of a wind energy system is the conversion of wind by a machine with turbine apparatus (includes base, rotor blades, nacelle,

tower, inverter, batteries or other component used in the system) capable of producing electricity by converting the kinetic energy of wind into electrical energy. The term does not include electrical distribution or transmission lines, or electrical substations. The term is limited to systems that have a nameplate capacity of 100 kilowatts or less; and should not exceed 120 feet in total height.

2. Amend Section 188-76 as follows: 188-76 Solar Energy Systems and Small Wind Energy Systems

A. Solar Energy Systems

1. It is the purpose of the Township of Hillsborough to promote the utilization of solar energy systems in order to maximize the utilization of a clean, safe and available energy source.
2. In the review of development applications, the development shall be designed so that the maximum number of buildings shall receive sunlight sufficient for using solar energy systems for space, water or industrial process heating or cooling. Buildings and vegetation shall be sited with respect to each other and the topography of the site so that unobstructed sunlight reaches the south wall or rooftop of the greatest possible number of buildings consistent with other factors of design, environment and site conditions during the optimum sunlight hours.
3. No activity or use shall be established which shall cause an impairment of the reasonable use of any solar heating system existing at the time of this Ordinance, and future activities and uses on any property shall take into consideration the potential location of solar heating systems on adjacent properties.
4. As a guide to protection of solar access and in the review of development applications, the Planning Board or Board of Adjustment may consider the United States Department of Housing and Urban Development, Office of Policy Development and Research, booklet entitled "Protecting Solar Access for Residential Development, A Guidebook for Planning Officials," as the same may be updated and revised from time to time.

B. Small Wind Energy Systems.

1. A small wind energy system shall be permitted in the Mountain Conservation (MZ), Open Space-Cultural Landscape (OS-CL), Corporate Development (CDZ) and Agricultural (AG) zoning districts as a principal use and are subject to the following requirements:

- (a) Minimum Lot Size. The minimum lot size for a small wind energy system shall be 10 acres.
- (b) Setbacks. A wind tower for a small wind energy system shall be set back from any property line, easements, or utility lines a distance of 250 feet.
- (c) Access.
 - (i) All ground mounted electrical and control equipment shall be labeled or secured to prevent unauthorized access.
 - (ii) The tower shall be designed and installed so as to not provide step bolts or a ladder readily accessible to the public for a minimum height of 8 feet above the ground.
- (d) Electrical Wires. All electrical wires associated with a small wind energy system, other than wires necessary to connect the wind generator to the tower wiring, the tower wiring to the disconnect junction box, and the grounding wires shall be located underground.
- (e) Lighting. A wind tower and generator shall not be artificially lighted unless such lighting is required by the Federal Aviation Administration, and is subject to Planning Board or Board of Adjustment approval as part of the site plan application.
- (f) Appearance, Color, and Finish. The wind generator and tower shall be painted or finished so as to minimize their visual impact on the surrounding landscape.
- (g) Signs. All signs, other than the manufacturer's or installer's identification, appropriate warning signs, or owner identification on a wind generator, tower, building, or other structure associated with a small wind energy system visible from any public road shall be prohibited.
- (h) Code Compliance. A small wind energy system including tower shall comply with all applicable construction and electrical codes, and the National Electrical Code.
- (i) Utility notification and interconnection. Small wind energy systems that connect to the electric utility shall comply with the New Jersey's Net Metering and Interconnection Standards for Class I Renewable Energy Systems.

(j) Met towers shall be permitted under the same standards, permit requirements, restoration requirements, and permit procedures as a small wind energy system.

(k) For wind speeds in the range of 0-25 mph, the noise level of any small wind energy system shall not (1) exceed 60dB(A) measured from any property line, or (2) be in excess of 5 dB(A) above the background noise, whichever is greater, as measured at the closest neighboring inhabited dwelling.

(l) Installation of a small wind energy system is subject to compliance with Section 188-160 to Section 188-166 of the Code of the Township of Hillsborough regulating tree removal.

2. Permit Requirements.

(a) Site Plan Approval. Site Plan approval from the Planning Board or Board of Adjustment, as appropriate, shall be required for the installation of a small wind energy system.

