

DOCKETED

Docket Number:	16-BSTD-07
Project Title:	Local Ordinance Applications - 2016 Standards
TN #:	217566-2
Document Title:	Freemont PV Ordinance
Description:	N/A
Filer:	Ingrid Neumann
Organization:	City of Fremont
Submitter Role:	Applicant
Submission Date:	5/11/2017 4:35:00 PM
Docketed Date:	5/11/2017

ORDINANCE NO. 05-2017

AN ORDINANCE OF THE CITY OF FREMONT ADDING SECTIONS 15.44.040 AND 15.44.050 TO FREMONT MUNICIPAL CODE CHAPTER 15.44, FREMONT ENERGY CODE, TO INCLUDE REQUIREMENTS FOR THE MANDATORY INSTALLATION OF PHOTOVOLTAIC SOLAR ENERGY SYSTEMS IN NEW RESIDENTIAL CONSTRUCTION

WHEREAS, the California Energy Code, 2016 Edition, Title 24, Part 6 of the California Code of Regulations was adopted by the City of Fremont with local amendments on November 1, 2016 under Ordinance 21-2016; and

WHEREAS, the City’s Climate Action Plan recommended that the City review local amendments to the Energy Code to promote increased energy efficiency and the use of renewable energy sources; and

WHEREAS, the City has completed an analysis and has determined that the requirements of the local amendments to the Energy Code would provide a positive cost benefit to new construction within the City of Fremont; and

WHEREAS, the City’s Environmental Sustainability Commission has recommended the adoption of mandatory requirements for the installation of photovoltaic solar energy systems in new residential construction.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF FREMONT DOES ORDAIN AS FOLLOWS:

SECTION 1. FMC CHAPTER 15.44 SECTION 15.44.040 ADDED

Fremont Municipal Code Title 15 (Buildings and Construction), Division 1 (Fremont Building Standards Code), Chapter 15.44 (Fremont Energy Code), Section 15.44.040 is added as follows:

Sec. 15.44.040 Amendment to 2016 CEnC Section 110.10 (Mandatory Requirements for Solar Ready Buildings).

Section 110.10 of the 2016 California Energy Code is amended as follows:

- (a) Covered Occupancies.
 - 1. Single Family Residences. Newly Constructed single family residences shall comply with the requirements of Section 110.10(b) through 110.10(e).
 - 2. – 4. {CEnC text not modified}
- (b) Solar Zone.

1. {CEnC text not modified}

A. Single Family Residences. The solar zone shall be located on the roof or overhang of the building and have a total area no less than 250 square feet.

EXCEPTION 1 to Section 110.10(b)1A: Single family residences with a permanently installed solar electric system having a nameplate DC power rating, measured under Standard Test Conditions, of no less than 1000 watts shall provide solar readiness for any area of the required solar zone not already covered by the installed system.

EXCEPTION 2 – EXCEPTION 7 {CEnC text not modified}

B. Low-rise and High-rise Multi-family Buildings, Hotel/Motel Occupancies, and Nonresidential Buildings. The solar zone shall be located on the roof or overhang of the building or on the roof or overhang of another structure located within 250 feet of the building or on covered parking installed with the building project and have a total area no less than 15 percent of the total roof area of the building excluding any skylight area.

EXCEPTION 1 to Section 110.10(b)1B: Buildings with a permanently installed solar electric system having a nameplate DC power rating, measured under Standard Test Conditions, of no less than one watt per square foot of roof area shall provide solar readiness for any area of the required solar zone not already covered by the installed system.

EXCEPTION 2 – EXCEPTION 5 {CEnC text not modified}

2. – 4. {CEnC text not modified}

(c) - (e) {CEnC text not modified}

SECTION 2. FMC SECTION 15.44.050 ADDED

Fremont Municipal Code Title 15 (Buildings and Construction), Division 1 (Fremont Building Standards Code), Chapter 15.44 (Fremont Energy Code), Section 15.44.050 is added as follows:

Sec.15.44.050 Amendment to 2016 CEnC Section 110.12 (Mandatory Requirements for the Installation of Photovoltaic Solar Energy Systems in New Residential Construction).

Section 110.12 of the 2016 California Energy Code is amended as follows:

(a) Definitions

1. “Module Nameplate Output” means the nameplate DC power rating of the solar module, measured under Standard Test Conditions.

