

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

Agenda Date: January 19, 2021  
Reviewed by: NA

**SUBJECT:** Green Building Measures

**REPORT BY:** Michelle Plouse  
Jeff Bond, Community Development Director

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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. The package has been revised based on feedback from the Council provided at the December 21, 2020 Council meeting.

**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**

On December 21, 2020, the City Council discussed a resolution to adopt Green Building measures to exceed the 2019 CALGreen mandatory measures. For detailed information on the Green Building measures presented, refer to Attachment 2. During discussion, the Council directed staff to explore a measure that would require that 80 percent of parking spaces for multifamily buildings be electric vehicle (EV) charging station-ready, and return to the Council with their findings in January 2021. Staff has edited the Green Building Resolution to include such a requirement, the details of which are explained below.

## **ANALYSIS**

The revised resolution requires 20% of parking spaces in multi-family lots to be EV charging stations, and the remaining 80% of spaces to be EV-Ready. EV-Readiness is achieved by installing all inaccessible raceway (the physical pathway for future electrical wiring) during construction and sufficient electrical panel capacity to supply 40 amps of power to 20% of parking spaces.

The raceway requirement ensures that wiring and electrical equipment can easily be installed in the future without the need for any construction or retrofitting. If the raceway is “accessible” or located in an easy to reach area such as on the exterior of a wall, it does not need to be installed during construction.

Twenty percent electrical panel capacity is the standard requirement in EV charging reach codes that require all or most spaces to be EV-Ready. This is the case in several other cities’ reach codes including those in Oakland, San Francisco, and San Jose. The reasoning behind it is the use of load management systems, which distribute power between chargers when many are in use. As more cars plug in, the power each receives will drop slightly (and vice versa). Especially in the case of multifamily buildings, most charging will happen overnight, when the highest charging speed is not necessary. This system allows buildings to avoid costs of excessively large electrical systems that will rarely be fully utilized.

Alternatively, the Council could choose not to require any electrical capacity for EV-Ready spaces. Berkeley’s EV-Readiness reach code, for example, only calls for the installation of inaccessible raceway with no added panel capacity for any EV-Ready spaces.

### ***Incremental Costs:***

The installation of inaccessible raceway costs about \$300 per space. The additional electrical capacity for 20% of spaces would average to between \$100 and \$600 per space. Depending on whether the project needs to install raceway during construction, the incremental cost per space would vary between \$100 and \$900 dollars.

## **SUSTAINABILITY CONSIDERATION**

Increased EV-Readiness will aid Albany’s transition towards electric vehicles. Transportation accounts for over 50% of the City’s carbon emissions. Electric vehicles charged by clean electricity can significantly reduce emissions and improve local air quality.

## **SOCIAL EQUITY CONSIDERATION**

This requirement will increase the cost of construction, which may lead to a slight increase in housing costs. The upfront cost during construction, however, is significantly less than it would cost to install EV charging equipment in a retrofit, the costs of which would likely

fall on tenants. This measure would increase access to electric vehicles among multi-family tenants, a group with some of the highest barriers to EV adoption.

### **CITY COUNCIL STRATEGIC PLAN INITIATIVE**

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

### **FINANCIAL CONSIDERATION**

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. 2020-127 is adopted, it would become effective following approval by the CEC, which is expected to take several months. Staff will provide educational materials about the green building measures to contractors, developers, and building designers via the City website.

### **ATTACHMENTS**

1. Resolution No. 2020-127
2. December 21, 2020 City Council Staff Report

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**RESOLUTION NO. 2020-127**

**A RESOLUTION OF THE ALBANY CITY COUNCIL TO  
ADOPT GREEN BUILDING MEASURES**

**WHEREAS**, the City Council of the City of Albany adopted the Albany 2035 General Plan on April 18, 2016; and

**WHEREAS**, The City of Albany General Plan Policy *CON-6.1: Green Construction* directs the City towards development of standards and guidelines which support “green” construction and environmental leadership in the building industry; and

**WHEREAS**, Action *CON-6.A* 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;” and

**WHEREAS**, 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; and

**WHEREAS**, 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; and

**WHEREAS**, The CAAP Action 3.2.6 directs the City to “Adopt voluntary green building tiers;” and

**WHEREAS**, The City of Albany General Plan Policy *T-2.3: Low-Emission Vehicles* directs the City to “encourage the use of low emission or zero emission vehicles, along with the infrastructure to support such vehicles, such as electric vehicle charging stations;” and

1           **WHEREAS**, The CAAP established the goal that 98% of passenger vehicles in Albany  
2 be electric vehicles by 2050; and

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4           **WHEREAS**, CAAP Action 1.2.2 directs the City to “adopt an electric vehicle  
5 readiness ordinance that would increase the charging requirements for new construction and  
6 renovations;” and

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8           **WHEREAS**, The General Plan Policy *CON-4.3: Low Impact Development* directs the  
9 City to “support the use of pervious pavement” to “capture and filter rainwater and reduce  
10 runoff to local creeks and the Bay;” and

11           **WHEREAS**, Policy *CON-6.9: Reducing Water Usage* Partner with EBMUD, PG&E,  
12 Stopwaste.org and other organizations to achieve water efficiency and reduced usage and  
13 support indoor and outdoor conservation practices; and

