

## 165.19 SOLAR ENERGY SYSTEMS.

1. Purpose. The purpose of this section is to balance the need for clean, renewable energy resources and the necessity to protect the public health, safety and welfare of the community. The City finds these regulations are necessary to ensure that solar energy systems are appropriately designed, sited and installed.

### 2. Definitions.

A. "Collector panel" means an equipment assembly used for gathering, concentrating, or absorbing solar energy as useful thermal energy or to generate electric energy.

B. "Height, total building mounted system" means the height above the roof surface measured perpendicular to the roof specific to the installation on a sloped roof or the height above the roof surface specific to the installation on a flat roof.

C. "Height, total ground mounted system" means the height above grade of the system from the highest point, including the supporting structure, related equipment and the collector panels. Adjustable angle systems will be measured from the highest point when the system is at its maximum vertical extension.

D. "Large solar energy system" (LSES) means a solar energy system which has a nameplate rated capacity of over 15 kilowatts in electrical energy or 50 KBTU of thermal energy for non-single-family residential uses and districts, unless permitted otherwise herein, and which is incidental and subordinate to a principal use on the same parcel. A system is considered an LSES only if it supplies electrical power or thermal energy solely for use by the owner on the site, except that when a parcel on which the system is installed also receives electrical power supplied by a utility company, excess electrical power generated and not presently needed by the owner for on-site use may be used by the utility company in accordance with 199 IAC 15.11(5), as amended from time to time.

E. "Off grid" means an electrical system that is not connected to a utility distribution grid.

F. "Small solar energy system" (SSES) means a solar energy system which has a nameplate rated capacity of up to 15 kilowatts in electrical energy or 50 KBTU of thermal energy for residential uses and districts and which is incidental and subordinate to a principal use on the same parcel. A system is considered an SSES only if it supplies electrical power or thermal energy solely for use by the owner on the site, except that when a parcel on which the system is installed also receives electrical power supplied by a utility company, excess electrical power generated and not presently needed by the owner for on-site use may be used by the utility company in accordance with 199 IAC 15.11(5), as amended from time to time.

G. "Solar access" means a property owner's right to have sunlight shine on his land.

H. "Solar energy" means radiant energy received from the sun at wavelengths suitable for heat transfer, photosynthetic use or photovoltaic use.

I. "Solar energy system, building integrated" means a solar photovoltaic system that is constructed as an integral part of a principal or accessory building and where the collector component maintains a uniform profile or surface with the building's vertical walls, window openings, and roofing. Such a system is used in lieu of an architectural or structural component of the building. A building integrated system may occur within vertical facades, replacing glazing or other facade material; into semitransparent skylight systems; into roofing systems, replacing traditional roofing materials; or other building or structure envelope systems. To be considered a building integrated solar energy system, the appearance of the collector components must be consistent with the surrounding materials.

J. "Solar energy system, building mounted" means a solar energy system which is securely fastened to any portion of a building roof, whether attached directly to the principal or accessory building.

K. "Solar energy system, ground mounted" means a solar energy system which is not located on a building and is ground mounted.

L. "Solar energy system" (SES) means an aggregation of parts including the base, supporting structure, photovoltaic or solar thermal panels, inverters and accessory equipment such as utility interconnect and battery banks, etc., in such configuration as necessary to convert radiant energy from the sun into mechanical or electrical energy.

M. "Utility scale solar energy system" means a solar energy system which supplies electrical power or thermal energy solely for use by off-site consumers.

3. General Regulations. A solar energy system (SES) shall only be allowed as an accessory use to a permitted principal use as follows:

A. A building integrated system.

B. A building mounted system attached to the roof of an accessory or primary structure.

C. A ground mounted system as a detached accessory structure to a primary structure shall only be allowed on property zoned commercial, industrial, A-1, AR, R-1 with a minimum lot size of two acres.

D. Large solar energy systems (LSES) shall only be allowed on property zoned commercial, industrial, A-1, AR or R-1.

E. Utility scale solar energy systems are not allowed.

4. Permit Required. It is unlawful to construct, erect, install, alter or locate any solar energy system (SES) within the City of Waukee, unless approved with:

A. Building permit in A-1, AR, R-1 and R-2 zoning districts.

B. Site plan, major or minor modification to a site plan permit for all other zoning districts.

C. The owner/operator of the SES must also obtain any other permits required by other federal, state and local agencies/departments prior to erecting the system.

