



Small



Dual Use



Community

Division 2. Solar Energy Generation

Sec. 14-775. Purpose.

The purpose of this division is to allow for the construction and operation of public or private solar energy generation systems to produce energy for use on site or off site, by establishing appropriate standards to ensure safe, effective and efficient use of solar energy systems compatible with surrounding uses.

Sec. 14-776. Applicability.

All applicants for the installation or replacement of all solar energy systems or devices, expansion of any existing solar energy system, or installation of associated facilities must obtain a building permit and, as determined by the Planning Authority, site plan approval as outlined in section 14-779.

Sec. 14-777. Definitions

For the purposes of this division, the following words and phrases shall have the following meanings:

Abandonment means the date at which a solar energy system has been out of service for a continuous period of 12 months.

Building integrated solar energy system means a solar energy system that is an integral part of a principal or accessory building and include, but are not limited to, photovoltaic or hot water systems that are contained within roofing materials, windows, walls, skylights and awnings.

Dual-Use Systems means solar energy systems where photo-voltaic panels are introduced in conjunction with a primary use eg photo-voltaic panels on structures cantilevered over parked cars in a parking lot. These tend to include “emerging technologies” and multiple systems with potential impacts, and would require site plan review.

Expansion of a Solar Energy System means any physical modification to an existing solar energy system which alters the total rated capacity, the size, type or location of the system or its associated equipment.

Ground mounted solar energy system (also known as free-standing solar energy systems) means a solar energy system that is structurally mounted to the ground. The panels may be stationary or revolving and of any size.

Operations and Maintenance Plan means a plan outlining the operation and maintenance of a solar energy system, to include safety measures and procedures for maintenance.

Physical size of solar energy system means, for the purposes of this division, the size of the system will be based on the physical size based on total airspace projected over the ground. It should be noted that the physical size as defined here is different from the area that would be the basis for calculating the impervious surface associated with the system.

Public industrial, utility or highway facility means a facility operated by a public entity that contains industrial or utility operations or is an unused part of such a facility.

Roof-mounted solar system means a solar energy system in which solar panels are mounted on top of the structure of a roof either as a flush-mounted system or as modules fixed to frames which can be tilted toward the south at an optimal angle.

Small, Medium and Large solar energy systems means, for the purposes of this division physical size as defined herein. Based on current technology the small systems are about 20 kW or less; medium systems are between about 20kW and 250kW, and large systems are over 250kW.

Solar Access means space open to the sun and clear of overhangs or shade, including orientation of buildings and lots to the sun, so as to permit the use of active and/or passive solar energy systems on individual properties.

Solar Energy System means a complete assembly consisting of one or more solar collectors and associated mounting hardware or equipment, intended to provide for the collection, storage and distribution of solar energy for heating or cooling, electricity generation, or solar/thermal hot water systems.

Total height of solar energy system means the total vertical distance as measured from the average elevation of the finished grade adjacent to the fixed base of the support structure, to the highest part of the system.

Total rated capacity means the maximum rated output of electrical power production of the photovoltaic system in watts of Direct Current (DC)

Sec. 14-778. Reserved.

Sec. 14-779 Permitting

- (a) Solar systems are allowed in most zones subject to permits/approvals as set out in the table below and subject to compliance with the associated standards in Section 14-780. The level of review relates to the scale of the proposed system, whether they comply with zoning, and the zoning context.

P = allowed as a **permitted** use if the system complies with zone requirements and section 14-780 of this Division, and are located to rear and side of the site wherever possible; would require a building permit (and historic preservation review if a landmark or in an historic district*).

S = allowed subject to **site plan** review as indicated, to meeting performance standards in section 14-780, and to meeting the submittal requirements in 14-782 and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

C= allowed as a **conditional** use reviewed by the Planning Board and subject to meeting performance standards in section 14-780, the submittal requirements in 14-782, and the technical standards outlined in the Technical Manual; a building permit would also be required (and historic preservation review if a landmark or in an historic district*).

