

ARTICLE 12 - PERFORMANCE STANDARDS**12-1 GENERAL REQUIREMENT**

All uses shall comply with the performance standards established in this Article unless any Federal, State, County or Village law, ordinance or regulation establishes a more restrictive standard, in which event the more restrictive standard shall apply.

12-2 NOISE

Any activity or operation of any use producing noise (other than ordinary vehicular noise) shall be conducted only in accordance with the following provisions, as adapted from the State of Illinois Title 35, Chapter 1, Part 901: Sound Emission Standards and Limitations for Property Line Noise Sources:

12-2.1 Sound Emitted to Residential Uses.

- a. Except as elsewhere provided in this Part, no person shall cause or allow the emission of sound during daytime hours from any property-line-noise-source from any Residential, Commercial and Office or Industrial use to any receiving Residential use which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within such receiving Residential use.

Octave Band Center Allowable Octave Band Sound Pressure Levels (dB) of Sound Frequency (Hertz) Emitted to any Receiving Residential Use from:

Octave Band Center Frequency (Hertz)	Industrial Uses	Commercial/Office Uses	Residential Uses
31.5	75	72	72
63	74	71	71
125	69	65	65
250	64	57	57
500	58	51	51
1000	52	45	45
2000	47	39	39
4000	43	34	34
8000	40	32	32

- b. Except as provided elsewhere in this Part, no person shall cause or allow the emission of sound during nighttime hours from any property-line-noise-source from any Residential, Commercial and Office or

Industrial use to any receiving Residential use which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within such receiving Residential use.

Octave Band Center Allowable Octave Band Sound Pressure Levels (dB) Of Sound Frequency (Hertz) Emitted to any Receiving Residential Use from:

Octave Band Center Frequency (Hertz)	Industrial Uses	Commercial/Office Uses	Residential Uses
31.5	69	63	63
63	67	61	61
125	62	55	55
250	54	47	47
500	47	40	40
1000	41	35	35
2000	36	30	30
4000	32	25	25
8000	32	25	25

12-2.2 **Sound Emitted to Commercial and Office Uses.** Except as provided elsewhere in this Part, no person shall cause or allow the emission of sound from any property-line-noise-source from any Residential, Commercial and Office or Industrial use to any receiving Commercial or Office Use which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within such receiving Commercial or Office Use.

Octave Band Center Allowable Octave Band Sound Pressure Levels (dB) of Sound Frequency (Hertz) Emitted to any Receiving Class B Land from:

Octave Band Center Frequency (Hertz)	Industrial Uses	Commercial/Office Uses	Residential Uses
31.5	80	79	72
63	79	78	71
125	74	72	65
250	69	64	57
500	63	58	51
1000	57	52	45
2000	52	46	39
4000	48	41	34
8000	45	39	32

- 12-2.3 **Highly Impulsive Sound.** Except as provided elsewhere in this Part, no person shall cause or allow the emission of highly impulsive sound from any property-line-noise-source from any Residential, Commercial and Office or Industrial use to any receiving Residential or Commercial and Office Use which exceeds the allowable A-weighted sound levels, measured with fast dynamic characteristic, specified in the following table when measured in accordance with the procedure of 35 III. Adm. Code 900.103 at any point within such receiving Residential or Commercial and Office Uses.

Allowable A-weighted Sound Levels in Decibels of Highly-Impulsive Sound Emitted to Receiving Residential or Commercial and Office Uses

Land Use on which Property Line Noise Source is Located	Commercial/Office Uses	Residential Uses (Daytime)	Residential Uses (Nighttime)
Residential Use	47	47	37
Commercial/Office Use	54	47	37
Industrial Use	58	53	43

- 12-2.4 **Discordant Noises.** No land use or activity within the Village shall be conducted in such a manner so as to generate loud and discordant noises or vibrations between the hours of 9:00 p.m. and 7:00 a.m.
- 12-2.5 **Exceptions.** The limits set forth in 12-2.1 shall not apply to the following: noises from construction, repair, and maintenance activities, noises from safety signals, warning devices, and emergency pressure relief valves, and transient noises emanating from moving sources, such as trucks, automobiles, airplanes, and trains.

12-3 GLARE AND HEAT

Any activity or operation of any use producing glare or heat shall be conducted so that no glare or heat from the activities or operations shall be detectable at any point off the zoning lot on which the use is located. Flickering or intense sources of light shall be controlled or shielded so as not to cause a nuisance across lot lines.

12-4 VIBRATION

No earthborne vibration from any operations of any use shall be detectable at any point off the zoning lot on which the use is located.

12-5 DUST AND AIR POLLUTION

12-5.1 Dust and other types of air pollution borne by the wind from sources such as storage areas, yards, roads, conveying equipment and the like within lot boundaries shall be kept to a minimum by appropriate landscaping, screening, sheltering, paving, oiling, fencing, wetting, collecting or other acceptable means.

12-5.2 No persons shall cause or allow the emission of fugitive particulate matter across lot lines which is visible by an observer looking generally toward the zenith, beyond the property line. This requirement shall not apply when the wind speed is greater than twenty-five (25) miles per hour. Determination of wind speed for the purposes of this rule shall be by a one-hour average or hourly recorded value at the nearest official station of the U.S. Weather Bureau or by wind speed instruments operated on the site.

12-6 DISCHARGE AND DISPOSAL OF RADIOACTIVE AND HAZARDOUS WASTE

The discharge of fluid, and the disposal of solid radioactive and hazardous waste materials shall be in compliance with applicable Village, state and federal laws and regulations governing such materials or waste. No operation which produces radioactive or hazardous waste material shall commence without prior notice to the Village Administrator. Notice shall be given at least three (3) weeks before the operation is commenced.

Radioactive and hazardous material shall be transported, stored and used only in conformance with all applicable federal, state, and local laws.

