

# CITY OF BETHLEHEM

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## Department of Planning and Zoning Interoffice Memo

TO: Planning Commission members

FROM: Darlene Heller, Director of Planning and Zoning

RE: Zoning Amendments related to Solar Panels

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At its September 6, 2022 meeting City Council voted to forward the attached zoning amendments related to Solar to the Planning Commission for review and consideration.

The Solar amendment was drafted by the EAC with input from the City Department of Community and Economic Development. The amendments were originally proposed to make the Solar provisions more flexible and to allow the installation of panels on a wider range of structures.

The information is scheduled for review at your October 13 meeting.

CC: M. Deschler  
L. Collins  
A. Karner  
L. Rothman, EAC

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DATE: 10-7-22



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Darlene Heller  
Director of Planning and Zoning



City of Bethlehem  
10 E. Church Street  
Bethlehem, PA 18018

July 11, 2022

Dear Honorable Members of Council,

The Environmental Advisory Council has been working with the Departments of Planning & Zoning, Code Enforcement and Fire to review and update the City's current solar ordinance. At the July 2022 meeting, the EAC voted to recommend the amendments that resulted from our collaboration with the City's departments, who were all extremely generous with their time and were of great assistance. We submit the proposed amendments to the ordinance at the end of this letter for your consideration.

By encouraging the use of solar energy, we believe these amendments will further the goals of the Climate Action Plan to increase sustainability, utilize alternative energy sources and reduce our overall carbon footprint.

Sincerely,

*Lynn Rothman*

Lynn Rothman, Chair

On behalf of the Bethlehem EAC:

Ben Felzer, Vice Chair

Ben Guthrie, Secretary

Vibhor Kumar

Mike Topping

Katie Trembler

cc: Mayor J. William Reynolds

Craig D. Baer, Deputy Chief/Fire Marshal

Darlene Heller, Director Planning & Zoning

Mike Simonson, Chief Building Inspector

Angela DelGrosso, Director of Mayor's Initiatives

BILL NO. \_\_\_\_-2022

**ORDINANCE NO. 2022-\_\_\_\_\_**

AN ORDINANCE AMENDING THE ZONING ORDINANCE,  
PART 13 OF THE CITY OF BETHLEHEM, LEHIGH  
AND NORTHAMPTON COUNTIES, PENNSYLVANIA,  
AMENDING SOLAR ENERGY DEVICES

THE COUNCIL OF THE CITY OF BETHLEHEM HEREBY ORDAINS AS  
FOLLOWS:

SECTION 1. That the current Article 1318.29 that read as follows:

**1318.29 Solar Energy Collection Systems.**

(a) Purpose.

- 1) To promote the use of Solar Energy Systems (SES) for the generation of electricity (photovoltaics), for water heating, space heating or cooling, and to obtain the benefits of solar energy as a renewable and clean energy source which enhances the reliability of the overall electrical power grid, reduces peak power demands, helps diversify Pennsylvania's energy supply portfolio, and helps reduce dependence on fossil fuels;
- 2) To promote the safe, effective, and efficient use of SES installed to reduce on-site consumption of energy, while protecting health, safety and welfare of adjacent and surrounding land uses;
- 3) To provide for the land planning, installation, and construction of Solar Energy Systems in Bethlehem subject to reasonable conditions that will protect the public health, safety and welfare, and protect the historic character and resources of the City;

(b) Design & Installation

- 1) This Article applies to solar energy systems to be installed and constructed after the effective date of this Ordinance.
- 2) Solar energy systems constructed prior to the effective date of this Ordinance shall not be required to meet these requirements.
- 3) Any upgrade, modification, or structural change that materially alters the size or placement of an existing solar energy system shall comply with the provisions of this Article.
- 4) The use of solar energy systems are permitted as an Accessory Use in all zoning districts.
- 5) Use of Solar Energy Systems is subject to the restraints imposed by the present development pattern and topography found inside the city limits of Bethlehem, plus zoning and height restrictions. Where a strict

provision of the zoning ordinance may prohibit adequate Solar Access without Major Loss of Efficiency, the developer may apply to the City of Bethlehem Zoning Hearing Board for a variance. In addition to other relevant factors, the Zoning Hearing Board shall weigh the following factors in its evaluation:

- i. Different levels of solar access
- ii. Restrictiveness of ordinance with regard to height, bulk, setback, and related provisions.
- iii. Local energy costs, topography, and aesthetics of the specific area or land tract proposed for solar access use.
- iv. Characteristics of shading due to building and trees in determination of necessary solar access plane.
- v. Identification of possible conflicts with solar access, including architectural or historic preservation requirements, steep slopes, low-and-moderate income housing restrictions, and individual landowner preferences.