Zone	Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (see Definitions)	N/A	≤ 1000 sq ft	Any size	1001 to 9,999 sq ft	10,000 sq ft or greater
Residential; RP; Business zones except B4; waterfront zones	P	P	S (Level II)	S (Level II)	Not allowed
Industrial zones and B4 zone	P	P	S (Level II)	S (Level II)	C (Planning Board)
ROS, Shoreland	P	S (Level II)	S (Level II)	C (Planning Board)	C (Planning Board)
Historic Landscapes	P	S (Level II) & HP	S (Level II) & HP	S (Level II) & HP	Not allowed
Cemeteries	P	Not allowed	Not allowed	Not allowed	Not allowed
Stream Protection zones	Not allowed (Unless on legally non-conforming structure)	Not allowed	Not allowed	Not allowed	Not allowed

**Historic Resource:* Where any part of the proposed solar energy system (including associated facilities) is within an historic district, such development shall be reviewed and approved by the planning authority (historic preservation) in accordance with article IX historic preservation prior to a review under this ordinance. Where any part of the proposed solar energy system (including support structures and associated facilities) is within one hundred (100) feet of any designated landmark, historic district or historic landscape district, such development shall meet the site plan Sections 14-526 (d) 5 regarding compatibility with the landmark or historic district.

Sec. 14-780. Performance Standards

All solar energy systems shall meet the following performance standards as indicated (section numbers are included to allow for reference):

[see table below]

(a) Standards applicable to all solar energy systems, whether permitted, site plan or conditional use:

	Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
Physical Size (See Definitions)	N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
14-780 (1) Standards applicable to all solar energy systems, whether permitted, site plan or conditional use	<p>i. <i>Application requirements for permitted solar energy systems:</i> All applications for permitted solar energy systems shall meet the submittal requirements as specified by the Permitting and Inspections Department. Where systems are proposed in the front part of the site, the application shall include technical documentation as to why it is not possible to locate the system to the rear or side of the site.</p> <p>ii. <i>Application requirements for site plan and conditional use review of solar energy systems:</i> submissions for approval under this ordinance shall address the submittal requirements set out in section 14-782 <i>Submittal Requirements</i>.</p> <p>iii. <i>Height:</i> The maximum height for all solar energy systems shall be as specified in that zone’s dimensional requirements. Where the total height of the support structure/building plus the solar energy system is equal to or below the zone-based height maximum (including any allowance under 14-430), the absolute height of the solar energy system shall meet the following requirements:</p> <ul style="list-style-type: none"> a. Ground mounted: 20 feet above the ground as measured from the base of the support. b. Roof mounted (on any type of roof, and applies to systems that are parallel or angled to the roof): <ul style="list-style-type: none"> • For all residential and RP zones: 5 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height. • For B4 and Industrial zones: no limit. • For all other zones: 8 feet above the roof and set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height. <p>For height limitations for roof-mounted solar energy systems that exceed the zone dimensional requirements for height, see 14-430(e).</p> <p>iv. <i>Technical and Safety:</i> All solar energy systems shall meet the technical, safety and maintenance standards as set out in the City of Portland Technical Manual. These standards may include the prohibition of panels containing cadmium to minimize the potential for hazardous waste.</p> <p>v. <i>Impact of construction and connection to the grid:</i> The applicant shall minimize impacts resulting from construction and maintenance of the solar energy system, including lighting, security measures, traffic, and grid connections.</p> <p>vi. <i>Conditions:</i> The reviewing authority may impose conditions to ensure compliance with the standards and purposes set out in this ordinance, including but not limited to post-construction certification of compliance by a licensed professional engineer or authorized factory representative.</p> <p>vii. <i>Glare:</i> Solar panels are designed to absorb (not reflect) sunlight and are generally less reflective than other varnished or glass exterior materials. However, solar panel placement should minimize or negate any solar glare impacting nearby properties or roadways, without unduly impacting the functionality or efficiency of the solar energy system.</p> <p>viii. <i>Solar Access:</i> all applicants are encouraged to ensure the maximum solar energy generation from their system by obtaining solar access easements. Solar access easements may be filed consistent with Maine State law. Any property owner may purchase an easement across nearby properties to protect access to sunlight. The easement would be purchased or granted by owners of nearby properties and can apply to buildings, trees, or other structures that would diminish solar access.</p>				

(b) Additional performance standards for particular systems subject to site plan or conditional use (PB) review

Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
N/A	a) Meet 14-780 (a) above	a) Meet 14-780 (a) above b) Demonstrate that the energy generation is not the principal use of the site; c) Demonstrate that scale of the installation does not create adverse impacts.	a) Meet 14-780 (a) above b) Designed to avoid safety impacts; c) Located in side or rear yards, wherever possible; d) Set back 50 feet from residential, RP, B1 and B2 zones e) Located away and screened from public ways and nearby residential /institutional uses to extent possible; f) Co-locate with other land uses on lots in residential, B1, B2, B3, B7 & waterfront zones	a) Meet 14-780 (a) above b) Designed to avoid safety impacts; c) Located in side or rear yards, wherever possible; d) Set back 75 feet from residential, RP, B1 and B2 zones e) Located away and screened from public ways and nearby residential /institutional uses to extent possible;

(c) Additional performance standards for solar energy systems located in ROS & Shoreland Zones

Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
			a) Meet 14-780 (a) and (b) above b) If over 10,000 sq ft, locate on landfills or co-terminus with public industrial, utility or highway facilities c) Be supported by Land Bank Commission and Parks Commission where applicable d) Layout and fencing to be integrated with the landscape to the extent possible e) Screen from abutters and minimize impact on significant scenic views to the extent possible f) Not required to meet the conditional use requirements of the zone; for ROS see 14-156 g) Prohibited within the 75 ft setback from High Water mark in Shoreland Zones and meeting other Shoreland Zone requirements	

(d) Additional performance standards for solar energy systems in *Business and Industrial Zones*

Roof Mounted and Building Integrated	Small Scale Ground Mounted	“Dual Use” systems	Medium Scale Ground Mounted	Large Scale Ground Mounted
N/A	≤ 1000 sq ft	N/A	1001 to 9,999 sq ft	10,000 sq ft or greater
				a) Meet 14-780 (a) (b) above b) Be located on areas already paved or built upon, or where other development is documented to be unlikely due to local conditions.

Sec. 14-781. Reserved

Sec. 14-782 Submittal requirements for site plan and conditional use review of solar energy systems.

- (a) The following information shall be submitted with a site plan application for a review of a solar energy system and associated facilities under this ordinance (S or C in 14-779) in addition to the submittal requirements set out in section 14-527 (a), (c),(d) and (e) of the Site Plan ordinance:
1. A narrative describing the proposed solar energy system, including an overview of the project; the project location; the generating capacity of the solar energy system; dimensions of all components and respective manufacturers; and a description of associated facilities and how the system and associated facilities comply with the standards of this ordinance (including a plan or other graphics that demonstrate compliance). Where systems are proposed in the front part of the site, the application shall include technical documentation as to why it is not possible to locate the system to the side or rear of the site.
 2. An accurate scaled site plan of the subject property showing the planned location of the proposed solar energy system and all associated facilities; property lines, adjoining streets and access; topographic contour lines; existing and proposed buildings; fencing; structures; potential shade from nearby trees and structures; vegetation; driveways, parking, and curb cuts on the subject property; and specifications for all proposed electrical cabling/transmission lines, accessory equipment, and landscaping.
 3. A scaled elevation drawing showing the proposed solar energy system and all proposed structures, foundations, supports, fencing, vegetation and landscaping, indicating the size, color and materials of the system. Drawings of structures and foundations shall be stamped by a licensed Professional Engineer.
 4. Information on any proposed connections to the grid including any proposed off-site modifications to provide grid connections, access the installation, or to maintain the proposed solar energy system and grid connections.

5. In the case of medium and large ground mounted solar energy systems, the applicant shall provide an Operations and Maintenance Plan prepared and stamped by a licensed Professional Engineer or other licensed professional as appropriate.