(b) Documents: The site plan application shall be accompanied by a plot plan which includes the following:

- (i) Property lines and physical dimensions of the property;
- (ii) Location, dimensions, and types of existing structures on the property;
- (iii) Location of the proposed small wind energy system tower;
- (iv) The right-of-way of any public road that is contiguous with the property;
- (v) Any overhead utility lines;
- (vi) Small wind energy system specifications, including manufacturer and model, rotor diameter, tower height, tower type (freestanding or guyed);
- (vii) Stamped, engineered tower and tower foundation drawings;
- (viii) Noise levels of the proposed wind energy system at all property lines and at the closest neighboring inhabited dwelling.

(c) A visual site distance analysis must be submitted, including photos of the subject property, that graphically simulates the appearance of any proposed small wind energy system and indicating its view from at least 5 locations around and within 1 mile of the proposed tower;

- (d) A Wildlife Habitat Assessment Report shall be prepared, unless otherwise waived by the Planning Board or Board of Adjustment, as appropriate, either as part of an Environmental Impact Statement or as a separate report that specifically addresses the wildlife habitat affected by the installation of a small wind energy system. This report shall address the impacts to existing bird and bat populations by the small wind energy system. Additionally, the report shall address the environmental resources of the Sourland Mountain Special Resource Area, the New Jersey Department of Environmental Protection's Landscape Project and impacts to habitats ranked 3, 4, or 5 that indicate the presence of threatened or endangered species, including consideration for reducing or mitigating the effect of the small wind energy system on the wildlife resources of the Township.
- (e) Efforts to reduce or minimize these impacts may include the reduction or elimination of guy wires, the use of special installation techniques to reduce or eliminate forest fragmentation and the use of new or innovative techniques.
- (f) Expiration. A permit issued pursuant to this Ordinance shall expire if:
 - (i) The small wind energy system is not installed and functioning within 24 months from the date the permit is issued; or
 - (ii) The small wind energy system is out of service or otherwise unused for a continuous 12 month period.

3. Abandonment.

- (a) A small wind energy system that is out-of-service for a continuous 12 month period will be deemed to have been presumptively abandoned. The Zoning Officer may issue a Notice of Abandonment to the owner of a small wind energy system that is deemed to have been abandoned. The owner shall have the right to respond to the Notice of Abandonment within 30 days from Notice receipt date. The Zoning Officer shall withdraw the Notice of Abandonment and notify the owner that the Notice has been withdrawn if the owner provides information that demonstrates the small wind energy system has not been abandoned. In the event that the Zoning Officer, after investigation, determines that a small wind energy system has been abandoned, the Zoning Officer may issue a Notice of Abandonment during the presumptive 12 month

period and the owner shall have the right to respond to the Notice of Abandonment.

(b) If the small wind energy system is determined to be abandoned, the owner of a small wind energy system shall remove the wind generator from the tower and wind generator at the owner's sole expense within 3 months of receipt of Notice of Abandonment. If the owner fails to remove the tower and wind generator, the Zoning Officer may, at the option of the Township Committee, have the tower and wind generator removed at the owner's expense, and impose a lien on the property pursuant to Section 132-8 of the Code of the Township of Hillsborough.

C. Violations.

It is unlawful for any person to construct, install, or operate a small wind energy system or solar energy systems that is not in compliance with this Ordinance or with any condition contained in a building permit issued pursuant to this Ordinance. Solar energy systems and small wind energy systems installed prior to the adoption of this Ordinance are exempt.

D. Severability.

The provisions of this Ordinance are severable, and the invalidity of any section, subdivision, paragraph, or other part of this Ordinance shall not affect the validity or effectiveness of the remainder of the Ordinance.

3. Amend Section 188-74 as follows: 188-74 Principal uses per lot.

A. No lot shall contain more than one principal permitted use, except that the shopping centers, industrial and office complexes, churches, temples, synagogues, mosques, multifamily complexes, and townhouse developments receiving site plan approval may be permitted to have more than 1 building on a lot, provided that the structures are sited to comply with setback and yard provisions of this Ordinance, and provided that each lot has frontage on a street improved to Township specifications, including water, sewerage and drainage improvements. This provision shall have no effect upon churches, temples, synagogues, and mosques already in existence as of the date of adoption of this amended provision.

