

## Appendix H – Solar Energy Systems (SES)

*(Revised Ord. 2019-28)*

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## Article 1 – General Provisions

### 101 Intent

The intent of these standards is to allow for the safe and effective development of solar energy systems that reduce the on-site consumption of fossil fuels or utility supplied electric energy throughout the Village of Spring Grove. These regulations are intended to encourage the use of local renewable energy resources and promote sustainable building design and management practices.

### 102 Purpose

The purpose of the regulations is to promote and accommodate the provisions of solar energy systems as an environmentally friendly alternative source of energy for village residents and businesses. The Village shares the general goal of encouraging solar energy generation with federal and state programs. However, federal and state programs focus on total energy production, the interface with public utilities, and operational characteristics of solar energy systems, while the Village is more concerned with the physical characteristics and impact of solar energy systems upon neighboring properties. These regulations balance the Village's concerns with the general goals of developing alternative energy sources.

### 103 Review

All solar energy systems will be reviewed on an individual basis and are subject to review by the Architectural Review Board prior to being considered by the Village Board if a variance is requested. Solar energy systems may be installed in all zoning districts.

### 104 Building Permit Required

No solar energy system shall be constructed or installed without first obtaining a building permit.

### 105 Violations

Any person who violates or neglects or refuses to comply with the requirements of this Appendix shall be fined not less than \$25.00 and not more than \$750.00 for each offense. Each day that a violation is permitted to exist shall constitute a separate offense

## Article 2 – Definitions

The following apply to this Appendix.

**Elevation.** The exterior face of the building.

**Glare.** The sensation of brightness within the visual field which causes annoyance, discomfort, or loss of visual performance and visibility.

**Photovoltaic Cell.** A semiconductor device that converts solar energy into electricity.

**Solar Collector.** A device, structure or a part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical or electrical energy.

**Solar Energy.** Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.

**Solar Energy System (SES).** A system for which the primary purpose is to convert solar energy into thermal, mechanical or electrical energy for storage and use and reduction of on-site consumption of utility power.

**Solar Energy System, Building Mounted.** Solar panels attached to a roof or building elevation.

**Solar Energy System, Ground Mounted.** A free-standing system not attached to another structure and that is ground mounted on a rack or pole that is attached to the ground.

**Solar Farm.** A commercial facility that converts sunlight into electricity, whether by photovoltaics, concentrating solar thermal devices, or other conversion technology, for the primary purpose of wholesale sales of generated electricity.

**Solar Mounting Devices.** Racking, frames, or other devices that allow the mounting of a solar collector onto a roof surface or the ground.

**Solar Panel.** A group of photovoltaic cells assembled on a panel. Panels are assembled on-site into solar arrays.

**Total Height.** The vertical distance from natural grade to the highest point of the solar energy system.

### Article 3 – General Requirements and Information

- A. **Accessory Use.** Solar energy systems are permitted as an accessory use and subject to the requirements of this Appendix.
- B. **Arrangement.** Solar panels are to be arranged in uniform patterns. Randomly placed/angled panels are strictly prohibited. (See Exhibit A1).
- C. **Point of Connection.** There are two points of connection for a SES to the electric meter: load side and supply side. A supply side connection is limited to a detached single-family home with a service size of 200 amps or less. A supply side connection can only be made using a Milbank Lugg K4977 or approved equivalent
- D. **Design.** All solar mounting devises, materials used for racking, mounts, mounting clamps, and flashing shall be a color consistent with the color of the building and roof materials to minimize visibility. Aluminum color is strictly prohibited, except for ground mounted SES.
- E. **Electrical.** All exterior electrical lines must be in conduit, shall not be exposed and be located in the interior of a building or buried. (See Exhibit A2). All electrical disconnects, inverters, etc. shall not be visible from the road and screened from adjacent properties. (See Exhibit A3).
- F. **Emergency Disconnect.** An external disconnect switch, readily accessible by emergency responders, and which is clearly identifiable and unobstructed, shall be provided to disconnect power at the solar panel.
- G. **Glare.** Installation of the solar energy system shall not adversely impact adjacent properties. A solar energy system shall be designed and located to avoid glare or reflection onto adjacent properties, businesses, residential homes, and adjacent roadways and shall not interfere with traffic or create a safety hazard. All solar energy systems using a reflector to enhance solar production shall minimize glare from the reflector that impacts adjacent or nearby properties. Sun reflection onto an adjacent roof shall be acceptable.
- H. **Illumination.** A solar energy system shall not be artificially illuminated.
- I. **Installation.** A solar energy system shall be installed according to manufacturer specifications and in accordance with all applicable federal, state and local laws, regulations and ordinances.
- J. **Multiple Systems.** A property is allowed to have multiple solar energy systems, i.e. roof mounted and ground mounted, with a variance.
- K. **On-Site Use.** Energy produced through the solar energy system shall be utilized on site.
- L. **Output.** The output of the grid tied solar energy system is limited in size to 10Kw for residential installations and 20Kw for non-residential installations.
- M. **Ownership.** A solar energy system shall be owned, operated and maintained under the same ownership and on the same zoning lot as the principal use or structure.

