

inches can count as seating,

7. *Trees.* One (1) deciduous tree shall be planted for each five hundred (500) square feet of urban open space up to two thousand (2,000) square feet. One additional tree is required for each additional one thousand (1,000) square feet of urban open space. Trees shall have a minimum caliper of four (4) inches at the time of planting.

C. *Exclusions.* The following areas shall not be counted as urban open space:

1. Private yards, individual lots or easements less than the minimum size required by this Section;
2. Driveways, parking areas and required landscape islands;
3. Stormwater management areas;
4. Land covered by structures not designated for active recreational uses; and
5. Designated outdoor storage areas.

D. *Ownership and Maintenance.* Open space areas shall be maintained as permanent open space. Examples include but are not limited to: common ownership by a homeowners association, deed-restricted private ownership, or by dedication to the City or other appropriate public entity. All methods utilizing private ownership shall be in a form approved by the City Attorney, who shall review the documents to ensure perpetual maintenance and preservation of the site. Contact information of the responsible person for the open space shall be provided as part of project application.

Sec. 5.11.14. Wind Energy.

A. *Wind Energy Systems.* For the purposes of this Section, an "On Site Use Wind Energy System" is intended to primarily serve the needs of the consumer. "Utility Grid Wind Energy Systems" are intended to serve the needs of the community and are connected to the utility grid. Applicable screening and buffering requirements shall apply.

TABLE INSET:

Table 5.11.14.A. Wind Energy Systems				
System Type	Planning/Zoning Review Requirement	Zone Districts	Setback	Tower Height
On Site Use Wind Energy System, tower < 60 ft in height	Requirements of this Article	All	Height of system	Maximum height permitted for the zone district, bonus heights may be included. No height limit on properties larger than 3 (three) acres, subject to FAA regulations
Anemometer Tower < 60 ft	Requirements of this Article			
On Site Use Wind Energy System, tower 60 ft or taller	5.12.10. Director Review			
Anemometer Tower 60 ft or taller	5.12.10. Director Review			
Utility Grid Wind	5.12.10. Director	SD-OS, SD-IT,		

Energy System	Review	SD-IC		
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B. *Standards and Requirements.*

1. *Property Setbacks.* No part of the wind system structure, including guy wire anchors, shall extend closer than ten (10) feet to the lot lines of the installation site. Where property is located on both sides of a public right-of-way, a wind energy system may be placed no closer than one (1) rotor radius from the closest edge of the right-of-way. Leased property can include more than one (1) piece of property and the requirement shall apply to the combined properties.

2. *Tower Height.* Tower height shall be defined as the height above grade of the fixed portion of the tower, excluding the wind turbine itself.

3. *SCADA or Met Towers.* (Supervisory Control And Data Acquisition) or meteorological (Met) towers shall also comply with the setback requirement. An Operations and Maintenance Office building, sub-station, or ancillary equipment shall comply with any applicable requirements of the Zone District.

4. *Construction Codes, Towers, and Interconnection Standards.* Utility systems including towers shall comply with all applicable state construction and electrical codes and local building permit requirements, Federal Aviation Administration requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.), the Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.), applicable utility, Michigan Public Service Commission, and Federal Energy Regulatory Commission interconnection standards. The minimum FAA lighting standards shall not be exceeded. All tower lighting required by the FAA shall be shielded to the extent possible to reduce glare and visibility from the ground.

5. *Safety.*

a. An On Site Use Wind Energy System shall have an automatic braking, governing, or feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection. If a tower is supported by guy wires, the wires shall be clearly visible to a height of at least six (6) feet above the guy wire ground anchors. The minimum vertical blade tip clearance from grade shall be twenty (20) feet for a wind energy system employing a horizontal axis rotor.

b. All Utility Grid Wind Energy Systems shall be designed to prevent unauthorized access to electrical and mechanical components and shall have access doors that are kept securely locked at all times when service personnel are not present. All spent lubricants and cooling fluids shall be properly and safely removed in a timely manner from the site of the wind energy system. A sign shall be posted near the tower or operations and maintenance office building that shall contain emergency contact information. Signage placed at the street access shall be used to warn visitors about the potential danger of falling ice. The minimum vertical blade tip clearance from grade shall be twenty (20) feet for a wind energy system employing a horizontal axis rotor.

6. *Visual Impact.* A Utility Grid Wind Energy System project shall use tubular towers. All Utility Grid Wind Energy Systems in a project shall be finished in a single, non-reflective matte finish of similar design, size, operation, and appearance throughout the project. No lettering, company insignia, advertising, or graphics shall be on any part of the tower, hub, or blades. Nacelles may have lettering that exhibits the manufacturer's and/or owner's identification. The applicant shall avoid state or federal scenic areas and significant visual resources listed in the *Master Plan* or in local, state or federal historic registers.

7. *Environmental Impact.* The applicant shall have a third party, qualified professional conduct an analysis to identify and assess any potential impacts on the natural environment including, but not limited to, wetlands and other fragile ecosystems, historical sites and birds and wildlife. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis. The applicant shall identify and evaluate the significance of any net effects or concerns that shall remain after mitigation efforts. The applicant shall comply with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 et seq.)

8. *Noise.* Small wind energy systems shall not exceed sixty (60) decibels (dBA), measured at the closest residential dwelling. This level may be exceeded during short-term events such as utility outages or storms.

9. *Electromagnetic Interference.*

a. No Utility Grid Wind Energy System shall be installed in any location where its proximity to existing fixed broadcast, retransmission, or reception antennas for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that shall restore reception to at least the level present before operation of the wind energy system.

b. No Utility Grid Wind Energy System shall be installed in any location within the line of sight of an existing microwave communications link where operation of the wind energy system is likely to produce electromagnetic interference in the link's operation, unless the interference is insignificant.

10. *Shadow Flicker.* The applicant shall conduct an analysis on potential shadow flicker at occupied structures. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year. The analysis shall identify problem areas where shadow flicker may affect the occupants of the structures and describe measures that shall be taken to eliminate or mitigate the effects.

Sec. 5.11.15. Solar Energy.

A. *Consumer Use.* For the purposes of this Section, on-site solar energy systems are intended to primarily serve the needs of the consumer. Solar energy systems are permitted in all Zone Districts.

B. *Placement.* The placement of any solar collection system should be affixed so as not to adversely affect the pleasure and enjoyment of nearby residential uses. Solar panels shall not be located on the front of a residential dwelling.

C. *Administrative Departure.* An Administrative Departure may be approved for solar panels on the front of a residential dwelling by the Planning Director. The following shall be considered in the Planning Director's evaluation:

1. Potential on-street glare from the solar energy system;
2. Direction in which the roof faces;
3. Alternative on-site locations; and
4. The extent to which the designated Neighborhood Classification would be compromised.