12-7 ELECTROMAGNETIC INTERFERENCE

Electromagnetic interference from any operations of any use in any district shall not adversely affect the operation of any equipment located off the zoning lot on which such interference originates.

12-8 ODORS

The release of materials intrinsically odorous or capable of being odorous, either by bacterial decomposition or chemical reaction, which renders it perceptible from beyond the zoning lot shall be prohibited.

12-9 TOXIC SUBSTANCES

The storage, handling or transport of toxic substances shall comply with the State of Illinois Pollution Control Board requirements.

12-10 WATER POLLUTION

All uses shall comply with the State of Illinois Pollution Control Board rules and regulations, 35 Illinois Administrative Code, Subtitle C, "Water Pollution".

12-11 FIRE AND EXPLOSION HAZARDS

Materials that present potential fire and explosive hazards shall be transported, stored and used only in conformance with all applicable federal, state and local laws.

12-12 ANTENNAS AND ANTENNA SUPPORT STRUCTURES

12-12.1 **Antennas With Surface Areas of Ten (10) Square Feet or Less.** Antennas and antenna support structures having a combined surface area not greater than ten (10) square feet, and no single dimension exceeding twelve (12) feet, shall be permitted as an accessory use (See Appendix A, Pages A-1 and A-2). See Section 13-7 of this Code for landscaping and screening requirements applicable to ground mounted antennas.

12-12.2 **Antennas, other than Amateur Radio Facilities, with Surface Areas Exceeding Ten (10) Square Feet.** Except for amateur radio facilities permitted pursuant to this Section 12-12 or except upon the issuance of a special use permit pursuant to Section 16-9 and Sections 6-3.3 or 7-2.3 or 7-3.3 of this Code, antennas and antenna support structures having a combined surface area greater than ten (10) square feet, or having any single dimension exceeding twelve (12) feet, shall be permitted as an accessory use, but only in compliance with the following regulations (See Appendix A, Pages A-1 and A-2):

- a. Number Limited. No more than one (1) such antenna and antenna support structure may be located on any zoning lot.
- b. Height Limited. No such antenna or antenna support structure shall exceed twelve (12) feet in height unless such antenna and antenna support structure is attached to a building pursuant to Section 12-12.2.c.

- c. Attachment to Buildings Limited. No such antenna or antenna support structure shall be attached to a principal or accessory structure unless all of the following conditions are satisfied:
- 1) Size. The antenna and its support structure shall not exceed fifteen (15) square feet in area or twelve (12) feet in any dimension.
 - 2) Height. The antenna and its support structure shall not extend more than three (3) feet above the highest point of the building on which it is mounted or the maximum permissible building height, whichever is less.
 - 3) Mounting. The antenna and its support structure shall not be attached or mounted upon any building appurtenance, such as a chimney. The antenna and its support structure shall not be mounted or attached to the front of any principal building or to the side of any building facing a street, including any portion of the building roof facing any street. The antenna and its support structure shall be designed to withstand a wind force of eighty (80) miles per hour without the use of supporting guy wires.
 - 4) Color. The antenna and its support structure shall be a color that blends with the roof or building side on which it is mounted.
 - 5) Grounding. The antenna and its support structure shall be bonded to a grounding rod.
 - 6) Other Standards. The antenna and its support structure shall satisfy such other design and construction standards as the Village Administrator determines are necessary to ensure safe construction and maintenance of the antenna and its support structure.
- d. Setback from Street. No such antenna or its support structure shall be erected or maintained closer to any street than the wall of the principal building to which it is accessory that is nearest to such street.
- e. Guy Wires Restricted. No guy or other support wires shall be used in connection with such antenna or its support structure except when used to anchor the antenna or support structure to an existing building to which such antenna or support structure is attached.
- f. Screening. See Section 13-7 of this Code for landscaping and screening requirements applicable to ground mounted antennas.

12-12.3 **Amateur Radio Facilities With Surface Areas Exceeding Ten (10) Square Feet.** Except upon issuance of a special use permit pursuant to Section 16-9 and Sections 6-3.3 or 7-2.3 or 7-3.3 of this Code, any antenna and antenna support structure having a combined surface area greater than ten (10) square feet or having any single dimension exceeding twelve (12) feet that is capable

of transmitting as well as receiving signals and is licensed by the Federal Communications Commission as an amateur radio facility shall be permitted as an accessory use, but only in compliance with the following regulations (See Appendix A, Pages A-1 and A-2):

- a. Number Limited. No more than one (1) such antenna or antenna support structure may be located on any zoning lot.
- b. Height Limited. No such antenna or antenna support structure shall exceed seventy-five (75) feet in height unless such antenna and antenna support structure is attached to a building pursuant to Section 12-12.3.c.
- c. Attachment to Buildings Limited. No such antenna or antenna support structure shall be attached to a principal or accessory structure unless all of the following conditions are satisfied:
 - 1) Height. The antenna and its support structure shall not extend more than twenty (20) feet above the highest point of the building on which it is mounted.
 - 2) Mounting. The antenna and its support structure shall not be attached to or mounted upon any building appurtenance, such as a chimney. The antenna and its support structure shall not be mounted or attached to the front of any principal building or to the side of any building facing a street, including any portion of the building roof facing any street. The antenna and its support structure shall be designed to withstand a wind force of eighty (80) miles per hour without the use of supporting guy wires.
 - 3) Grounding. The antenna and its support structure shall be bonded to a grounding rod.
 - 4) Other Standards. The antenna and its support structure shall satisfy such other design and construction standards as the Village Administrator determines are necessary to ensure safe construction and maintenance of the antenna and its support structure.
- d. Setback from Street. No such antenna or its support structure shall be erected or maintained closer to any street than the wall of the principal building to which it is accessory that is nearest to such street.
- e. Setbacks from Adjacent Buildings. No such antenna or its support structure shall be located in any required side yard or nearer than one-half the height of the antenna and its support structure to any habitable building on any adjacent property.