B. Shopping centers, industrial or office complexes and churches, temples, synagogues and mosques receiving site plan approval may also have more than 1 use within a building. Where lots are not subdivided but separate portions of the tract are leased, such as in an industrial or office park, each leased portion of the tract shall be delineated on a plan approved by the approving authority in

conformance with these zoning provisions as though they were separate lots with one principal use per lot. Churches, synagogues, temples, mosques shall be permitted more than 1 use within a building, provided that such uses are consistent with educational, worship, charitable, eleemosynary and related purposes.

C. The provisions in this Ordinance shall not apply to Small Wind Energy Systems as defined in this Ordinance.

ATTEST:

TOWNSHIP OF HILLSBOROUGH

Kevin P. Davis, Township Clerk

Anthony Ferrera, Mayor

Introduced: 11/27/07
Published: 12/6/07
Public Hearing: 12/26/07
Adoption: 12/26/07
Published: 12/26/07

ORDINANCE 2009-19

AN ORDINANCE TO AMEND CHAPTER 188 (DEVELOPMENT REGULATIONS) OF THE CODE OF THE TOWNSHIP OF HILLSBOROUGH, COUNTY OF SOMERSET, STATE OF NEW JERSEY, TO PROVIDE A DEFINITION OF A 'VERTICAL AXIS WIND TURBINE' AND TO REVISE THE REQUIREMENTS FOR SMALL ENERGY WIND SYSTEMS TO PERMIT VERTICAL WIND TURBINE TECHNOLOGY

BE IT ORDAINED by the Township Committee of the Township of Hillsborough, County of Somerset, State of New Jersey, as follows:

SECTION 1. Amend Chapter 188 of the Code of the Township of Hillsborough by revising Section 3 to include the following definition:

VERTICAL AXIS WIND TURBINE – means a compact type of small energy wind system that can be mounted on buildings, telecommunication towers and poles and produces energy using vertical wind turbine technology in low wind speeds, is capable of working in heavy storms, is viewed by animals as a solid object, thus is bat and bird friendly, and operates at low noise levels.

SECTION 2. Amend Chapter 188 of the Code of the Township of Hillsborough by revising Section 76B to permit vertical axis wind turbines as follows:

B. Small Wind Energy Systems.

1. A small wind energy system shall be permitted in the Mountain Conservation (MZ), Open Space-Cultural Landscape (OS-CL), Corporate Development (CDZ) and Agricultural (AG) zoning districts as a principal use and are subject to the following requirements:

(a) Minimum Lot Size. The minimum lot size for a small wind energy system shall be 10 acres.

(b) Setbacks. A wind tower for a small wind energy system shall be set back from any property line, easements, or utility lines a distance of 250 feet.

- (c) Access.
 - (i) All ground mounted electrical and control equipment shall be labeled or secured to prevent unauthorized access.
 - (ii) The tower shall be designed and installed so as to not provide step bolts or a ladder readily accessible to the public for a minimum height of 8 feet above the ground.
- (d) Electrical Wires. All electrical wires associated with a small wind energy system, other than wires necessary to connect the wind generator to the tower wiring, the tower wiring to the disconnect junction box, and the grounding wires shall be located underground.
- (e) Lighting. A wind tower and generator shall not be artificially lighted unless such lighting is required by the Federal Aviation Administration, and is subject to Planning Board or Board of Adjustment approval as part of the site plan application.
- (f) Appearance, Color, and Finish. The wind generator and tower shall be painted or finished so as to minimize their visual impact on the surrounding landscape.
- (g) Signs. All signs, other than the manufacturer's or installer's identification, appropriate warning signs, or owner identification on a wind generator, tower, building, or other structure associated with a small wind energy system visible from any public road shall be prohibited.
- (h) Code Compliance. A small wind energy system including tower shall comply with all applicable construction and electrical codes, and the National Electrical Code.
- (i) Utility notification and interconnection. Small wind energy systems that connect to the electric utility shall comply with the New Jersey's Net Metering and Interconnection Standards for Class I Renewable Energy Systems.
- (j) Met towers shall be permitted under the same standards, permit requirements, restoration requirements, and permit procedures as a small wind energy system.
- (k) For wind speeds in the range of 0-25 mph, the noise level of any small wind energy system shall not (1) exceed 60dB(A) measured from any property line, or (2) be in excess of 5 dB(A) above the background noise, whichever is greater, as measured at the closest neighboring inhabited dwelling.