- N. **Power Purchase Agreements.** The use of a solar power purchase agreement is strictly prohibited for residential zoned properties and is allowed by a special use permit in commercial and industrial zoned properties.
- O. **Restrictions on Solar Energy Systems Limited.** Consistent with 765 ILCS 165/15, no homeowner's agreement, covenant, common interest community, or other contracts between multiple property owners within a subdivision shall prohibit or restrict homeowners from installing solar energy systems.
- P. **Safety.**
- Must meet all federal, state and local laws, regulations and ordinances.
  - Must have a commercially available mounting system.
  - All access panels and electrical equipment must be lockable.
  - Appropriate warning signage must be placed on the solar energy system.
  - All solar energy systems connected to the utility grid must comply with all Illinois Commerce Commission metering laws and regulations.
- Q. **Tree Removal.** Tree removal shall be minimal.
- R. **Approved Solar Components.** Electric SES components must have an Underwriters Laboratory listing or approved equivalent and a solar hot water system must have a Solar Rating and Certification Corporation rating.
- S. **Compliance.** Each system shall conform to applicable industry standards including those of the American National Standard Institute, National Electric Code and State of Illinois Plumbing Code.
- T. **Decommissioning and Restoration Plan.** Any solar energy system found to be unsafe by the Building Official must be repaired by the property owner to meet federal, state and local laws, regulations and ordinances, or be removed within thirty (30) days. If any solar energy system is not operational for a period of 12 consecutive months or more, the Village may request, in writing to the owner of record, that it be repaired or removed within 60 days. The Building and Zoning Officer shall have the authority to pursue legal action if necessary.

## 106 Building Permit Information

- 106.1 A solar energy system requires a valid building permit prior to installation. The permit application, at a minimum, shall include the following:
- A. A Plat of Survey or Site Plan drawn to scale indicating the location of structure(s), septic lines and tank, easements, setback lines and proposed system.
  - B. An Electric Plan.

- C. Photographs or depictions of the existing conditions of the property as well as of the proposed solar energy equipment.
- D. An aerial photograph of the property showing all adjacent properties.
- E. A Homeowner Association review letter, if applicable.
- F. Any other information to show full compliance with this and applicable ordinances.

106.2 **Building Mounted Requirements.** In addition to the requirements of Section 106 of this Appendix, an applicant shall also submit the following:

- A. A proposed Building Plan with dimensions indicating the number and layout of panels. The Building Plan must clearly indicate the following:
  - 1. An analysis by an Illinois licensed design professional, or provide documentation that structural compliance is met prescriptively.
  - 2. Size and spacing of structural elements.
  - 3. Number of existing roofing layers and estimated date of last roofing installation.
  - 4. Details for system mounting to the supporting structure; including rail/racking system manufacturer specifications.

106.3 **Ground Mounted Requirements.** In addition to the requirements of Section 106 of this Appendix, an applicant shall also submit a description of the screening to be provided.