12-12.4 **Personal Wireless Services Antennas, With or Without Antenna Support Structures, and Related Electronic Equipment.** The following limitations shall apply to every personal wireless services antenna, with or without antenna support structures, and related electronic equipment and equipment structures, in addition to any requirements for special use permits pursuant to Section 16-9 of this Code that may be required.

- a. Location. Personal wireless services antennas shall be located on lawfully pre-existing antenna support structures or other lawfully pre-existing buildings or structures wherever possible. No permits authorizing construction of a new antenna support structure or addition to or expansion of an existing antenna support structure or existing building or structure shall be authorized unless the applicant is able to demonstrate that no lawfully pre-existing structure is available and sufficient for the location of an antenna necessary for the provision of personal wireless services. An inventory of all existing personal wireless services antennas and antenna support structures within two-hundred fifty (250) feet, as measured from property line to property line excluding all public rights-of-way, shall accompany any request to locate a new personal wireless services antenna, with or without an antenna support structure.
- b. Design of New Antenna Support Structures for Co-Location. Unless otherwise authorized by the Board of Trustees for good cause shown, every new personal wireless services antenna support structure shall be designed, constructed and installed to be of a sufficient size and capacity to allow the location of additional personal wireless services antennas to accommodate additional personal wireless service providers on such structure in the future.
- c. Protection Against Climbing. Every personal wireless services antenna and antenna support structure shall be protected against unauthorized climbing or other access by the public.
- d. Equipment Enclosures. All electronic and other related equipment and appurtenances necessary for the operation of any personal wireless services antenna shall, whenever possible, be located within a lawfully pre-existing structure or completely below grade.
- e. Aesthetic Considerations. No personal wireless services antenna, antenna support structure, and related electronic equipment and equipment structures shall be authorized unless first referred to the Appearance Review Commission and approved by the Board of Trustees in accordance with the provisions of Chapter 7, Article II of the Municipal Code. In addition to meeting the standards of Section 16-11.7 of this Code, all personal wireless antennas, antenna support

structures, and related electronic equipment and equipment structures shall meet the following additional standards:

- 1) Color. Every personal wireless services antenna, antenna support structure, and related electronic equipment and equipment structure shall be of neutral colors that are harmonious with, and that blend with, the natural features, buildings and structures surrounding such antenna, antenna support structure, and related electronic equipment and equipment structures.
 - 2) Buffers and Landscaping. A perimeter landscaped open space shall be provided in accordance with the requirements of Section 13-2 of this Code.
 - 3) Safety Fencing. All fencing shall be in compliance with the requirements of Section 13-9 of this Code; provided, however, that any such fence may extend to a height of ten (10) feet in the R-8 Multiple Family Residential District, the O-1 Professional Services Office District and the OS Open Space District.
- f. Licenses and Permits. The operator of every personal wireless services antenna shall submit to the Village Administrator copies of all licenses and permits required by other agencies and governments with jurisdiction over the design, construction, location and operation of such antenna and shall maintain such licenses and permits and provide evidence of renewal or extension thereof when granted.
- g. Removal Upon Abandonment. When one (1) or more antennas, antenna support structure, or related equipment are not operated for the provision of personal wireless services for a continuous period of twelve (12) months or more, such antenna, antenna support structure, or related equipment may be deemed to be abandoned by the Village. The owner of such an antenna, antenna support structure, or related equipment shall remove such items within ninety (90) days following mailing of written notice that removal is required. Such notice shall be sent by registered or certified mail, return receipt requested, by the Village to such owner at the last known address of such owner. If two (2) or more providers of personal wireless services use the antenna support structure or related equipment to provide personal wireless services, then the period of non-use under this provision shall be measured from the cessation of operation at the location of such antenna support structure or related equipment by all such providers.
- h. Limited to Applicant. Every ordinance granting approval of a special permit for a personal wireless services antenna or antenna support structure shall state that any assignment or transfer of the special use

permit or any of the rights thereunder may be made only with the approval of the Board of Trustees.

12-13 WIND ENERGY FACILITIES

The following limitations shall apply to every Wind Energy Facility established in all districts of the Village of Libertyville with or without Wind Energy Facility support structures, and related electronic equipment and equipment structures, in addition to any requirements for special use permits pursuant to Section 16-9 of this Code that may be required.

12-13.1 **Building Mounted Wind Turbines.** A wind energy conversion system which converts wind energy into electricity through the use of a wind driven turbine generator that is mounted to a principal structure or accessory structure building and shall be considered as part of the principal or accessory structure and subject to all the bulk requirements established for the zoning district for the principal and accessory structures except where as otherwise stipulated in the Performance Standards Section 12-13.

- a. Shadow Flicker. Unless owned by the applicant, no parcel of real estate shall be subject to shadow flicker from a Building Mounted Wind Turbine unless the owner/operator of the Building Mounted Wind Turbine and the owner of the affected Nonparticipating Property have entered into an agreement by which the owner of the Nonparticipating Property consents to the shadow flicker affecting his/her property and/or the owner of the Building Mounted Wind Turbine agrees to specified mitigation of such shadow flicker. Such agreement shall be recorded in the Lake County Recorder's Office and shall be binding upon the heirs of the owner and the successors in title to the owner of the Building Mounted Wind Turbine and the owner of the affected Nonparticipating Property. Such agreement shall describe the property upon which the Building Mounted Wind Turbine is installed, as well as the Nonparticipating Property, and shall include sufficient information to advise subsequent owners of the Nonparticipating Property that shadow flicker may exist at times on the Nonparticipating Property.
- b. Sound. Audible sound emitted during the operation of any Wind Energy Facility or individual Wind Turbine is limited to the standards set forth below. All measurements of such sound shall be taken at the property line of the adjacent Nonparticipating Property and must account for ambient sound using procedures meeting American National Standard Institute Standards including American National Standard Procedures for Outdoor Measurement of Sound Pressure Level. No Wind Energy Facility shall operate with an average sound level more than 5 dB(A) above the non-operational ambient level, as

measured at the property line of any Nonparticipating Property (receiving property) upon which a residential dwelling is located. The average C-weighted (low frequency) sound level during Wind Energy Facility operation shall not exceed the A-weighted ambient sound level by more than 20 dB and, in any event, shall not exceed the maximum sound levels set forth below. The Wind Energy Facilities Sound Measurement Worksheet Form, as shall be prepared and amended from time to time by the Director of Community Development, shall be used when measuring sound levels.