Sec. 14-783 Abandonment and Removal of Medium and Large Scale Ground Mounted Solar Energy Systems

- (a) In the case of medium and large ground mounted solar energy systems, the submitted Operations and Maintenance Plan shall include an estimate of the life of the project and outline the anticipated options/action when it has reached the end of its estimated useful life.
- (b) The Owner and Operator shall, at their expense, complete the removal of the solar energy system within 6 months of the end of the useful life of the solar energy system or within 6 months of the date of abandonment. "Removal" includes restoration of the site to its approximate original condition, unless a valid approved site plan is intended to be pursued in which case a performance guarantee for the restoration would be required until the approved redevelopment has received a certificate of occupancy.
- (c) The City shall revoke any approvals and/or pursue removal of the solar energy system at the Owner and Operator's expense in the following circumstances:
 1. The solar energy system is not complete and operating within 24 months from the date of approval under this ordinance; or
 2. The solar energy system is determined by the City to be in an unsafe condition in respect to federal, state and local safety standards and timeframes; or
 3. The solar energy system has not been brought back to a safe condition/operation or removed from the site within the required timeframe; or
 4. The solar energy system is defective or abandoned and has not been removed from the site within the required timeframe.

14-784. Appeals.

For all appeals, the date of the decision shall be the date of the hearing, if an oral decision was made, or the date the written decision.

- (a) Any aggrieved party may appeal a decision by the Permitting and Inspections Department under the provisions of this ordinance by requesting in writing that it be referred to the Zoning Board of Appeals within 30 days of the decision being rendered.
- (b) Any aggrieved party may appeal a decision by the Planning Authority under the provisions of this ordinance by requesting in writing that it be referred to the Planning Board within 30 days of the decision being rendered.
- (c) Any aggrieved party may appeal a decision of the Planning Authority determination under provision 14-761 (b) 2 of this ordinance (compatibility if within 100 feet of a designated landmark, Historic District or Historic Landscape District) by requesting in writing that it be referred to the Historic Preservation Board within 30 days of the determination. This appeal is de-novo.
- (d) Any aggrieved party may appeal the final decision of the Planning Board or the Historic Preservation Board under provision 14-761 (b) 2 of this ordinance to the superior court in accordance with Rule 80B of the Maine Rules of Civil Procedure.

**Associated amendment to existing ordinance text 14-430
(SEE PROPOSED UNDERLINED TEXT)**

Sec. 14-430. Height limits.

(a) *Roof structure.* Roof structures for the housing of elevators, stairways, tanks, fans, or other building operating equipment not intended for human occupancy, skylights, steeples, roof signs, flag poles, chimneys, smokestacks, radio or television masts, water tanks, or silos may be erected above the height limitation herein prescribed for buildings. Roof-mounted wind and solar energy systems shall not be considered to be roof structures for the purposes of Article X, Alternative Energy.

(b) *Public art.* Except in residential zones, public art that has been individually accepted by the city council for inclusion within the public art collection, pursuant to Article XI, Public Art Program of the Land Use Code, (Section 14-852(c)), shall not be subject to the height limitations for buildings within the underlying zone.

(c) *Temporary wind anemometer towers.* Temporary wind anemometer towers may be erected above the height limitation for buildings within the underlying zone, subject to receiving Board of Appeals approval and FAA approval, if necessary.

(d) *Wind energy systems.* Wind energy systems may be erected above the height limitation for principal buildings within the underlying zone, pursuant to Article X, Alternative Energy.

(e) *Roof mounted solar energy systems:* Photovoltaic panels and thermal water heating panels may be erected above the height limitation for principal or accessory buildings, subject to historic preservation approval, as follows:

1. For all residential zones: A solar energy system, whether parallel or angled to a pitched or gable roof, may be up to 3 feet above the maximum height allowed in the underlying zone on principal and accessory structures. In the case of flat roofs, the solar energy system may be up to 5 feet above the maximum height allowed in the underlying zone. All roof-mounted solar energy systems shall be set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height.

2. For B4 and Industrial zones: A solar energy system, whether parallel or angled to a pitched or gable roof, may be up to 4 feet above the maximum height allowed in the underlying zone. In the case of flat roofs, there are no height limits.

3. For all other zones: A solar energy system, whether parallel or angled to a pitched or gable roof, may be up to 3 feet above the maximum height allowed in the underlying zone on principal and accessory structures. In the case of flat roofs, the solar energy system may be up to 8 feet above the maximum height allowed in the underlying zone. All roof-mounted solar energy systems shall be set back from the edge of the roof by 1 foot for every 1 foot of solar energy system height.