

CHAPTER 11-1600 - ALTERNATIVE ENERGY SOURCES AND SYSTEMS

11-1601 - Wind Energy Conversion Systems.

11-1601.1 Purpose. Regulations governing wind energy systems are established to encourage opportunities for the generation of renewable wind energy in appropriate locations, while ensuring compatibility with surrounding land uses, promoting the safe, efficient and effective use of wind energy conversion systems, and protecting the public health, safety and welfare.

11-1601.2 Permitting Process.

- (1) Wind Energy Systems are only allowed as an accessory structure or use.
- (2) All Wind Energy Systems require a Building Permit. In addition to the general application information required as part of the Building Permit, the applicant must submit the following:
 - (a) Scaled schematic drawings and photographic perspectives showing the structure and placement of the Wind Energy System.
 - (b) A survey showing all structures, property lines, easements, power lines and setbacks to property lines.
 - (c) A written certification from a licensed structural engineer that the structure has the structural integrity to carry the weight, wind loads and vibration of the Wind Energy System.
 - (d) An analysis from a licensed engineer showing how the Wind Energy System must be designed, constructed and operated in compliance with applicable federal, state and local laws, codes, standards and ordinances.
 - (e) A written certification from a licensed engineer confirming that the Wind Energy System is designed to not cause electrical, radio frequency, television and other communication signal interference.
 - (f) Utility Notification: No grid-intertie Wind Energy System shall be permitted until evidence has been given to the Inspections Department that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

11-1601.3 Performance Standards. All Wind Energy Systems are subject to the following performance standards:

- (1) All Districts.
 - (a) No more than one Wind Energy System is permitted on any one lot without a conditional use permit.
 - (b) Wind Energy Systems must not be located in any drainage or utility easement.
 - (c) Wind Energy Systems must be equipped with both a manual and automatic braking device capable of stopping the System's operation in high winds.
 - (d) No climbing apparatus can be located within 12 feet of the ground.
 - (e) Ground mounted towers must be of a monopole design; guy wires are prohibited.
 - (f) Wind Energy Systems must be an unobtrusive color and finish such as off white or grey and a matte or similar dull finish.
 - (g) All ground mounted Wind Energy Systems must be setback from all property lines at least 1.1 times the total height of the Wind Energy System.

- (h) For ground mounted systems, the minimum distance between the ground and the vertical length of any extensions such as the rotor blades must be 15 feet.
 - (i) Building mounted Wind Energy Systems must not exceed a total height of 15 feet and access controlled by a locked and secured door.
 - (j) The structure upon which a proposed Wind Energy System is to be mounted must have the structural integrity to carry the weight, wind loads and vibrations of the Wind Energy System.
 - (k) The total rated capacity of a Wind Energy System must not exceed 50 kilowatts.
 - (l) Noise. Wind Energy Systems must comply with the noise standards contained in Chapter 11-1206.1.
 - (m) Lighting. Wind Energy Systems must not be illuminated by artificial means, except where specifically required by the Federal Aviation Administration or other state or local regulations.
 - (n) Signage. Advertising or identification of any kind on Wind Energy Systems is prohibited, except for applicable warning and equipment information signage.
 - (o) Maintenance. All Wind Energy Systems must be kept in good repair and free from rust, damaged supports, framework or other components.
 - (p) Electrical Wires. All electrical wires associated with a ground mounted Wind Energy System must be located within the tower and underground.
 - (q) Abandoned or Unused Towers. All abandoned or unused Wind Energy Systems must be removed within 12 months of the cessation of operations unless an extension is approved by the Director. If an extension is not approved, such Wind Energy System will be deemed a nuisance and the city may act to abate such nuisance pursuant to Chapter 8-1100. After removal, the owner or operator must restore the site to its original or an improved condition.
- (2) Residential Districts and Uses.
- (a) Building and ground mounted Wind Energy Systems may be allowed as a conditional use, subject to the provisions of chapters 11-304.3 and 11-305.
 - (b) The maximum total height of a ground mounted Wind Energy System is 60 feet.
- (3) Industrial District and Uses.
- (a) Building mounted Wind Energy Systems are allowed as a permitted accessory use.
 - (b) Ground mounted Wind Energy Systems may be allowed as a conditional use, subject to the provisions of chapters 11-304.3 and 11-305.
 - (c) The maximum total height of a ground mounted Wind Energy System is 100 feet.
- (4) Commercial and Office Districts and Uses.
- (a) Building mounted Wind Energy Systems are allowed as a permitted accessory use.
 - (b) Ground mounted Wind Energy Systems may be allowed as a conditional use, subject to the provisions of chapters 11-304.3 and 11-305.
 - (c) The maximum total height of a ground mounted Wind Energy System is 60 feet.
- (5) Overlay and Special Districts. Building and ground mounted Wind Energy Systems are prohibited in all Overlay and Special Districts.

(Ord. No. [2121](#), 5-20-14)

11-1602 - Solar Energy Systems.

11-1602.1 Purpose. Regulations governing solar energy systems are established to encourage opportunities for the generation of renewable solar energy in appropriate locations, while ensuring compatibility with surrounding land uses, promoting the safe, efficient and effective use of solar energy conversion systems, and protecting the public health, safety and welfare.

11-1602.2 Permitting Process.