(l) Installation of a small wind energy system is subject to compliance with Section 188-160 to Section 188-166 of the Code of the Township of Hillsborough regulating tree removal.

2. A vertical axis wind turbine (VAWT) using vertical wind turbine technology shall be permitted in all zone districts subject to the following requirements:

- (a) Residential District Requirements.**
 - (i) A maximum of one (1) VAWT is permitted per lot.**
 - (ii) Building mounted VAWTs shall not exceed forty (40) feet in height measured from the base attached to the structure to the highest point on the VAWT.**
 - (iii) The maximum tower height for a VAWT shall not exceed sixty (60) feet measured from the base of the tower to the highest point on the VAWT.**
 - (iv) A VAWT shall be setback from the property line a distance equal the required setback in the zone in which it is located plus the height of the VAWT as measured from the base to the highest point.**
- (b) Non-Residential District Requirements.**

Multiple VAWTs are permitted on any non-residential lot, subject to the following requirements:

 - (i) Building mounted VAWTs shall not exceed forty (40) feet in height measured from the base attached to the structure to the highest point on the VAWT.**
 - (ii) Lightpole mounted VAWTs shall not exceed twenty five (25) feet in height measured from grade to the highest point on the VAWT.**
 - (iii) The maximum tower height for a VAWT shall not exceed sixty (60) feet measured from the base of the tower to the highest point on the VAWT.**
 - (iv) A VAWT shall be setback from the property line a distance equal the required setback in the zone in which it is located plus the height of the VAWT as measured from the base to the highest point.**
 - (v) Every two (2) years the owner shall submit a structural report to the Building Department attesting to the structural integrity of the wind generator, tower and/or support system.**
- (c) Street Light Mounted VAWTs.**

With the permission of the appropriate utility and the

Township, VAWTs may be mounted on street lights along the public right-of-way at a height not to exceed forty (40) feet above grade.

- (d) Electromagnetic Interference.**

 - (i) As part of the required site plan submission, the applicant shall provide sufficient data and documentation from the manufacturer in order to establish that the installation will not cause electromagnetic interference to any abutting property.**
 - (ii) If documentation is provided that indicates that the installation is causing electromagnetic interference to any abutting property, the installation shall be deemed a public nuisance which nuisance shall be corrected within ninety (90) days of receipt of a notice of violation. If the electromagnetic interference can not be remedied, the installation shall be removed or relocated, as appropriate.**
- (e) Access.**

 - (i) All ground mounted electrical and control equipment shall be labeled or secured to prevent unauthorized access.**
 - (ii) A VAWT tower shall be designed and installed so as to not provide step bolts or a ladder readily accessible to the public for a minimum height of eight (8) feet above the ground.**
- (f) Electrical Wires.** All electrical wires associated with a VAWT, other than wires necessary to connect the wind generator to the tower wiring, the tower wiring to the disconnect junction box, and the grounding wires shall be located underground.
- (g) Lighting.** A VAWT shall not be artificially lighted unless such lighting is required by the Federal Aviation Administration, and is subject to Planning Board or Board of Adjustment approval as part of the site plan application.
- (h) Appearance, Color, and Finish.** In all residential districts, the VAWT shall be painted or finished so as to minimize their visual impact on the surrounding landscape.
- (i) Signs.** All signs, other than the manufacturer's or installer's identification, appropriate warning signs, or owner identification on a wind generator, tower, building, or other

structure associated with a VAWT visible from any public road shall be prohibited.

(j) **Code Compliance.** A VAWT including tower shall comply with all applicable construction and electrical codes, and the National Electrical Code.

(k) **Utility notification and interconnection.** VAWTs that connect to the electric utility shall comply with the New Jersey's Net Metering and Interconnection Standards for Class I Renewable Energy Systems.

(l) **For wind speeds in the range of 0-25 mph, the noise level of any VAWT shall not (1) exceed 60dB(A) measured from any property line, or (2) be in excess of 5 dB(A) above the background noise, whichever is greater, as measured at the closest neighboring inhabited dwelling.**

(m) **Installation of a ground-mounted VAWT tower is subject to compliance with Section 188-160 to Section 188-166 of the Code of the Township of Hillsborough regulating tree removal.**

3. Permit Requirements.

(a) **Site Plan Approval.** Site Plan approval from the Planning Board or Board of Adjustment, as appropriate, shall be required for the installation of a small wind energy system **or a VAWT**.