Maximum Sound Level for Wind Energy Facilities

<u>Receiving Property</u>	<u>Hours of Operation</u>	<u>Sound Level Limits</u>
Residential	9:00 p.m. - 7:00 a.m.	35 dB(A)/55 dB(C)
Residential	7:00 a.m. - 9:00 p.m.	40 dB(A)/60 dB(C)
Other Non-Residential		50 dB(A)/70 dB(C)

- c. Height. The highest point of a Building Mounted Wind Turbine which is mounted on a principal structure shall not exceed fifteen (15) feet above the highest point of such principal structure and in any event shall not exceed the maximum permitted building height of a principal structure in the zoning district in which such principal structure is located.

The highest point of a Building Mounted Wind Turbine which is mounted on an accessory structure shall not exceed fifteen (15) feet above the highest point of such accessory structure and in any event shall not exceed the maximum permitted building height of an accessory structure in the zoning district in which such accessory structure is located.

Building Mounted Wind Turbines shall also be subject to the regulations pertaining to “Additional Yards Related to Building Height” set forth in Sections 4-5.5(d), 4-6.5(d), 4-7.5(d), 4-8.5(d), 4-9.5(d), 5-2.5(d), 5-3.5(d), 5-4.5(d), 6-2.5(d), and 6-3.5(d).

- d. Security. All access doors to Building Mounted Wind Turbine electrical equipment in non-residential and multi-family residential properties shall be locked when unattended.
- e. Signage. In non-residential and multi-family housing zoning districts, a warning sign shall be posted and plainly visible upon or in close proximity to the Building Mounted Wind Turbine. Such warning sign shall be not less than eighteen (18) square inches and no greater than two (2) square feet in area and shall include a notice of no trespassing and a warning of high voltage.

- f. Sun Glint. Building Mounted Wind Turbines shall be painted a non-reflective, non-obtrusive color which shall be pre-approved through the Appearance Review Commission and Special Use Permit process, provided, however, that Appearance Review Commission review and recommendation shall not be required for Building Mounted Wind Turbines on single family residential dwellings.
- g. Lighting. Building Mounted Wind Energy Facilities shall not be artificially lighted, except to the extent required by the FAA or other applicable authority.
- h. Advertising. Building Mounted Wind Turbines shall not be used for displaying any advertising except for identification of the manufacturer or operator of the Wind Energy Facility. Any such identification shall not appear on the blades or other moving parts or exceed six square feet per Wind Turbine.
- i. Electrical Controls/Wiring. Electrical controls and control wiring and power-lines shall be wireless or wiring shall be run in rigid metal conduit to be reviewed and approved by the Village of Libertyville, Building Division Electrical Inspector, prior to issuing permit.
- j. Width. As measured at its widest point, the width of a single Building Mounted Wind Turbine or the combined cumulative width of multiple Building Mounted Wind Turbines located on a single structure shall not exceed twenty (20%) percent of the shortest width of the building's front or side elevation, for residential buildings and non-residential buildings abutting residentially zoned properties. The width of a single Building Mounted Wind Turbine or the combined cumulative width of multiple Building Mounted Wind Turbines located on a single structure shall not exceed fifty (50%) percent of the shortest width of the front or side elevation of a nonresidential building, not abutting residentially zoned properties.
- k. Electronic Interference. Wind Energy Facilities shall not cause electromagnetic interference with communications systems. The determination of degradation of performance and of quality and proper design shall be made in accordance with good engineering practices as defined in the latest principles and standards of the American Institute of Electrical Engineers, the Institute of Radio Engineers, or Electrical Industries Association.
- l. Turbine Decommissioning and Site Restoration Plan.
 - 1) Each application for a special use permit for a Wind Turbine shall be accompanied by a Decommissioning and Site Restoration Plan. The removal of any Wind Turbine and all

related improvements shall only be conducted in accordance with the Decommissioning and Site Restoration Plan as submitted in the application and approved by the Village of Libertyville. In those cases where the special use permit authorizing the erection of a Wind Energy Facility requires that a permit be issued prior to the demolition of such Wind Energy Facility, the owner shall apply for such demolition permit and such permit shall only be issued if the decommission and site restoration work is consistent with the Decommission and Site Restoration Plan submitted with the original application. The owner of the Wind Energy Facility and the underlying property owners shall be jointly liable for all costs related to the removal of all equipment and the performance of the requirements of the Decommissioning and Site Restoration Plan. Upon removal of a Wind Energy Facility, the owner of the facility and the underlying property owners shall be jointly liable for restoration of the site to its original condition at their expense. The restoration shall include removal of all materials above and below ground; public road repair; and all re-grade and re-vegetation necessary to return the subject property to the condition existing prior to establishment of the Wind Energy Facility. All hazardous materials shall be removed from the site and disposed of in accordance with state and federal laws. If a Wind Energy Facility is not completely removed within ninety (90) days of the finding of abandonment (as defined below), the Village of Libertyville may enter upon the owner's property and remove all facility components at owner's expense. In the case of such removal, the Village of Libertyville has the right to file a lien for reimbursement, for any and all expenses incurred by the Village without limitation, including attorney fees and accrued interest.

