

DOCKETED

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**CITY OF ALBANY
CITY COUNCIL AGENDA
STAFF REPORT**

Agenda Date: December 21, 2020
Reviewed by: NA

SUBJECT: Green Building Measures

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SUMMARY

The action before the City Council is to adopt a package of green building measures which exceed the State requirements of the 2019 CALGreen code.

CLIMATE ACTION COMMITTEE RECOMMENDATION

On September 16, 2020, the Climate Action Committee unanimously approved a motion to recommend the proposed Green Building measures to Albany City Council.

PLANNING & ZONING COMMISSION RECOMMENDATION

On December 9, 2020, the Planning and Zoning Commission unanimously approved a Planning & Zoning resolution recommending the City Council to adopt the Green Building policies.

STAFF RECOMMENDATION

That the Council adopt Resolution No. 2020-127, adopting green building measures to exceed the 2019 CALGreen mandatory measures.

BACKGROUND

The City of Albany Climate Action and Adaptation Plan (CAAP) established the objective of 70% greenhouse gas (GHG) emissions reductions by 2035, and net zero emissions by 2045. The CAAP focuses on reducing emissions from the City's largest emissions sectors, including new and existing buildings. An estimated 40% of GHG emissions in Albany result from the building sector.

In addition, the City of Albany General Plan contains policy "*CONSERVATION-6.1: Green Construction*," which directs the City towards development of standards and guidelines which support "green" construction and environmental leadership in the building industry. The action associated with this policy is *CONSERVATION-6.A*, which

requires that “new construction to meet or exceed California Green Building Code standards for energy and water efficiency,” and that “Albany’s building codes should be regularly reviewed and periodically amended to meet or exceed state requirements.”

ANALYSIS

The *California Green Building Standards Code*, also known as CALGreen, is part of the *California Building Standards Code*. CALGreen was the nation’s first mandatory green buildings standards code, adopted by the State of California in 2007 to reduce statewide greenhouse gas emissions resulting from the building sector. The purpose of the CALGreen code is to improve public health, safety, and general welfare by enhancing the design and construction of buildings by using building concepts that have a reduced negative impact on the environment, or a positive impact on the environment, and by encouraging sustainable construction practices in the following categories:

1. Planning and design.
2. Energy efficiency.
3. Water efficiency and conservation.
4. Material conservation and resource efficiency.
5. Environmental quality.

CALGreen mandatory measures apply to new construction and most additions and alterations to existing structures. Cities may adopt additional voluntary CALGreen tiers (Tier 1 or Tier 2) or specific measures within the Tiers that exceed the mandatory minimum requirements of the CALGreen code. Voluntary tiers are intended to further encourage building practices that improve public health, safety, and general welfare by promoting the use of building concepts which minimize the building’s impact on the environment and promote a more sustainable design.

The Green Building Subcommittee of the Climate Action Committee developed the following package of measure. It takes measures from both Tier 1 and Tier 2, based on Albany’s needs and priorities, as well as cost and benefit analyses. The Climate Action Committee and Planning and Zoning Commission have both recommended the proposal to Council.

The California Energy Commission

The California Energy Commission (CEC) is responsible for setting the Energy Efficiency Standards for CALGreen. In the case of local amendments to the energy aspects of CALGreen, cities must demonstrate to the CEC that the local amendments are cost-effective. The CEC evaluates cost-effectiveness over a lifetime of 30 years, the reduction in costs due to energy savings is greater than the upfront costs associated with purchasing or installing the energy efficiency measures. The CEC has established the methodology and energy models to be used determine whether a given standard is cost effective. The proposed energy measures are expected to meet the requirements of the CEC for cost-effectiveness. Staff have utilized consultant support from East Bay Community Energy (EBCE) to help in understanding the cost-effectiveness study results.

Measuring Energy Efficiency in Residential Buildings

Energy Design Rating (EDR) is the system used in the CALGreen code to determine the energy efficiency and average emissions of a residential building. Each building is rated on a scale from one hundred (equivalent to a 2006 IECC compliant home) to zero (a zero-net energy home). Each building has a mandatory EDR maximum determined by the CALGreen code. The EDR Margin is the number of points below that maximum that a building reaches. For instance, if the required EDR level is 34 and a building has an actual EDR of 24, its margin will be 10. The EDR margin is achieved by increasing the efficiency of the building itself and by adding solar panels and batteries. The “Efficiency Margin,” which is required in the case of the electric single family home means that the EDR margin must be achieved only by increasing the efficiency of the building itself through measures such as increased insulation, and not by adding more solar panels.