## Article 4 - Types of Solar Energy Systems

### 107 Building Mounted

A building mounted SES is allowed as a matter of right when attached to the rear elevation so long as it meets all other regulations. A building mounted SES attached on the front or side elevations is only allowed if a variance is approved.

- 107.1 **Installation.** The installation method shall be compatible and harmonious with the aesthetic qualities of the structure to which the SES is attached so as it does alter the architectural character of the structure.
- A. A building mounted SES shall be attached directly to the exterior of the structure to ensure the lowest profile permissible.
  - B. All components of a building mounted SES shall not extend above the maximum building height permitted by the zoning district or beyond the existing limits of the roof.
  - C. No component of a building mounted SES, including mounting devices, shall be permitted to tilt or rotate at a slope greater or less than the roof to which the device is attached.
  - D. The mounting rails and hardware of a building mounted SES shall not extend more than 6 inches from the outside edge of a panel.

### 108 Solar Farm

A solar farm is only allowed in specific zoning districts with a special use permit. Additional information can be found in the Village's Zoning Ordinance.

### 109 Ground Mounted

A ground-mounted SES shall be allowed as an accessory use so long as there is also a principal use in all zoning districts where structures of any sort are allowed. Both ground mounted and pole mounted SES are permitted. (See Exhibit A4)

- 109.1 **Height.** The total maximum height allowed for a ground mounted SES is 10 feet. The minimum clearance between the lowest point of the system and the surface on which the system is mounted is 12 inches.

- 109.2 **Location.** A ground mounted SES is permitted in the rear yard so long as it meets all other regulations. A ground mounted SES located in a side yard is only allowed if a variance is approved.
- 109.3 **Number.** Only one ground mounted SES is permitted per lot.
- 109.4 **Screening.** A ground mounted SES must be substantially screened from public view (including adjacent properties and public rights of way) by fencing, plantings, or a combination thereof, as determined by the Building and Zoning Officer.
- 109.5 **Setbacks.** All parts of the ground mounted solar energy system shall be setback 10 feet from the side and rear lot lines and shall not be located in or protrude into a dedicated easement, front yard or yard abutting a street.
- 109.6 **Size.** A ground mounted SES may be as large as the maximum accessory building size in the zoning district where it is located. However, the maximum size of a ground mounted SES on a lot which is 20,000 sq. ft. or less, is 300 sq. ft.



Article 5 – Allowed and Prohibited Variances

110 Allowed Variances

110.1 Variances can only be requested from the following provisions of this Appendix:

- A. **Building Mounted.** A variance will be considered for a building mounted SES that attaches to the front and side elevations.
- B. **Ground Mounted.** A variance will be considered for a ground mounted SES that exceeds the maximum height and size allowed. A variance will also be considered for a ground mounted SES that is located in the side yard of a property.
- C. **Multiple Systems.** A variance will be considered for a property that desires to have multiple SES, i.e. both a building and ground mounted SES.

110.2 **Application Filing.** An applicant who seeks a variance to install a SES must submit an application for a permit, as provided by the village, in addition to the requirements of Section 106 of this Appendix.

110.3 **Application Filing Fees.** The application shall be accompanied by the required filing fees established by the Village Board. No application shall be processed and no application shall be considered submitted until said fees have been paid.

- Non-Refundable Filing Fee\* \$200
- Sign Fee \$15/sign

\*In the event the applicant does not comply with the Public Notice Requirements, cancels the meeting within 48 hours, does not attend the meeting, or is denied and submits a subsequent application, the applicant will be required to submit another \$200 non-refundable application fee and \$15 sign fee. If the meeting is cancelled by the Village, the applicant will not be required to submit an additional application and sign fee.

110.4 **Application Completeness.** An application shall be considered complete if it is submitted in the required format, includes all of the mandatory information, and is accompanied by the required fees. Any application determined to be incomplete shall be returned to the petitioner with an explanation of the application’s deficiencies. No further processing of the application shall occur until the deficiencies are corrected. Upon completion of review, an additional 17 sets of documents must be submitted at least 30 days prior to the meeting date.