- 2) A Building Mounted Wind Energy Facility that is not in Operable Condition for a period exceeding thirty (30) consecutive days shall be deemed abandoned. The owner of an abandoned Wind Energy System and the owner of the property on which the Wind Energy Facility is located shall either repair to Operable Condition the Wind Energy Facility or cause the removal of all Wind Energy Facility structures and facilities within thirty (30) days after receipt of a notice of abandonment from the Village. Any repair of a Wind Energy Facility pursuant to this paragraph shall be subject to the inspection and approval of the Village.
- 3) Any abandoned Wind Energy Facility that is not removed within thirty (30) days after receipt of a notice of abandonment

shall be deemed a public nuisance, which nuisance the Village shall have the right, but not the obligation to summarily abate such nuisance by entering upon the owner's property and removing such Wind Energy Facility. The owner of the Wind Energy Facility and the owner of the property upon which the Wind Energy Facility is located shall be jointly and severally liable for any expenses incurred by the Village to abate such nuisance, including but not limited to reasonable attorney's fees incurred by the Village. In the case of such removal, the Village shall have the right, but not the obligation, to file a lien against the property on which the Wind Energy Facility is located for reimbursement of expenses so incurred plus accrued interest.

- m. Wildlife Impact. Wind Energy Facilities shall be compliant with all applicable regulations of the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency and the U.S. Fish and Wildlife Service. The Director of Community Development may require that the applicant submit evidence of compliance with such regulations at the time of application.
- n. Historic Districts. Wind Energy Facilities within five hundred (500) feet of any Village of Libertyville Historic District or National or Local Historic Landmark must receive a recommendation from the Historic Preservation Commission prior to submitting an application for a special use permit.
- o. Inspections: Every owner/operator of a Building Mounted Wind Turbine, upon permitting by the Village of Libertyville, shall be required to schedule annual maintenance inspections by the Village.
 - 1) Building Mounted Wind Turbines shall be maintained in Operable Condition at all times, except for reasonable maintenance and repair outages.
 - 2) Should a Building Mounted Wind Turbine become inoperable, or should any part of the Building Mounted Wind Turbine become damaged, or should a Building Mounted Wind Turbine violate a permit condition, or present a condition which poses an imminent threat to the public health, safety or welfare, the Building Mounted Wind Turbine shall cease operations immediately and repairs shall be effectuated within thirty (30) days following the cessation of operations. The Building Mounted Wind Turbine shall not thereafter commence operations until such time as repairs have been effectuated and inspected and approved by the Village. Any Building Mounted Wind Turbine which remains inoperable for a period of more

than thirty (30) days shall be deemed abandoned and subject to the regulations set forth in Section 12-13.1.o.1.2 above.

- p. Hours of Operation. Building Mounted Wind Turbines operated on lots within or abutting residential zoning lots shall not be operated between the hours of 9:00 p.m. and 7:00 a.m. At all other times, such Building Mounted Wind turbines shall comply with the Maximum Sound Levels for Wind Energy Facilities set forth in Section 12-13.1.b.
- q. General Engineering Requirements.
- 1) All Wind Energy Facilities shall be designed to withstand a minimum wind velocity of 100 miles per hour, with an impact pressure of 40 pounds per square foot.
 - 2) Each Wind Energy Facility shall conform to all applicable industry standards, including, without limitation, the standards developed by the American National Standards Institute (ANSI).
 - 3) All Wind Energy Facilities shall be equipped with automatic and manual braking systems.
 - 4) For turbines greater than 20 kilowatts (kw) of nameplate capacity, the seal of a Structural Engineer shall be required.
- r. Cessation of Operation in Emergency. The owner of the Building Mounted Wind Turbine shall be required to immediately cease operation of the Building Mounted Wind Turbine for the duration of any emergency, as determined by the Village. For the purposes of this paragraph, an emergency shall mean a condition or situation caused by the Building Mounted Wind Turbine or a natural or manmade disaster that presents an imminent physical threat of danger to life or significant threat to property.
- s. Indemnification. The owner of each Building Mounted Wind Turbine, and the owner of the property on which the Building Mounted Wind Turbine is located, shall jointly and severally defend, indemnify and hold harmless the Village and its officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses and liabilities whatsoever including attorney's fees arising out of any permit, approval, inspection, or other act of omission of the Village, or any acts or omissions of the owners concerning the operation of the Building Mounted Wind Turbine project without limitation, whether said liability is premised on contract or on tort.

12-13.2 **Tower Mounted Wind Turbines.** A wind energy conversion system which converts wind energy into electricity through the use of a wind driven turbine generator that is mounted to a tower and shall be subject to the following Use Limitations.

- a. Height: Non-Residential Zoning Districts. Tower Mounted Wind Turbines shall only be allowed in non-residential zoning districts and shall not exceed a height of one hundred twenty-five (125) feet. Tower-mounted turbines shall be prohibited from locating on any property within a non-residential zoning district that abuts residentially zoned property and from any property located in the C-1 Downtown Core Commercial District.
- b. Wind Turbine Spacing. Each Tower Mounted Wind Turbine shall have a separation distance from other Wind Turbines equal to or greater than one and two-tenths (1.2) times the total height of the tallest of the Wind Turbines located or proposed to be located on the owner's property or on any adjacent Nonparticipating Property as measured from the base of the tower.
- c. Communication and Electrical Lines. Each Tower Mounted Wind Turbine shall be setback from the nearest above-ground public electric power line or telephone line a distance no less than two (2) times its total height as measured from the base of the tower.
- d. Inhabited Structures. Each Tower Mounted Wind Turbine shall be set back from the nearest structure used as a residence, school, hospital, place of worship, place of employment or public library, a distance no less than 1,000 feet, unless the owner/operator of the Tower Mounted Wind Turbine and the owner of the affected structure used as a residence, school, hospital, place of worship, place of employment or public library have entered into an agreement by which said owner of the affected structure consents to the distance less than 1,000 feet as measured from the base of the Tower Mounted Wind Turbine to the affected structure. Such agreement shall be recorded in the Lake County Recorder's Office and shall be binding upon the heirs of the owner and the successors in title to the owner of the Tower Mounted Wind Turbine and the owner of the affected property. This 1,000 foot setback requirement shall not apply with respect to the nearest structure used as a school, hospital, place of worship, place of employment or public library, in those situations where such school, hospital, place of worship, place of employment or public library operates a Tower Mounted Wind Turbine on such property.
- e. Property Lines. Each Wind Turbine shall be set back from the nearest property line a distance no less than one and one-tenth (1.1) times its