5. Installation. Installation must be done according to manufacturer's recommendations. All work must be completed according to the applicable building, fire and electric codes. All electrical components must meet code recognized test standards.

6. Engineer Certification. Applications for any SES shall be accompanied by standard drawings of the receiving structure if newly constructed, including the supporting frame and footings. For systems to be mounted on existing buildings, an engineering analysis showing sufficient structural capacity of the receiving structure to support the SES per the applicable code regulations, certified by an Iowa licensed professional engineer shall be submitted.

7. Color. The SES shall be a neutral color. All surfaces shall be nonreflective to minimize glare that could affect adjacent or nearby properties. Measures to minimize nuisance glare may be required including modifying the surface material, placement or orientation of the system, and if necessary, adding screening to block glare.

8. Lighting. No lighting other than required safety lights or indicators shall be installed on the SES.

9. Signage. No advertising or signage other than required safety signage and equipment labels shall be permitted on the SES.

10. Maintenance. Facilities shall be well maintained in an operational condition that poses no potential safety hazard. Should the SES fall into disrepair and be in such dilapidated condition that it poses a safety hazard or would be considered generally offensive to the senses of the general public, the SES may be deemed a public nuisance and may be abated in accordance with Chapter 50 of this Code of Ordinances.

11. Displacement of Parking Prohibited. The location of the SES shall not result in the net loss of required parking as specified in Chapter 168 of this Code of Ordinances.

12. Utility Notification. No SES that generates electricity shall be installed until evidence has been given that the utility company has been informed of and is in agreement with the customer's intent to install an interconnected customer owned generator. Off grid systems shall be exempt from this requirement.

13. Interconnection. The SES, if interconnected to a utility system, shall meet the requirements for interconnection and operation as set forth by the utility and the Iowa Utilities Board.

14. Restriction on Use of Energy Generated. An SES shall be used exclusively to supply electrical power or thermal energy for on-site consumption, except that excess electrical power generated by the SES and not presently needed for on-site use may be used by the utility company in accordance with 199 IAC 15.11(5).

15. Shutoff. A clearly marked and easily accessible shutoff for any SES that generates electricity will be required as determined by the Fire Department.

16. Electromagnetic Interference. All SESs shall be designed and constructed so as not to cause radio and television interference. If it is determined that the SES is causing electromagnetic interference, the operator shall take the necessary corrective action to eliminate this interference including relocation or removal of the facilities, subject to the approval of the appropriate City authority. A permit granting an SES may be revoked if electromagnetic interference from the SES becomes evident.

17. Solar Access Easements. The enactment of this section does not constitute the granting of an easement by the City. The owner/operator may need to acquire covenants, easements, or similar documentation to assure sufficient solar exposure to operate the SES unless adequate accessibility to the sun is provided by the site. Such covenants, easements, or similar documentation is the sole responsibility of the owner/operator. Should the owner/operator pursue a solar access easement, the extent of the solar access should be defined and the easement document executed in compliance with the regulations contained in Chapter 564A (access to solar energy) of the Code of Iowa.

18. Compliance with National Electric Code. Applications for SESs shall be accompanied by a line drawing of the electrical components in sufficient detail to allow for a determination that the manner of installation conforms to the National Electrical Code.

19. Removal. If the SES remains nonfunctional or inoperative for a continuous period of one year, the system shall be deemed to be abandoned. The owner/operator shall remove the abandoned system at their expense. Removal of the system includes the entire structure, collector panels and related equipment from the property excluding foundations. Should the owner/operator fail to remove the system, the SES will be considered a public nuisance and will be abated in accordance with Chapter 50 of this Code of Ordinances.

20. Screening. SESs that are visible from the public thoroughfare or adjacent properties that are located on flat roofs will require screening in accordance to regulations for screening of mechanical units noted in Chapter 160, Site and Building Development Standards, of this Code of Ordinances. The need for and type of screening to be used shall be identified as part of the building permit, major or minor modification to a site plan or site plan permit submittal. SESs located on a sloped roof shall not be required to be screened.