(b) **Documents:** The site plan application shall be accompanied by a plot plan which includes the following:

- (i) Property lines and physical dimensions of the property;
- (ii) Location, dimensions, and types of existing structures on the property;
- (iii) Location of the proposed small wind energy system tower **or VAWT**;
- (iv) The right-of-way of any public road that is contiguous with the property;
- (v) Any overhead utility lines;
- (vi) Small wind energy system **or VAWT** specifications, including manufacturer and model, rotor diameter, tower height, tower type (freestanding or guyed);
- (vii) Stamped, engineered tower and tower foundation drawings;

(viii) Noise levels of the proposed wind energy system **or VAWT** at all property lines and at the closest neighboring inhabited dwelling.

(c) A visual site distance analysis must be submitted, including photos of the subject property, that graphically simulates the appearance of any proposed small wind energy system **or VAWT** and indicating its view from at least 5 locations around and within 1 mile of the proposed tower;

(d) A Wildlife Habitat Assessment Report shall be prepared, unless otherwise waived by the Planning Board or Board of Adjustment, as appropriate, either as part of an Environmental Impact Statement or as a separate report that specifically addresses the wildlife habitat affected by the installation of a small wind energy system **or VAWT**. This report shall address the impacts to existing bird and bat populations by the small wind energy system **or VAWT**. Additionally, the report shall address the environmental resources of the Sourland Mountain Special Resource Area, the New Jersey Department of Environmental Protection's Landscape Project and impacts to habitats ranked 3, 4, or 5 that indicate the presence of threatened or endangered species, including consideration for reducing or mitigating the effect of the small wind energy system **or VAWT** on the wildlife resources of the Township.

(e) Efforts to reduce or minimize these impacts may include the reduction or elimination of guy wires, the use of special installation techniques to reduce or eliminate forest fragmentation and the use of new or innovative techniques.

(f) Expiration. A permit issued pursuant to this Ordinance shall expire if:

- (i) The small wind energy system **or VAWT** is not installed and functioning within 24 months from the date the permit is issued; or
- (ii) The small wind energy system **or VAWT** is out of service or otherwise unused for a continuous 12 month period.

4. Abandonment.

(a) A small wind energy system **or VAWT** that is out-of-service for a continuous 18 month period will be deemed to have been presumptively abandoned. The Zoning Officer may issue a Notice of Abandonment to the owner of a small wind energy system **or**

VAWT that is deemed to have been abandoned. The owner shall have the right to respond to the Notice of Abandonment within 30 days from Notice receipt date. The Zoning Officer shall withdraw the Notice of Abandonment and notify the owner that the Notice has been withdrawn if the owner provides information that demonstrates the small wind energy system **or VAWT** has not been abandoned. In the event that the Zoning Officer, after investigation, determines that a small wind energy system **or VAWT** has been abandoned, the Zoning Officer may issue a Notice of Abandonment during the presumptive 12 month period and the owner shall have the right to respond to the Notice of Abandonment.

(b) If the small wind energy system **or VAWT** is determined to be abandoned, the owner of a small wind energy system **or VAWT** shall remove the wind generator from the tower and wind generator at the owner's sole expense within 3 months of receipt of Notice of Abandonment. If the owner fails to remove the tower and wind generator **or the VAWT installation**, the Zoning Officer may, at the option of the Township Committee, have the tower and wind generator **or VAWT installation** removed at the owner's expense, and impose a lien on the property pursuant to Section 132-8 of the Code of the Township of Hillsborough.

SECTION 3. Severability. If any provisions of this ordinance shall be adjudged invalid, such adjudication shall not affect the validity of the remaining provisions, which shall be deemed several there from.

SECTION 4. This ordinance shall take effect immediately upon passage and publication according to law.

ATTEST:

TOWNSHIP OF HILLSBOROUGH

Kevin P. Davis, RMC
Township Clerk

Frank DelCore, Mayor

Introduced: May 26, 2009
Published: July 2, 2009
Public Hearing: July 14, 2009
Adoption: July 14, 2009
Published: July 23, 2009