110.5 **Public Notice Requirements.** The applicant shall mail notice to all property owners of the meeting date. The notice shall be made via certified mail with “return receipts requested” at least 15 days prior to the meeting but not more than 30 days. At a minimum, notice shall be made to all persons who have last paid taxes adjoining the subject property, excluding public rights-of-way. Four days before the meeting, the applicant shall provide the village with an affidavit stating that each of the adjoining property owners have been notified by certified mail with “return receipts requested” at least 15 days prior to the meeting and by indicating the address to which each notice was sent along with the returned certified mail receipts.

The property shall be posted with a sign for at least 15 days prior to the meeting date and no more than 30 days to notify the public of the requested variance. The sign shall be posted on the principal road frontage and at a prominent location on the property near the public right-of-way, so that it is visible to passing pedestrians and motorists. The sign shall remain posted until the commencement of the public meeting. Signs are available at the Village Municipal Centre.

110.6 **Architectural Review Commission Review and Action.** The Architectural Review Commission shall hold a public meeting on the proposed variance and shall make a recommendation to the Village Board, based on the approval criteria set forth herein. The Commission may recommend and the Village Board may impose such conditions or restrictions as appear necessary to minimize possible detrimental effects of such variance upon other properties in the neighborhood.

110.7 **Village Board Review and Action.** After receiving a required recommendation from the Architectural Review Commission, the Village Board shall review the application and approve, approve with conditions, or deny the proposed variance.

110.8 **Variance Approval Criteria.** Variance applications may be approved after a finding that the following criteria have been satisfied:

- A. The extent to which the particular physical shape of the roof, structure or lot results in practical difficulty or hardship upon the owner, as distinguished from a mere inconvenience;
- B. The extent to which conditions upon which the variance request is based upon is unique to the roof, structure or shape of the lot and may not be generally applicable to other buildings within the village; and
- C. That the variance will not confer on the applicant any special privilege that is denied by these regulations to other structures or properties within the village.

## 111 Prohibited Variances

The Village strictly prohibits variances for the arrangement of solar panels, the color of solar panels, frames and mounting devices and ground mounted SES located within the setback for a yard abutting a street and/or in the front yard of a house that is setback further than the minimum yard abutting a street.

**Exhibit A1**  
**Acceptable Roof Mounted Solar Energy Systems - Arranged in a Uniform Pattern**



Note: a roof mounted solar energy system located on the rear of a home or accessory building and installed in a uniform pattern is permitted as a matter of right.



Note: a roof mounted solar energy system located on the side of a home or accessory building and installed in a uniform pattern requires a variance.



Note: a roof mounted solar energy system located on the front of a home or accessory building and installed in a uniform pattern requires a variance.

**Prohibited Roof Mounted Solar Energy Systems - Not Arranged in a Uniform Pattern**



Exhibit A2  
Acceptable Roof Mounted Solar Energy Systems- Non-Exposed Electric



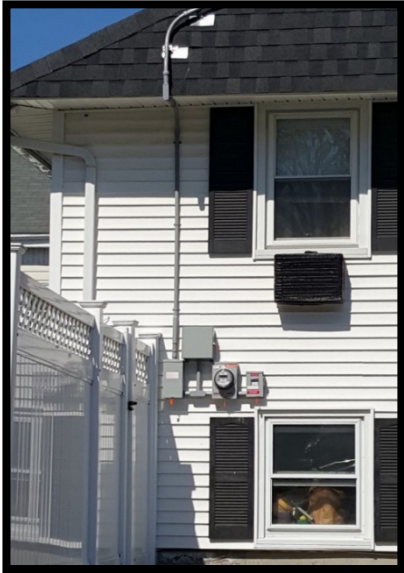
Prohibited Roof Mounted Solar Energy Systems - Exposed Electric



Exhibit A3  
Acceptable Installation of Disconnects and Inverters



Prohibited Installation of Disconnects and Inverters



## Exhibit A4 – Types of Ground Mounted SES

