

## DOCKETED

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**TO:** City Council  
**FROM:** Larry A. Patterson, City Manager  
**PREPARED BY:** City Manager's Office  
**MEETING DATE:** Monday, May 16, 2016

**SUBJECT:**

Local Amendments to the California Energy Code, 2016 Edition – Ordinance Introduction

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**RECOMMENDATION**

Introduce an Ordinance to amend Title 23 Building and Construction of the San Mateo Municipal Code to adopt the California Energy Code, 2016 Edition as a new Chapter 23.24 and to adopt local amendments to the Energy Code and related findings.

**BACKGROUND**

The San Mateo City Council adopted the Climate Action Plan (CAP) on April 6, 2015. The CAP directs staff to develop policies to require new buildings to incorporate renewable energy readiness and Electric Vehicle (EV) charging capacity. During the adoption of the CAP, both the Planning Commission and City Council discussed whether mandatory solar installations and/or other energy efficiency measures should also be included. Although these measures were not included in the adopted CAP, the City Council directed staff to study these options and bring them back for further consideration.

Based on this direction, staff has been analyzing possible Building Code amendments to further the use of renewable energy, energy efficiency, water conservation, and the provision of electric vehicle infrastructure. This report outlines the proposed amendments to the Energy Code portion of the Building Code that the Council is being requested to adopt at this time and summarizes the Green Building Code amendments being considered for adoption later this fall.

**Code Amendment Process**

Every three years, the State of California adopts new building standards that are organized in Title 24 of the California Code of Regulations, referred to as the California Building Standards Code. This regular update is referred to as a "code cycle". The last code cycle was adopted in 2013 and was implemented starting in 2014. The Building Standards Code is a compilation of several different codes that relate to different technical aspects of buildings. The California Building Standards Commission is currently concluding the development of the 2016 California Building Code, which has a target effective date of January 1, 2017. Staff is proposing to time the proposed amendments to the California Building Code to coordinate with the 2016 code cycle.

Cities can adopt requirements that are above and beyond what is included in the Building Code, referred to as a "reach code". All proposed reach codes must be filed with the State. The amendments under consideration by staff would impact the Green Building Code and Energy Code portions of the Building Code. The City adopted a "reach code" for the Green Building Code as part of the 2010 code cycle but did not pursue one for the 2013 code cycle.

Reach code amendments to the Energy Code are subject to an extensive review process by the California Energy Commission (CEC) which in turn requires significant lead time in advance of the target effectiveness date than Green Building Code Amendments. The CEC requires that a cost-effectiveness study be conducted and filed for local amendments to the Energy Code. The cost-effectiveness study must demonstrate that the amendments to the code are financially responsible and do not represent an unreasonable burden to the non-residential and residential applicants. The CEC requires cities to adopt the proposed energy code changes by ordinance and then submit them to the CEC for review. The CEC will then administer a 60-day public comment on the proposed code changes. City staff will be asked to respond to public comments on an as-needed basis. After the close of the 60-day public comment period, which is targeted for late summer 2016, the CEC may request revisions to the Ordinance. In the case of necessary revisions, staff will plan to come back to the City Council to present the amended Ordinance in the fall of 2016.

Green Building Code amendments do not require cost-effectiveness study and can be adopted directly by the jurisdiction through a public hearing held at the jurisdiction level. Given this simplified process, staff plans to bring forward the proposed Green Building Code amendments to City Council for approval this fall in conjunction with the adoption of the entirety of the 2016 Building Code.

### **Proposed Code Amendments**

Staff engaged the services of two consulting firms to assist in the study and development of the proposed Green Building and Energy Code amendments. These firms include Integrated Design 360 Green Building Consultants and TRC Companies, Inc. Based on the direction of City Council at the time of the CAP adoption, staff analyzed a broad array of measures beyond just the EV charger infrastructure and solar readiness requirements adopted in the CAP. The Sustainability Commission reviewed and commented on the proposed measures for study at its November 2015 meeting.

TRC completed the cost effectiveness study required by the CEC for Energy Code amendments for various prototypes that represent typical construction in San Mateo. Cost effectiveness is defined as having a benefit to cost ratio of greater than 1. The prototypes included single family homes, medium and large multi-family developments, and medium and large scale office developments. The Cost Effectiveness Study is included as Attachment 2 to this report.

As a result of the mild climate in San Mateo (which is Climate Zone 3) and the increased stringency of the State Building Code for this upcoming code cycle, very few measures studied were found to meet the cost effectiveness criteria for the prototypes analyzed. Some of the measures that were cost effective could not be implemented since they require specific technologies which the federal government does not allow to be mandated or require emerging technologies, such as drain water heat recovery, that have not been proven to be effective in all applications. Other measures that passed the cost effectiveness criteria but were not considered, such as specific lighting controls, are very technical in nature, hard to communicate, and don't allow a lot of flexibility in building design.

The primary goal of staff in selecting measures for consideration was to choose measures that are easy to understand, have a high level of cost effectiveness, and are not overly burdensome so as to potentially limit development from proceeding. Although a cost effectiveness study is not required for the proposed Green Building Code amendments, the consultant team analyzed the estimated net additional costs of implementing these measures as a test of reasonableness.