total height as measured from the base of the Tower Mounted Wind Turbine.

- 1) Additional Setback Restrictions.
 - i) Any portion of Tower Mounted Wind Energy Facilities may not be constructed within or over any utility, water, sewer, or other type of recorded easement.
 - ii) Any portion of Tower Mounted Wind Energy Facilities may not be constructed within fifty (50) feet of any body of water or wetlands, nor within one hundred (100) feet of any High Quality Aquatic Resources.
 - iii) Guy wires and anchoring systems shall not be located closer than thirty (30) feet from any property line or public right of way.
 - iv) No Tower Mounted Wind Energy Facility may be located in the front yard of any property.

- f. Shadow Flicker. Unless owned by the applicant, no parcel of real estate shall be subject to shadow flicker from a Tower Mounted Wind Turbine unless the owner/operator of the Tower Mounted Wind Turbine and the owner of the affected Nonparticipating Property have entered into an agreement by which the owner of the Nonparticipating Property consents to the Shadow Flicker affecting his/her property and/or the Owner of the Tower Mounted Wind Turbine agrees to specified mitigation of such Shadow Flicker. Such agreement shall be recorded in the Lake County Recorder's Office and shall be binding upon the heirs of the owner and the successors in title to the owner of the Building Mounted Wind Turbine and the owner of the affected Non-Participating Property. Such agreement shall describe the property upon which the Tower Mounted Wind Turbine is installed as well as the Non Participating Property and shall include sufficient information to advise subsequent owners of the Nonparticipating Property that shadow flicker may exist at times on the Nonparticipating Property.

- g. Sound. Audible sound emitted during the operation of any Wind Energy Facility or individual Wind Turbine is limited to the standards set forth below. All measurements of such sound shall be taken at the property line of the adjacent Nonparticipating Property and must account for ambient sound using procedures meeting American National Standard Institute Standards including American National Standard Procedures for Outdoor Measurement of Sound Pressure Level. No Wind Energy Facility shall operate with an average sound level more than 5 dB(A) above the non-operational ambient level, as measured at the property line of any adjacent Nonparticipating

Property (receiving property) upon which a residential dwelling is located. The average C-weighted (low frequency) sound level during Wind Energy Facility operation shall not exceed the A-weighted ambient sound level by more than 20 dB and, in any event, shall not exceed the maximum sound levels set forth below. Wind Energy Facilities Sound Measurement Worksheet Form, shall be prepared and amended from time to time by the Director of Community Development, shall be used when measuring sound levels.

Maximum Sound Level for Wind Energy Facilities

<u>Receiving Property</u>	<u>Hours of Operation</u>	<u>Sound Level Limits</u>
Residential	9:00 p.m. - 7:00 a.m.	35 dB(A)/55 dB(C)
Residential	7:00 a.m. - 9:00 p.m.	40 dB(A)/60 dB(C)
Other Non-Residential		50 dB(A)/70 dB(C)

- h. Minimum Ground Clearance. The blade tip of a Tower Mounted Wind Turbine shall, at its lowest point have a ground clearance of no less than fifteen (15) feet.
- i. Electrical Controls/Wiring. Electrical Controls and control wiring and power-lines shall be wireless or not above ground. All wiring between Wind Turbines and the Wind Energy Facility substation (if any) or other above grade structures, shall be underground.
- j. Security. The lowest fifteen (15) feet of a Tower Mounted Wind Turbine shall not be climbable. All access doors to Tower Mounted Wind Turbines and electrical equipment shall be locked when unattended. All Tower Mounted Wind Turbines shall be enclosed by a security fence with a locked gate and a minimum height of six (6) feet.
- k. Warning Signage. In non-residential and multi-family housing zoning districts, a warning sign shall be posted and plainly visible upon or in close proximity to the Tower Mounted Wind Turbine. Such warning sign shall be not less than eighteen square inches and no greater than two square feet in area and shall include a notice of no trespassing and a warning of high voltage. Appropriate warning signage shall be placed on Wind Turbine towers, electrical equipment, and Wind Energy Facility entrances.
- l. Sun Glint. Tower Mounted Wind Turbines shall be painted a non-reflective, non-obtrusive color which shall be pre-approved through the Appearance Review Commission and Special Use Permit process.
- m. Lighting. Wind Energy Facilities shall not be artificially lighted, except to the extent required by the FAA or other applicable authority.

- n. Advertising and Additional Sign Regulations. Wind Turbines shall not be used for displaying any advertising except for identification of the manufacturer or operator of the Wind Energy Facility. Any such identification shall not appear on the blades or other moving parts or exceed six square feet per Wind Turbine. Except for meteorological and weather devices, or bird flight diverters on guy wires, no flag, decorative sign, streamers, pennants, ribbons, spinners or waiving, fluttering or revolving devices shall be attached to any portion of the Wind Energy Facility.