- 6) The Solar Energy System shall comply with the Pennsylvania Uniform Construction Code, Act 45 of 1999, as amended and adopted by the City of Bethlehem.
- 7) The design of the Solar Energy System shall conform to applicable industry standards. To the extent reasonably possible, the design shall use materials, colors, textures, screening and landscaping that will blend the system into existing structures and environment.
- 8) Low slope roof: On low slope roof structures (i.e., roof structures not exceeding 25% slope), solar devices should be mounted with adequate set back so as to not be visible from any public way at ground level. Where this is not possible, solar devices should be located so as not to be visible from the front of the building or from major approaches at ground level.
- 9) Steep slope roof: On steep slope roof structures (i.e., roof structures exceeding 25% slope), solar devices should not be visible from the street, unless the device is an Architecturally Integrated Device. If the device must be visible (no other alternative is feasible without Major Loss of Efficiency of the system), the design of the solar system will be evaluated for approval by an authority having jurisdiction, if applicable, including the Historic Architectural Review Board (HARB) or Historic Conservation Commission (HCC), prior to installation. Flush mount of solar panels on sloped roofs should be utilized where possible.
- 10) All installers of Solar Energy Systems shall be on the Pa. Department of Environmental Protection's list of registered installers for the DEP Solar Sunshine program or shall establish to the satisfaction of the code official

that they meet the certification standards of the North American Board of Certified Energy Practitioners (NABCEP).

- 11) In all cases, Solar Energy Systems shall be set back from roof edges and from the roof ridge line a minimum of three feet to provide safe access for firefighters and other emergency responders.
- 12) If solar collection devices are installed above vehicle parking, such solar structures shall not be regulated as part of building coverage.

(c) Setbacks and Height Restrictions

- 1) Roof mounted Solar Energy Systems must comply with all setback requirements for the zoning district in which it is installed.
- 2) Ground mounted SES must comply with accessory structure restrictions contained in the zoning district where it is installed; all exterior electric and/or plumbing lines must be buried below the surface of ground and placed in conduits.
- 3) All Solar Energy Systems shall be placed such that concentrated solar radiation or glare does not project onto nearby lot or roadways. The applicant has the burden of proving that any glare produced does not have significant adverse impact on neighboring or adjacent uses whether through siting or mitigation.
- 4) Solar Collection devices may extend a maximum of 15 feet above the maximum height limit and are a permitted by right use in all districts. Solar collection devices powering signs may extend 10 feet above the maximum height of the sign.
- 5) A solar energy system shall not be used to display advertising.

(d) Abandonment and Removal

- 1) Any Solar Energy System that is not operated for a continuous period of six months shall be considered abandoned, and the owner of such system shall remove the same within 90 days of receipt of notice from the City of Bethlehem notifying the owner of such abandonment. Failure to remove an abandoned system within said 90 days shall be grounds to remove the system at the owner's expense and constitute a violation, subject to fines as outlined in this ordinance.

Shall be amended to read as follows:

**1318.29 Solar Energy Collection Systems**

**(a) Purpose.**

- 1) To promote the use of Solar Energy Systems (SES) for the generation of electricity (photovoltaics), for water heating, space heating or cooling, and to obtain the benefits of solar energy as a renewable and clean energy source which enhances the reliability of the overall electrical power grid, reduces peak power demands, helps diversify Pennsylvania's energy supply portfolio, and helps reduce dependence on fossil fuels;
- 2) To promote the safe, effective, and efficient use of SES installed to reduce on-site consumption of energy, while protecting health, safety and welfare of adjacent and surrounding land uses;
- 3) To provide for the land planning, installation, and construction of Solar Energy Systems in Bethlehem subject to reasonable conditions that will protect the public health, safety and welfare, and protect the historic character and resources of the City.

**(b) Definitions**

- 1) Solar Energy: Radiant energy (direct, diffuse and/or reflective) received from the sun.
- 2) Solar Energy System (SES): An energy system that consists of one or more solar collection devices, solar-energy related "balance of system" equipment, and other associated infrastructure with the primary intention of generating electricity, storing electricity, or otherwise converting solar energy to a different form of energy. Solar energy systems may generate energy in excess of the energy requirements of a property if it is to be sold back to a public utility in accordance with the law.
- 3) Rooftop-mounted energy system: A solar energy system where an array is mounted to a roof.
- 4) Ground-mounted Solar Energy Systems: A solar energy system where an array is mounted onto the ground.
- 5) Solar Related Equipment: Items including a solar photovoltaic cell, module, panel or array or solar hot-air or water collector device panels, lines, pumps, batteries, mounting brackets, framing and possibly foundations or other structures used for or intended to be used for the collection of solar energy.
- 6) Glare: The effect produced by light with an intensity sufficient to cause annoyance, discomfort, or loss in visual performance and visibility to a reasonable person of ordinary sensibilities.
- 7) Solar Access: The ability of one property to continue to receive sunlight across property lines without obstruction from another's property (buildings, foliage or other impediment).