21. Nonconforming Systems. An SES that has been installed on or before the effective date of this section and is in active use and does not comply with any or all of the provisions of this section shall be considered a legal nonconforming structure and will be regulated by the provisions noted in Section 165.03 of this Code of Ordinances.

22. Unsafe Condition. Nothing in this section shall be deemed to prevent the strengthening or restoring to a safe condition any SES or associated building or structure, or part thereof declared to be unsafe by the appropriate authority.

23. Bulk Regulations.

A. Location of Ground Mounted SES:

(1) No part of an SES shall be located within or over drainage, utility or other established easements, or on or over property lines.

(2) The SES shall be located in accordance to the regulations for detached accessory structures in this chapter or not less than one foot from the property line for every one foot of the system height measured at its maximum height, whichever is most restrictive.

(3) An LSES cannot be located in the front yard setback.

(4) An SES shall not be located in any required buffer.

(5) The setback from underground electric distribution lines shall be at least five feet.

(6) No SES shall be located which may obstruct vision between a height of 30 inches and 10 feet on any corner lot within a vision triangle of 25 feet formed by intersecting street right-of-way lines.

(7) A ground mounted SES within the AR or R-1 district shall be located within the rear yard or side yard.

#### B. Location of Building Mounted SES:

(1) The solar energy system shall be set back not less than one foot from the exterior perimeter of the roof for every one foot the system extends above the parapet wall or roof surface.

(2) Should the solar energy system be mounted on an existing structure that does not conform to current setback requirements, the solar energy system shall be installed to meet the current setback requirements applicable to the receiving structure.

(3) The systems shall be designed to minimize their visual presence to surrounding properties and public thoroughfares. Panel arrangement shall take in account the proportion of the roof surface and place the panels in a consistent manner without gaps unless necessary to accommodate vents, skylights or equipment.

(4) Access pathways for the SES shall be provided in accordance to all applicable building, fire and safety codes.

(5) The systems shall be located in such a manner that fall protection railings are not required or are not visible from the public thoroughfare.

#### C. Location of Building Integrated SES.

(1) No setback required.

(2) Access pathways for the SES shall be provided in accordance to all applicable building, fire and safety codes.

(3) Shall be located in such a manner that fall protection railings are not required or are not visible from the public thoroughfare.

D. No SES shall be constructed within 20 feet laterally of an overhead electrical power line (excluding secondary electrical service lines or service drops).

E. Height of Ground Mounted SES. The maximum height of the SES shall not exceed 20 feet in height as measured from existing grade in commercial or industrial districts. The maximum height of the SES shall not exceed 14 feet in height as measured from existing grade in the A-1, AR, and R-1 districts.

F. Height of Building Mounted SES:

(1) The collector panel surface and mounting system shall not extend higher than 18 inches above the roof surface of a sloped roof.

(2) The collector panel surface and mounting system shall not extend higher than seven feet above the roof surface of a flat roof.

G. Height of Building Integrated SES.

The collector panel shall maintain a uniform profile or surface with the building's vertical walls, window openings, and roofing.

H. Calculation of Size. Size of the SES is calculated by measuring the total surface area of the collector panels for the system.

I. Size of Ground Mounted SES:

(1) In commercial or industrial districts, the SES is restricted in size to no more than 50 percent of the area of the primary structure footprint.

(2) In commercial or industrial districts, the maximum length of an individual ground mounted SES shall be restricted to 125 feet.

(3) In the A-1, AR, and R-1 districts, the SES is restricted in size to no more than 50 percent of the area of the primary structure footprint.

(4) In the A-1, AR, and R-1 districts, the maximum length of an individual ground mounted SES shall not exceed no more than 50 percent of the width of the lot that the SES is to be located upon or no more than 75-feet, whichever dimension is more restrictive.

J. Size of Building Mounted SES.

System size will be determined by the available roof area subject to the installation minus the required setbacks or access pathways.

K. Size of Building Integrated SES.

System size will be determined by the available building surface area subject to the installation minus the required access pathways.

L. In no case shall an SSES exceed the nameplate rated capacity of 15 kilowatts or 50 KBTU.

24. Application Required. Application for an SES shall be made on forms provided by the City of Waukee. No action may be taken regarding requests for SESs until completed applications have been filed and fees paid.