

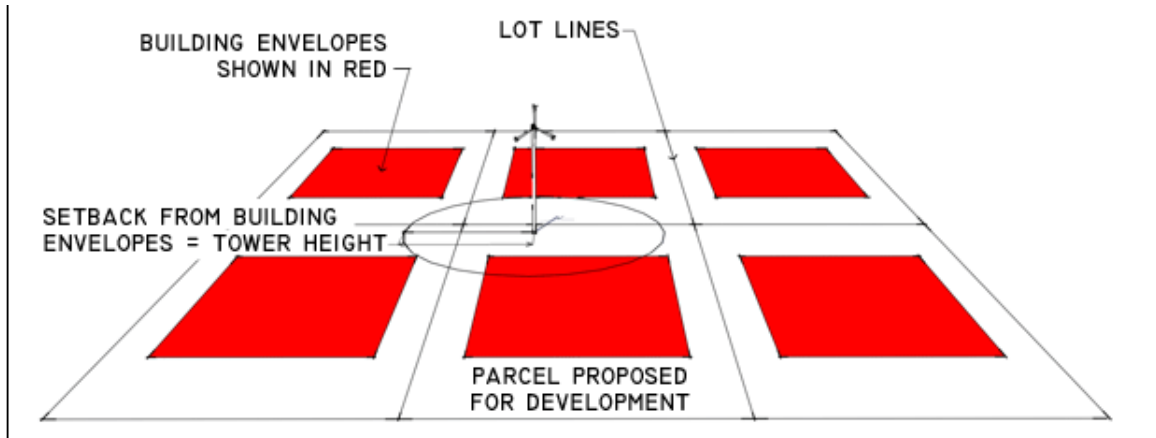


## Sec. 12-3-607 Renewable Energy Systems

- A. Generally. Renewable energy systems include photovoltaic arrays (solar electric panels), small wind energy conversion systems, and geothermal heating and cooling systems. They do not include the manufacture of renewable combustible fuels (e.g., ethanol or biodiesel).
- B. Interconnect Agreements Required. If a photovoltaic array or small wind energy conversion system is to be interconnected to the electric utility grid, proof of an executed interconnect agreement shall be provided before the system is interconnected. Systems approved pursuant to this Section shall not generate power as a commercial enterprise as defined by the Public Utilities Commission.
- C. Photovoltaic Arrays. Photovoltaic arrays convert sunlight into electricity. The following standards apply to photovoltaic arrays:
1. *Roof-Mounts*. Photovoltaic arrays may be roof-mounted on principal and accessory buildings in all districts.
  2. *Ground-Mounts*. Ground or structure-mounted photovoltaic arrays (not mounted on buildings) shall be set back as if they were detached accessory buildings if the highest point on the panels is more than six feet above grade.
  3. *Carports and Covered Walkways*. Carports and walkways in multifamily developments may be covered with photovoltaic arrays regardless of their location on the parcel proposed for development.
- D. Small Wind Energy Conversion Systems. Wind energy conversion systems are turbines that convert wind energy into electricity. Small wind energy conversion systems are rated for not more than 20kW of generation capacity. The following standards apply to small wind energy conversion systems:
1. *Setbacks*.
    - a. Towers that are located on single-family detached, duplex, and multiplex development shall be located behind principal buildings (either in the rear yard or in the building envelope) and set back from the building envelopes of abutting properties one foot for each foot in height. See Figure 12-3-607, *Small Wind Turbine Setbacks*.
    - b. Towers that are located in other types of residential development may be located as set out in subsection D.1.a., above, or in common open space areas if it is demonstrated that:
      - i. They are set back at least 100 feet from rights-of-way and residential property lines that are not within the development; or
      - ii. Screened from view from outside the development by buildings, topography, and / or landscaping.

Figure 12-3-607  
Small Wind Turbine Setbacks

In the example below, the tower is set back from the building envelopes of abutting lots. The tower is located in the rear yard of the parcel proposed for development (the applicant's property) and does not have to be set back from its building envelope.



2. *Turbine Blade Clearance.* The vertical clearance of the blades of tower-mounted horizontal axis turbines shall be not less than 15 feet when the blades are at their lowest point.
3. *Access.* Climbing access shall be limited by either:
  - a. A six-foot tall fence around the base of the tower with a locking gate; or
  - b. A design that does not allow for tower climbing at heights lower than 12 feet.
4. *Noise.* Documentation provided by the manufacturer shall demonstrate that noise will not exceed 50 dBA at any property line at peak generation, based on the proposed location of the turbine.
5. *Reflections and Shadows.* Turbine blades shall be coated to minimize reflection. Turbines shall be installed in locations that will prevent flickering shadows from being cast into the windows of buildings on nearby properties.
6. *Tower Height and Screening.* The maximum height of towers and the required screening for tall towers is set out in Table 12-3-607, *Maximum Height of Small Wind Energy Conversion Systems*. Tower height shall be measured as follows:
  - a. For horizontal axis systems, to the highest point on the rotor blade at its highest point of rotation.
  - b. For vertical axis systems, to the highest point of the tower or turbine, whichever is higher.

Table 12-3-607 Maximum Height of Small Wind Energy Conversion Systems		
Lot Area and Zoning District	Maximum Height	Required Screening
Lot area greater than 2 acres in the AG, RS, and NC <sub>2A</sub> Districts	120 ft.	Continuous evergreen hedge around sides of base that face lot lines. Existing vegetation, fencing, or garden walls that provide comparable screening may be substituted for this requirement.
Lot area greater than 12,000 sf. in the AG or any residential district	75 ft.	Continuous evergreen hedge around sides of base that face lot lines. Existing vegetation, fencing, or garden walls that provide comparable screening may be substituted for this requirement.
All lots in the AG or any residential district	40 ft.	None.
Airport influence areas (See Division 14-9, Airport Influence Area)	Subject to airport review, height may be limited to less than allowed by other rows of this table, as required for safe operation of airport.	As set out in other rows of this Table, depending upon tower height.

7. *Durability Requirements.* Small wind energy conversion systems that become inoperable shall be repaired or removed within 45 days.

- E. Geothermal Heating and Cooling Systems. Geothermal heating and cooling systems are systems that use buried pipes to exchange heat with the ground, cooling buildings in the summer and warming them in the winter. Closed loop systems (horizontal loop systems and vertical loop systems) are permitted, provided that the loops are set back two feet from property lines. Lake loop systems are permitted if the water body is entirely within the property lines of the parcel proposed for development. Open loop systems are not permitted.