- o. Turbine Decommissioning and Site Restoration Plan.
 - 1) Each application for a special use permit for a Wind Turbine shall be accompanied by a Decommissioning and Site Restoration Plan. The removal of any Wind Turbine and all related improvements shall only be conducted in accordance with the Decommissioning and Site Restoration Plan as submitted in the application and approved by the Village of Libertyville. In those cases where the special use permit authorizing the erection of a Wind Energy Facility requires that a permit be issued prior to the demolition of such Wind Energy Facility, the Owner shall apply for such demolition permit and such permit shall only be issued if the decommission and site restoration work is consistent with the Decommission and Site Restoration Plan submitted with the original application. The owner of the Wind Energy Facility and the underlying property owners shall be jointly liable for the all cost related to the removal of all equipment and the performance of the requirements of the Decommissioning and Site Restoration Plan. Upon removal of a Wind Energy Facility, the owner of the facility and the underlying property owners shall be jointly liable for restoration of the site to its original condition at their expense. The restoration shall include removal of all materials above and below ground; public road repair; and all re-grade and re-vegetation necessary to return the subject property to the condition existing prior to establishment of the Wind Energy Facility. All hazardous materials shall be removed from the site and disposed of in accordance with state and federal laws. If a Wind Energy Facility is not completely removed within ninety (90) days of the finding of abandonment (as defined below), the Village of Libertyville may enter upon the owner's property and remove all facility components at owner's expense. In the case of such removal, the Village of Libertyville has the right to file a lien for reimbursement, for any and all expenses incurred by the Village without limitation, including attorney fees and accrued interest.

- 2) A Tower Mounted Wind Energy System that is not in Operable Condition for a period exceeding thirty (30) consecutive days shall be deemed abandoned. The owner of an abandoned Wind Energy Facility and the owner of the property on which the Wind Energy Facility is located shall either repair the Wind Energy Facility to an Operable Condition or cause the removal of all Wind Energy Facility structures and facilities within thirty (30) days after receipt of a notice of abandonment from the Village. Any repair of a Wind Energy Facility pursuant to this paragraph shall be subject to the inspection and approval of the Village.
 - 3) Any abandoned Wind Energy Facility that is not removed within thirty (30) days after receipt of a notice of abandonment shall be deemed a public nuisance, which nuisance the Village shall have the right, but not the obligation to summarily abate such nuisance by entering upon the owner's property and removing such Wind Energy Facility. The owner of the Wind Energy Facility and the owner of the property upon which the Wind Energy Facility is located shall be jointly and severally liable for any expenses incurred by the Village to abate such nuisance, including but not limited to reasonable attorney's fees incurred by the Village. In the case of such removal, the Village shall have the right, but not the obligation, to file a lien against the property on which the Wind Energy Facility is located for reimbursement of expenses so incurred plus accrued interest.
- p. Wildlife Impact. Wind Energy Facilities shall be compliant with all applicable regulations of the Illinois Department of Natural Resources, the Illinois Environmental Protection Agency and the U.S. Fish and Wildlife Service. The Director of Community Development may require that the applicant submit evidence of compliance with such regulations at the time of application.
- q. Historic Districts. Wind Energy Facilities within five hundred (500) feet of any Village of Libertyville Historic District or National or Local Historic Landmark must receive a recommendation from the Historic Preservation Commission prior to submitting an application for a Special Use Permit.
- r. Electronic Interference. Wind Energy Facilities shall not cause electromagnetic interference with communications systems. The determination of degradation of performance and of quality and proper design shall be made in accordance with good engineering practices as defined in the latest principles and standards of the American Institute

of Electrical Engineers, the Institute of Radio Engineers or Electrical Industries Association.

- s. Inspections. Every owner/operator of a Wind Energy Facility, upon permitting by the Village of Libertyville, shall be required to schedule annual maintenance inspections by the Village.
- 1) Tower Mounted Wind Turbines shall be maintained in Operable Condition at all times, except for reasonable maintenance and repair outages.
 - 2) Should a Tower Mounted Wind Turbine become inoperable, or should any part of the Tower Mounted Wind Turbine become damaged, or should a Tower Mounted Wind Turbine violate a permit condition, or present a condition which poses an imminent threat to the public health, safety or welfare, the Tower Mounted Wind Turbine shall cease operations immediately and repairs shall be effectuated within thirty (30) days following the cessation of operations. The Tower Mounted Wind Turbine shall not thereafter commence operations until such time as repairs have been effectuated and inspected and approved by the Village. Any Tower Mounted Wind Turbine which remains inoperable for a period of more than thirty (30) days shall be deemed abandoned and subject to the regulations set forth in Section 12-13.2.s.(1)(2), above.
- t. General Engineering Requirements.
- 1) All Wind Energy Facilities shall be designed to withstand a minimum wind velocity of 100 miles per hour, with an impact pressure of 40 pounds per square foot.
 - 2) Each Wind Energy Facility shall conform to all applicable industry standards, including, without limitation, the standards developed by the American National Standards Institute (ANSI).
 - 3) All Wind Energy Facilities shall be equipped with automatic and manual braking systems.
 - 4) For turbines greater than twenty kilowatts (kw) of nameplate capacity, the seal of a structural engineer shall be required.
- u. Cessation of Operation in Emergency. The owner of the Tower Mounted Wind Turbine shall be required to immediately cease operation of the Tower Mounted Wind Turbine for the duration of any

emergency, as determined by the Village. For the purposes of this paragraph, an emergency shall mean a condition or situation caused by the Tower Mounted Wind Turbine or a natural or manmade disaster that presents an imminent physical threat of danger to life or significant threat to property.

- v. Indemnification. The owner of each Tower Mounted Wind Turbine, and the owner of the property on which the Tower Mounted Wind Turbine is located, shall jointly and severally defend, indemnify and hold harmless the Village and its officials from and against any and all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses and liabilities whatsoever including attorney's fees arising out of any permit, approval, inspection, or other act of omission of the village, or any acts or omissions of the owners concerning the operation of the Tower Mounted Wind Turbine project without limitation, whether said liability is premised on contract or on tort.