2. “Newly Constructed Building” means a building that has never been used or occupied or any purpose.
3. “Residential Occupancies” include buildings of Occupancy Group R-1, R-2, and R-3 where the occupants are primarily permanent in nature. This excludes buildings classified as Group R-2.1, R-3.1, R-4 and I, including:
 - Adult facilities that provide accommodations for six or fewer persons of any age for less than 24-hours. Licensing categories that may use this classification include, but are not limited to:
 - Adult Day Programs.
 - Child care facilities that provide accommodations for six or fewer persons of any age for less than 24-hours. Licensing categories that may use this classification include, but are not limited to:
 - Day-care Center for Mildly III Children, Infant Care Center and School Age Child Day-care Center.
 - Family Day-care Homes that provide accommodations for 14 or fewer children, in the provider's own home for less than 24-hours.
 - Congregate living facilities or congregate residences with 16 or fewer persons.
4. “Steep-Sloped Roof” means roofs that have a ratio of rise to run of greater than 2:12.
5. “TDV” means time dependent valuation.

(b) Purpose and intent

It is the purpose and intent of this section to provide standards for builders and developers of newly constructed residential structures to install solar photovoltaic systems at the time of construction in an effort to achieve energy savings and increase deployment of renewable energy technology.

(c) Requirements

Newly constructed buildings of residential occupancy in the City of Fremont shall:

1. Be designed to include the green building measures specified as mandatory under the California Green Building Standards Code (CalGreen) Chapter 4;
2. Have a solar photovoltaic system installed. The minimum system requirement shall be satisfied using either of two methods, prescriptive or performance:

- A. Prescriptive Method. The method shall be applicable to those buildings less than 4,500 square foot of conditioned floor space. The nameplate system size shall be calculated as the sum of each solar module’s nameplate output. The minimum capacity shall be:

Table 110.12-A: *Minimum Nameplate System Size (kW_{DC}) Required [CZ3]*

Conditioned Space (ft ²)	Minimum kW (DC) Required
Less than 1000	1.5
1000 - 1499	1.7
1500 - 1999	2.1
2000 - 2499	2.4
2500 - 2999	2.7
3000 - 3499	3.0
3500 - 3999	3.2
4000 - 4499	3.5

- B. Performance Method. Install a solar photovoltaic system sized to meet the minimum percentage of the building’s total TDV energy on an annual basis, as defined in Table 110.12-B. The system sizing requirement shall be based upon total building TDV energy use, including both conditioned and unconditioned space and calculated using modeling software or other methods approved by the Building Official. Buildings with 4,500 square foot or greater of conditioned floor area must use the performance method.

Table 110.12-B: *Minimum Percent Reduction of Total Annual TDV Energy Use by Climate Zone*

Climate Zone	PV % Total TDV
CZ3	55%

- C. The photovoltaic system shall be located on-site;
- D. Fixed orientation photovoltaic systems located on a steep-sloped roof shall be oriented between 110 degrees and 270 degrees of true north. There is no tilt requirement for the solar photovoltaic system;
- E. All photovoltaic systems must meet the minimal shading criterion to satisfy the installation requirement. The minimal shading criterion requires that no obstruction is closer than a distance “D” of twice the height “H” of the obstruction and the distance “D” must be at least two times greater than the height “H”. All obstructions that project above the point on the array that is closest to the

obstruction must meet this criterion for the array to be considered minimally shaded. Obstructions that are subject to this criterion include:

- i. Any vent, chimney, architectural feature, mechanical equipment, or other obstruction that is on the roof or any other part of the building;
 - ii. Any part of the neighboring terrain;
 - iii. Any tree that is mature at the time of installation of the photovoltaic system;
 - iv. Any tree that is planted on the building lot or neighboring lots or planned to be planted as part of the landscaping for the building (the expected shading must be based on the mature height of the tree);
 - v. Any existing neighboring building or structure;
 - vi. Any planned neighboring building or structure that is known to the applicant or building owner; and
 - vii. Any telephone or other utility pole that is closer than 30 feet from the nearest point of the array.
3. Solar energy systems that are leased by the end-use customer (tenant or owner) or that supply electricity to the end-use customer through a power purchase agreement (PPA) may be used to satisfy the requirement provided the system meets all other requirement criteria;
 4. Buildings shall comply with the 2016 Title 24 Building Energy Code without claiming the solar compliance credit described in Section 2.2.3 of the 2016 Title 24, Part 6, Residential Alternative Calculation Method Reference Manual;
 5. At the earliest feasible time after the prospective purchaser is identified, the developer or builder shall provide the option of an expanded system size beyond the minimum mandatory system sizing requirements; and
 6. To accommodate for future system expansion, the developer or builder shall provide for an interconnection pathway as detailed in 2016 CEnC Subchapter 2, Section 110.10, which shall be equipped with conduit or wiring sized to provide solar readiness for any area of the required solar zone not already covered by the installed system.
- (d) Other considerations
1. To accommodate for future system expansion, the applicant is encouraged to utilize micro-inverter or other equivalent expandable technologies in the initial system design.
 2. To accommodate for greater possible building energy use offset through the use of on-site photovoltaic solar energy systems, the applicant is encouraged to consider an all-

electric building energy system design.

(e) Alternatives and exceptions

1. Alternative on-site renewable energy systems other than roof mounted solar energy systems, including ground-mounted solar structures, roof-mounted wind turbines, or ground-mounted wind turbines per FMC 18.185, may be substituted for the solar energy generation requirement for any development.

2. In the case of practical challenges such as building site location, limited rooftop availability, shading from nearby structures, topography or vegetation, or other conditions, the Building Official may waive or reduce the requirement and/or impose one of the following alternatives:
 - A. Exceed mandatory energy compliance standards by meeting CalGreen Tier 1, as defined in CalGreen Section A4.203.1.2.1.

 - B. Other methods as determined, providing the Building Official finds that the proposed alternative is satisfactory and complies with the intent of this section.

The applicant is responsible for demonstrating requirement infeasibility when applying for an exemption.

SECTION 3. CEQA

The City Council finds that the proposed amendments to the Fremont Municipal Code are exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Title 14 of the California Code of Regulations, Section 15061(b)(3) in that it is not a project which has the potential for causing a significant effect on the environment.

SECTION 4. SEVERABILITY

If any section, subsection, sentence, clause or phrase of this ordinance is for any reason held by a court of competent jurisdiction to be invalid, such a decision shall not affect the validity of the remaining portions of this ordinance. Such section, subsection, sentence, clause or phrase, instead, shall be superseded and replaced by the corresponding provisions, if any exist, of Title 24 of the California Code of Regulations. The City Council of the City of Fremont hereby declares that it would have passed this ordinance and each section or subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid.

SECTION 5. EFFECTIVE DATE

This Ordinance shall take effect and will be enforced after obtaining approval from the California Energy Commission and the California Building Standards Commission, but in no event shall it become effective in less than thirty (30) days after its adoption.

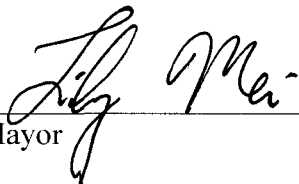
SECTION 6. PUBLICATION AND POSTING

The City Clerk has prepared and published at least five days before the date of adoption a summary of this ordinance once in a newspaper of general circulation printed and published in Alameda County and circulated in the City of Fremont. A certified copy of the full text of the ordinance was posted in the office of the City Clerk since at least five days before this date of adoption. Within 15 days after adoption of this ordinance, the City Clerk shall cause the summary to be published again with the names of those City Council members voting for and against the ordinance and shall post in the office of the City Clerk a certified copy of the full text of this adopted ordinance with the names of those City Council members voting for and against the ordinance.


* * *

The foregoing ordinance was introduced before the City Council of the City of Fremont at the regular meeting of the City Council, held on the 18th day of April, 2017, and finally adopted at a regular meeting of the City Council held on the ~~8th~~^{2nd} day of May, 2017, by the following vote:

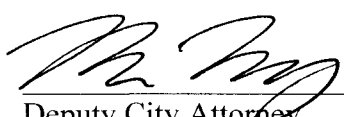
AYES:	Mayor Mei; Vice Mayor Jones; Councilmembers Bacon, Salwan and Bonaccorsi
NOES:	None
ABSENT:	None
ABSTAIN:	None



Mayor

ATTEST:


City Clerk

APPROVED AS TO FORM:


Deputy City Attorney