The proposed measures, which are targeted to new development only, include:

Proposed Energy Code Amendments:

- Mandatory minimum size solar photovoltaic installations for all new construction as follows:
  - New single family buildings will be required to have a minimum 1 kilowatt photovoltaic system.
  - New multi-family buildings containing 3 to 16 units will be required to have a minimum 2 kilowatt photovoltaic system.
  - New multi-family buildings containing 17 or more units will be required to have a minimum 3 kilowatt photovoltaic system.
  - New non-residential buildings of less than 10,000 square feet will be required to have a minimum 3 kilowatt photovoltaic system.
  - New non-residential buildings 10,000 square feet or larger will be required to have a minimum 5 kilowatt photovoltaic system.
  - As an alternative, all projects may provide a solar hot water (solar thermal) system with a minimum collector area of 40 square feet.
- Mandatory cool roof installations for all new multi-family and commercial developments with low-sloped roofs. Cool roofs are defined as having a minimum 3-year aged solar reflectance of 0.70, and a minimum thermal emittance of 0.75.

The solar photovoltaic requirement is modeled after the one adopted by the City of Lancaster. The minimum size systems required are very small and most project typically exceed that requirement. The idea behind this requirement is that by requiring the solar installation, the owner/developer will be incentivized to right-size the system themselves based on their site and building requirements in order to maximize cost effectiveness. In addition, a requirement of this type doesn't require complex energy load calculations, which reduces the burden on City staff reviewing the permit submittals. The cost-benefit analysis showed that the benefit exceeds the cost of implementing this measure.

The cool roof requirement simply requires a lighter color roof to be installed on low-sloped new multi-family and commercial developments which reflects more sun and therefore requires less energy to be used for cooling buildings. These roofing products are commercially available and are often lower-cost than darker colored materials since additional pigments do not need to be added. Steep-sloped roofs use different materials, often tiles or asphalt shingles. While tile roof products have inherent cool roof characteristics and do not pose an incremental cost, cool roof asphalt shingles that look like current market standard shingles do carry an incremental cost. Even when averaging the cost of tile and asphalt shingle cool roofs, steep sloped roofs did not meet the cost effectiveness criteria.

Proposed Green Building Code Amendments:

- An increase over the State code requirement of the percentage of electric vehicle (EV) ready spaces that need to be provided for new commercial and multi-family developments (10% of total spaces versus the State requirement of 3% for multi-family and 6% for commercial projects).
- Mandatory electric vehicle (EV) charger installations in 3% of the EV-ready spaces for new commercial and multi-family developments.

- Mandatory Laundry-to-Landscape diverter valves to be installed in all new single-family homes.

The impetus behind the proposed code amendments relating to EV readiness is to remove the barriers of installing EV chargers since the cost significantly increases if adequate electrical capacity is not built into a project at the onset. This ordinance is based on ordinances adopted in Palo Alto and under consideration in San Francisco, although both of those require a much higher percentage of readiness (25% in Palo Alto and 20% in San Francisco). The proposed amendment also requires buildings to install EV chargers in 3% of the total parking spaces to address growing demand for EV Chargers. Based on a survey of recent developments in San Mateo and surrounding communities, most projects are installing EV chargers in between 1 to 2% of the parking spaces so this code amendment would require a larger number of chargers to be installed than is currently the practice.

The Laundry-to-Landscape diverter valve requirement is a very low cost measure that removes one of the initial barriers to installing a Laundry-to-Landscape greywater re-use system at a later date.

### **Stakeholder Comments**

Staff obtained feedback from the development community in San Mateo on the impact these measures will have on their projects at a stakeholder forum held on February 24, 2016. In addition, staff has held one-on-one meetings with several developers who were unable to attend the stakeholder forum.

Some key feedback that staff has received from the development community is summarized below:

1. Multi-family residential projects typically have separate meters for each unit which makes it hard to apportion the solar energy generated on-site between individual units. As a result, it may be difficult to cover more than the common area electrical use with solar panels. However, the proposed alternative that allows solar thermal systems does help mitigate that issue, since water is not metered separately.
2. Providing the electrical capacity for EV-readiness requires a significant upgrade in the amount of electrical capacity that is built into a project and will take up some building footprint to accommodate. PG&E does not allow transformers to be oversized and they made need to be swapped out after construction which may add additional costs to the developers.

In addition, staff received a comment letter from Wilson Meany outlining their concerns over the EV charger readiness and installation requirements which is included as Attachment 3 to this report. Staff is working with PG&E to get more clarity on the concerns raised related to the proposed EV requirements and to better understand the financial impact of the proposed code amendments. The results of this analysis will be presented to the Council later this fall.

The Sustainability Commission reviewed the proposed code amendments at its March 2016 meeting and unanimously supported recommending City Council approval of both the Energy Code and Green Building Code amendments. However, the Commission is aware that staff is further researching the impact EV-related amendments and may make changes to the current proposal.

### **BUDGET IMPACT**

The proposed municipal code amendment will not have a budgetary impact on the City since the City is already required to enforce the Energy Code and the local amendments will not be onerous to implement and track.

#### **ENVIRONMENTAL DETERMINATION**

This project is Categorically exempt from the provisions of the California Environmental Quality Act ("CEQA"), pursuant to Section 15601 of the CEQA Guidelines, because it can be seen with certainty that there is no possibility that the amendments herein adopted will have a significant effect on the environment.

#### **NOTICE PROVIDED**

All meeting noticing requirements were met.

#### **ATTACHMENTS**

Att 1 – Proposed Ordinance

Att 2 – Cost Effectiveness Analysis

Att 3 – Letter from Wilson Meany

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