12-13.3 **Applications for Wind Energy Facilities.** In addition to such other data and information ordinarily required in connection with an application for a special use permit, an application for a special use permit for a Wind Energy Facility (WEF) to the Village shall include at least the following information:

- a. Generally Applicable Requirements.
 - 1) Project Proposal.
 - i) A project summary, including, without limitation, the manufacturer information and number of proposed turbines.
 - ii) Current photographs of the proposed location of the WEF.
 - iii) A front elevation depiction of the subject property, showing the location and proposed height of the top of the turbine from top of the building.
 - 2) Insurance. Proof of homeowner or business general liability insurance, as appropriate, with a minimum coverage level of \$1,000,000 per occurrence.
 - 3) Electric Utility. Approval letter from the local electric utility company, if the system is to be connected to the energy grid.
 - 4) Manufacturer's Directions. A copy of the directions issued by the manufacturer of the proposed WEF for the proper installation, operation, and maintenance of the WEF.
 - 5) Certification of Design Compliance. A certification of design compliance for the proposed WES with respect to the applicable noise, structural, and safety regulations set forth in this subsection, which certification must have been obtained

from Underwriters Laboratories (UL), National Renewable Energy Laboratories (NREL), Det Norske Veritas (DNV), Germanischer Lloyd Wind Energie (GL), or an equivalent third party.

- 6) Maintenance Covenant. An executed maintenance covenant, on a form provided by the Village, providing that the owner and all subsequent owners of the subject property will maintain the WEF in accordance and compliance with this Code and with the maintenance directions issued by the manufacturer of the WEF.
 - 7) Contact Information. The name of a local contact with authority to operate or repair the proposed WEF as needed and at any time, and the telephone number at which such contact may be reached on a 24-hour basis. At all times during which the WES is in Operable Condition, the applicant shall have the duty to notify the Village of any changes to the information required pursuant to this subparagraph 7.
- b. Additional Building Mounted Wind Energy Facility (BWEF) Requirements.
- 1) Engineering Plans. Engineering plans, which must include, without limitation, the manufacturer's engineering specifications of the turbine, nameplate wattage capacity, dimensions of the turbine unit, mounting mechanisms, expected load and expected sound level production.
 - 2) Site Plan. A site plan, drawn to scale, signed and sealed by a professional engineer licensed in the State of Illinois, and including, without limitation, the following:
 - i) The location of any overhead or underground power lines and utility easements.
 - ii) The locations and the expected duration of shadow flicker caused by the BWEF facility.
- c. Additional Tower Mounted Wind Energy Facility (TWEF) Requirements.
- 1) Engineering Plans. Engineering plans, which must include, without limitation, the manufacturer's engineering specifications of the tower, turbine and foundation, detailed drawing of electrical components and installation details, and expected sound level production (see Sound Level standards below). For turbines with a nameplate wattage capacity exceeding 20 kilowatts, the plans must be sealed by a structural engineer.

- 2) Site Plan. A site plan, drawn to scale, signed and sealed by a professional Engineer licensed in the State of Illinois, and including, without limitation, the following:
 - i) The existing and proposed contours, at a minimum of two foot intervals.
 - ii) The location, setbacks, exterior dimensions and square footage of all structures on the subject property.
 - iii) The location, setbacks, exterior dimensions of all structures on all nonparticipating properties located within 1,000 feet of the proposed WEF. The land use of each structure located within said nonparticipating property located within 1,000 feet of the proposed WEF shall be identified on the site plan.
 - iv) The location and size of existing waterways, wetlands, one hundred (100) year floodplains, sanitary sewers, field drain tiles, storm sewer systems, aquifers, and water distribution systems.
 - v) The location, of any overhead or underground power lines and utility easements.
 - vi) The locations and the expected duration of shadow flicker caused by the TWEF facility.
- 3) Soil Studies. For all proposed turbines to be constructed at a height greater than one hundred (100) feet, or of a structural weight greater than 5,000 pounds, the applicant shall submit a soil analysis measured at the proposed location for the base of the proposed tower and a drawing stamped by a structural engineer, in order to demonstrate that the soils are able to support the structural weight of the proposed TWEF. For purposes of this subparagraph (c)(iii), structural weight shall include the tower, wind turbine generator, and any other components otherwise supported by the base foundation of the proposed TWEF.
- 4) Environmental Impact Studies and Plans.
 - i) For any proposed TWEF in excess of seventy-five (75) feet in height, the applicant shall request, and submit to the Village, evaluations regarding the impact of the proposed TWEF on the local environment and local wildlife from the Illinois Department of Natural Resources, the United States Fish and Wildlife Service, and the Lake County Soil and Water Conservation District.
 - ii) Upon request of the Village, the applicant shall submit an environmental plan to mitigate or eliminate any

adverse impact of the proposed TWES on the local environment and local wildlife, which plan shall be subject to the approval of the Village in consultation with the Illinois Department of Natural Resources and the United States Fish and Wildlife Service.

12-13.4 **Violations, Enforcement, and Penalties.**

- a. The Village may require the owner of a Wind Energy Facility, as the Village may determine necessary and at the owner's sole expense, to obtain field tests or sound propagation modeling, conducted or supervised by an acoustics specialist certified by the Institute of Noise Control Engineering, to determine whether a violation of this Article is occurring. The owner shall immediately discontinue operation of the Wind Energy Facility and promptly remedy the violation.
- b. Violation of any of the provisions of this Article shall be subject to the Enforcement and Penalties provisions found in Article 17-12 and 17-13 of this Code, including but not limited to the right of the Village to impose fines and to order the abatement of any violation and/or the revocation of any special use permit or building permit for the construction and/or operation of a Wind Energy Facility.