Energy Design Rating Margin Recommendations (Residential):

Type	EDR Margin	Incremental Cost to Construction	CO₂ Reduction
Single Family Mixed Fuel Building	10	\$10,150	21%
Single Family Electric Building	4.7 (Efficiency Margin)	\$250	15%
Multi-Family Mixed Fuel Building	10.3	\$19,540	12%
Multi-Family Electric Building	0	\$0	0

Measuring Energy Efficiency in Non-Residential Buildings

For non-residential buildings, energy efficiency is measured by compliance margin. A building that is exactly at the CALGreen mandatory requirement level would have a compliance margin of 0%, while a net-zero energy building would have a compliance margin of 100%. Like the EDR margin, compliance margins must be found to be cost-effective by the CEC. The tables below indicate the proposed margins. These would only apply to newly constructed buildings.

Compliance Margin Recommendations (Non-Residential):

Type	Compliance Margin	Incremental Cost	GHG Reduction
Mixed-Fuel Office Building	20%	\$66,650	5.5%
Electric Office Building	10%	\$29,000	4%
Mixed-Fuel Retail Building	16%	\$5,570	11%
Electric Retail Building	16%	\$5,425	9%

The EDR and Compliance Margins above were selected to serve the dual purpose of reducing overall GHG emissions and incentivizing all-electric construction. To achieve this goal, the EDR and Compliance Margins for mixed-fuel buildings are all set at the maximum level that the CEC will allow. This will incentivize all-electric construction and ensure that any mixed-fuel buildings that are constructed have the lowest possible environmental impact. The EDR and Compliance Margins for all-electric buildings vary according to building type and were chosen by the Climate Action Committee to achieve meaningful energy savings while also keeping incremental costs low. For more information about the reasoning behind each margin and building type, see Attachment 2.

Non-Residential Solar

According to the 2019 CALGreen code, all non-residential buildings must create a “Solar Zone” occupying at least 15% of their rooftop area. Solar zone areas must have annual solar access of over 70%, be greater than 80 square feet, and have no dimension less than 5 feet, have no obstructions on or shading the area, and be oriented 90 to 300 degrees from true north. It is proposed that all non-residential buildings must have solar panels installed on the entire solar zone. One exception is that if compliance with the solar requirement would result in the building generating more energy with solar than the building is modeled to consume annually, the number of solar panels may be reduced in to match the amount of energy the building is modeled to consume.

Non-Energy Measures

Although the CEC must approve all energy-related measures, no State approval is needed for non-energy measures. Most of the non-energy measures outlined below are low- or no-cost measures. For more detail on the costs and benefits of each measure, see Attachment 2.

Recommended Residential Measures:

Measure	New Construction	Alterations/Additions
20% of multi-family parking spaces are EV Charging Stations	X	
30% of new paving must be permeable	X	X
At least 1 Energy Star washing machine or dishwasher	X	X
Low-flow kitchen faucets	X	X
Low-carbon concrete	X	X
Minimum levels of outdoor lighting	X	X
Low-VOC resilient flooring	X	X

Recommended Non-Residential Measures:

Measure	New Construction	Alterations/Additions
12% of parking spaces designated for clean air vehicles	X	X
Outdoor lighting power reduced by 10%	X	X
12% reduction in indoor water use via efficient fixtures	X	
Low-carbon concrete	X	X
Low-VOC resilient flooring	X	X

SUSTAINABILITY/

Implementation of the proposed green building measures will reduce the emissions of individual buildings by up to 21% and incentivize all-electric construction. This will significantly lower emissions because Albany’s electricity is currently carbon-free, and therefore all-electric appliances can operate on carbon-free electricity. Low-carbon concrete, EV-charging spaces, and Clean Air Vehicle spaces will also help reduce overall greenhouse gas emissions and environmental impact.

SOCIAL EQUITY IMPACT

The proposed measures will increase the upfront cost of new construction, incrementally affecting the ability of low and moderate income households to be able to afford new residential housing. The policy issues associated with increasing the cost of residential construction will be explored as part of the preparation of the upcoming Housing Element, including the potential for the City to adopt policies to address cost implications.

CITY COUNCIL STRATEGIC PLAN INITIATIVE

Adopting green building measures advances the Council Strategic Plan Initiative Goal 1, Objective 1 to “Advance Climate Action.”

FINANCIAL IMPACT

There will be a small amount of expenses associated with education and outreach, implementation, and enforcement. It should be noted, however, that a significant amount of staff time will be required to successfully implement the program.

East Bay Clean Energy is providing \$10,000 in grant funds to cities that present green building reach codes to Council. Grant funds may be used for implementation of new codes and/or other sustainability and energy-related initiatives.

NEXT STEPS

If Resolution No. 2020-07 is adopted, it would become effective following approval by the CEC, which is expected to take several months.

ATTACHMENTS

1. Resolution No. 2020-127
2. Cost-Benefit Analysis of Green Building Measures
3. 2019 Cost-effectiveness Study: Low-Rise Residential New Construction
4. 2019 Nonresidential New Construction Reach Code Cost Effectiveness Study