(c) Design & Installation

- 1) This Article applies to solar energy systems to be installed and constructed after the effective date of this Ordinance.
- 2) Solar energy systems constructed prior to the effective date of this Ordinance shall not be required to meet these requirements.
- 3) Any upgrade, modification, or structural change that materially alters the size or placement of an existing solar energy system shall comply with the provisions of this Article.
- 4) The use of solar energy systems are permitted as an Accessory Use in all zoning districts.
- 5) Solar energy systems shall be located so that the removal of living trees is not required to the extent practical. If tree removal is necessary for a ground mounted solar energy system, the project must comply with Section 1318.28 regarding Tree Conservation.
- 6) Use of Solar Energy Systems is subject to the restraints imposed by the present development pattern and topography found inside the city limits of Bethlehem, plus zoning and height restrictions. Where a strict provision of the zoning ordinance may prohibit adequate solar access, causing loss of efficiency, the developer may apply to the City of Bethlehem Zoning Hearing Board for a variance. In addition to other relevant factors, the Zoning Hearing Board shall weigh the following factors in its evaluation:
  - i. Restrictiveness of ordinance with regard to height, bulk, setback, and related provisions.
  - ii. Local energy costs, topography, and aesthetics of the specific area or land tract proposed for solar access use.
  - iii. Characteristics of shading due to building and trees in determination of necessary solar access plane.
  - iv. Identification of possible conflicts with solar access, including architectural or historic preservation requirements, steep slopes, low and moderate income housing restrictions, and individual landowner preferences.
  - v. Owners of solar energy systems are encouraged but not required to obtain solar access easements from neighboring landowners to ensure solar access. The municipality does not guarantee and will not protect any individual property rights with respect to solar access.
- 7) The Solar Energy System shall comply with the most recently amended and adopted Pennsylvania Uniform Construction Code and the most recently adopted Fire Code as amended and adopted by the City of

Bethlehem. Plans must be submitted to the Code Enforcement Office and Fire Department for approval. Plans must meet all current code requirements and required access for safety of emergency personnel.

- 8) The design of the Solar Energy System shall conform to applicable industry standards. To the extent reasonably possible, the design shall use materials, colors, textures, screening and landscaping that will blend the system into existing structures and environment.
- 9) The design of solar energy systems within a historic district or on a historic resource property will be evaluated for approval by an authority having jurisdiction, if applicable, including the Historic Architectural Review Board (HARB) or Historic Conservation Commission (HCC), prior to installation. Flush mount of solar panels on sloped roofs shall be utilized where possible.
- 10) All installers of Solar Energy Systems shall establish to the satisfaction of the code official that they meet the certification standards of the North American Board of Certified Energy Practitioners (NABCEP). Installers must also hold a City of Bethlehem Business Privilege License as well as hold all appropriate licenses to perform the work as per the City of Bethlehem.
- 11) For purposes of determining compliance with impervious coverage standards of the applicable zoning district, the total horizontal projection area of all ground-mounted and free-standing solar energy systems shall be considered pervious coverage so long as pervious conditions are maintained underneath the solar system.

(d) Setbacks and Height Restrictions

- 1) Roof mounted Solar Energy Systems must comply with all setback requirements for the zoning district in which it is installed.
- 2) Ground mounted SES must comply with accessory structure restrictions contained in the zoning district where it is installed; all exterior electric and/or plumbing lines must be buried below the surface of ground and placed in conduits.
- 3) The applicant has the burden of proving that any glare produced does not have significant adverse impact on neighboring or adjacent uses whether through siting or mitigation.
- 4) Solar Collection devices may extend a maximum of 15 feet above the maximum height limit and are a permitted by right use in all districts.

Solar collection devices powering signs may extend 10 feet above the maximum height of the sign.

5) A solar energy system shall not be used to display advertising.

(e) Abandonment and Removal

1) The Solar Energy System shall comply with the most recently amended and adopted Pennsylvania Uniform Construction Code and the most recently adopted Building and Fire Codes as amended and adopted by the City of Bethlehem.

SECTION 2. All Ordinances and parts of Ordinances inconsistent herewith are, and the same are hereby repealed.

Sponsored by: /s/ \_\_\_\_\_

/s/ \_\_\_\_\_

PASSED finally in Council on this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

/s/ \_\_\_\_\_

President of Council

ATTEST:

/s/ \_\_\_\_\_  
City Clerk

This Ordinance approved this \_\_\_\_\_ day of \_\_\_\_\_, 2022.

/s/ \_\_\_\_\_  
Mayor