- (1) Solar Energy Systems are only allowed as an accessory structure or use.
- (2) All Solar Energy Systems require a Building Permit. In addition to the general application information required as part of the Building Permit, the applicant must submit the following:
 - (a) A scaled horizontal and vertical (elevation) drawings. The drawings must show the location of the system on the building, or on the property for a ground-mount system, including all structures, property lines, easements, power lines and setbacks to property lines.
 - (b) Pitched-roof-mounted Systems: For all roof-mounted systems, other than a flat roof, the elevation drawings shall show the highest finished slope of the solar collector and the slope of the finished roof surface on which it is mounted.
 - (c) Flat-roof-mounted Systems: For flat-roof applications a drawing shall be submitted showing the distance to the roof edge and any parapets on the building and shall identify the height of the building on the street frontage side, the shortest distance of the system from the street frontage edge of the building, and the highest finished height of the solar collector above the finished surface of the roof.
 - (d) A written certification from a licensed structural engineer that the structure has the structural integrity to carry the weight, wind loads of the Solar Energy Systems.
 - (e) An analysis from a licensed engineer showing how the Solar Energy Systems must be designed, constructed and operated in compliance with applicable federal, state and local laws, codes, standards and ordinances.
 - (f) Utility Notification: No grid-intertie photovoltaic system shall be permitted until evidence has been given to the Inspections Department that the owner has submitted notification to the utility company of the customer's intent to install an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.

11-1602.3 Performance Standards. All Solar Energy Systems are subject to the following performance standards:

- (1) Certification. Solar energy systems shall be certified by Underwriters Laboratories, Inc. and the National Renewable Energy Laboratory, the Solar Rating and Certification Corporation or other body as determined by the Building Official. The City reserves the right to deny a building permit for proposed Solar Energy Systems deemed to have inadequate certification.
- (2) Aesthetics. All Solar Energy Systems shall be designed to blend into the architecture of the building or be screened from routine view from public rights-of-way other than alleys. The color of the Solar Energy Systems is not required to be consistent with other roofing materials. Reflection angles from collector surfaces shall be oriented away from neighboring windows when possible.
 - (a) Building Integrated Photovoltaic Systems —Building integrated photovoltaic systems shall be allowed regardless of whether the system is visible from the public right-of-way, provided the building component in which the system is integrated meets all required setbacks for the district in which the building is located.
 - (b) Solar Energy Systems with Mounting Devices —Solar Energy Systems using roof mounting devices or ground-mount Solar Energy Systems shall not be restricted if the system is not visible from the closest edge of a public right-of-way other than an alley. Roof mounted systems that are visible from the nearest edge of the right-of-way shall not have the highest finished pitch more than five percent steeper than the roof pitch on which the system is mounted, and shall be no higher than 12 inches above the roof.

- (c) Coverage—Roof or building mounted Solar Energy Systems, excluding integrated systems, shall not cover more than 80 percent of the south facing or flat roof upon which the panels are mounted, and shall be setback from the roof edge by a minimum of one foot. The surface area of a pole or ground mounted system shall not exceed half the footprint of the principal structure.
- (3) Feeder lines. The electrical collection system shall be placed underground within the interior of each parcel. The collection system may be placed overhead near substations or points of interconnection to the electric grid.
- (4) Easements. Solar energy systems shall not encroach on public drainage, utility, roadway or trail easements.
- (5) Setbacks. Ground-mounted Solar Energy Systems including any appurtenant equipment must meet the accessory structure setback requirement and placement limitations for the district in which it is installed. Roof-mounted systems shall not extend beyond the exterior perimeter of the building on which the system is mounted. Exterior piping for hot water systems shall be allowed to extend beyond the perimeter of the building on a side yard exposure.
- (6) Height. Roof-mounted solar energy systems shall comply with the maximum height requirements in the applicable zoning district. Ground-mounted solar energy systems shall not exceed 15 feet in height when oriented at maximum tilt.
- (7) Commercial. All Solar Energy Systems shall be limited to the purpose of on-site energy production, except that any additional energy produced above the total onsite demand may be sold to the operator's regular electrical service provider in accordance with any agreement provided by the same.
- (8) Abandoned or Unused Systems. All abandoned or unused Solar Energy Systems must be removed within 12 months of the cessation of operations unless an extension is approved by the Director. If an extension is not approved, such Solar Energy Systems will be deemed a nuisance and the city may act to abate such nuisance pursuant to Chapter 8-1100. After removal, the owner or operator must restore the site to its original or an improved condition.

11-1602.4 Administrative Variance. Where the standards in Sections 11-1602.3(2), (5) and (6) cannot be met without diminishing, as defined below, the minimum reasonable performance of the Solar Energy Systems, an administrative variance may be sought from the Director. An administrative variance shall be granted if the administrative variance standards are met.

- (1) Minimum Performance Design Standards—The following design thresholds are necessary for efficient operation of an Solar Energy System.
 - (a) Fixed Mount Solar Energy Systems—Solar Energy Systems must be mounted to face with 45 degrees of south (180 degrees azimuth).
 - (b) Solar Electric (photovoltaic) systems must have a pitch that is within 20 degrees of latitude, a pitch of between 20 and 65 degrees.
 - (c) Solar Hot Water Systems—Solar collectors need to be mounted at a pitch between 40 and 60 degrees.
- (2) Standards for an Administrative Variance—A variance shall be granted if the applicant demonstrates that the following safety, performance and aesthetic conditions are met.
 - (a) Safety Conditions—All applicable health and safety standards are met.
 - (b) Ground Mounted Systems—Pole mounted or ground mounted Solar Energy Systems must be set back from the property line by one foot and shall not encroach on public drainage, utility, roadway or trail easements.
 - (c) Aesthetic Conditions—The Solar Energy Systems must be designed to blend into the architecture of the building or be screened from routine view from public rights-of-way other

than alleys to the maximum extent possible while still allowing the system to be mounted for efficient performance.

(Ord. No. [2121](#), 5-20-14)