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15           **WHEREAS**, on June 24th, 2020 the City of Albany Planning and Zoning Commission  
16 received a presentation on the proposed green building measures and provided feedback to  
17 staff; and

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19           **WHEREAS**, on September 16, 2020 the City of Albany Climate Action Committee  
20 recommended the proposed green building measures to the Albany City Council and on  
21 December 9<sup>th</sup>, 2020 the Planning and Zoning Commission recommended Planning & Zoning  
22 Resolution No. 2020-07 to the Albany City Council; and

23           **WHEREAS**, the California Health and Safety Code (HSC) Section 18941.5, with  
24 reference to HSC Section 17958.7, allows for more restrictive local amendments that are  
25 reasonably necessary because of local climatic, geological, or topographical conditions.  
26 California Code of Regulations, Title 24, Part 11, California Green Building Standards Code  
27 (CALGreen), Section 101.7.1, provides that local climatic, geological, or topographical  
28 conditions include environmental conditions established by the city, county, or city and county;  
29 and

1           **WHEREAS**, Public Resources Code Section 25402.1(h)2 and Section 10-106 of the  
2 Building Energy Efficiency Standards (Standards) establish a process which allows local  
3 adoption of energy standards that are more stringent than the statewide Standards, provided  
4 that such local standards are cost effective and the California Energy Commission finds that  
5 the standards will require buildings to be designed to consume no more energy than  
6 permitted by the California Energy Code; and

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8           **WHEREAS**, Cost effectiveness studies were prepared for the Statewide Code and  
9 Standards Program titled "2019 Cost Effectiveness Study: Low-Rise Residential New  
10 Construction, and "2019 Nonresidential New Construction Reach Code Cost Effectiveness  
11 Study" ("Studies"). The Studies analyzed the feasibility and cost effectiveness of requiring  
12 new construction to be all-electric for 16 different climate zones in California, including  
13 climate zone 3, within which the City of Albany is located. The Studies determined the  
14 efficiency standards in this ordinance will meet the Study's cost-effectiveness requirements in  
15 climate zone 3. Based on this, the City Council of the City of Albany hereby determines that  
16 the measures being adopted by the City are cost effective as documented in the Studies; and

17           **WHEREAS**, Section 12-6.4(p) of the Albany Municipal Code allows the City Council  
18 to establish, by resolution and periodically review and update, more-stringent voluntary  
19 measures contained in the California Green Building Standards Code appendixes to address  
20 local environmental conditions; and

21           **WHEREAS**, The City Council finds that this Resolution is exempt from the California  
22 Environmental Quality Act codified in California Public Resources Code section 21000 et  
23 seq. (CEQA), pursuant to Subdivision (b)(3) of Section 15061 of the CEQA Guidelines,  
24 codified in Title 14 of the California Code of Regulations, because its standards are more  
25 stringent than the 2019 Energy Code, there are no reasonably foreseeable adverse impacts,  
26 and there is no possibility that the activity in question may have a significant impact on the  
27 environment; and

1           **WHEREAS**, the State of California allows local jurisdictions to amend the California  
2 Building Standards Code where necessary to reasonably address adverse local conditions  
3 related to climate, geology, and/or topography, and thus the City Council makes the  
4 following findings regarding local conditions:

- 5           a) Topography: the City of Albany is a dense built-out community with  
6           predominately older wood-frame commercial and residential structures that lack  
7           modern fire protection elements, are located on small lots with minimal setbacks  
8           that increase the potential for rapid fire spread, and are reached by narrow streets  
9           that often hamper emergency response;
- 10          b) Furthermore, the eastern edge of the City of Albany is located less than two miles  
11          from the ridgeline of the East Bay Hills, in the path of “Diablo Winds,” which  
12          could rapidly bring an wildland fire from the East Bay Hills into the City;
- 13          c) Geology: The City of Albany is vulnerable to major earthquakes on the San  
14          Andreas, Hayward and Calaveras faults, which are expected to result in damage to  
15          aging underground infrastructure including natural gas lines and water lines  
16          needed for fire suppression;
- 17          d) Furthermore, the City of Albany lacks access to secondary sources of water for  
18          fire suppression in the event of damage to primary water supply;
- 19          e) Climate: The City of Albany is frequently is exposed to extremely high risk “red  
20          flag” fire conditions consisting of warm temperatures, low humidity, and strong  
21          winds that combine to produce an increased risk of fire danger. These conditions  
22          have worsened in recent years due to global warming; and
- 23          f) Furthermore, climate conditions have resulted in Albany experiencing dangerous  
24          air quality for weeks, even from distant fires.

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2 **NOW, THEREFORE, THE ALBANY CITY COUNCIL RESOLVES AS**  
3 **FOLLOWS:.**

4 **Section 1: Applicability**

5 The requirements of this resolution shall apply to applications subject to planning review  
6 submitted on or after 30 days after final action by the State of California for all buildings  
7 proposed to be located in whole or in part within the City. Buildings must comply with all  
8 measures that are applicable to the building type in question and to the specific areas of the  
9 building in which construction is occurring.

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11 **Section 2: Definitions**

- 12 A. Accessory Dwelling Unit (ADU) has the same meaning as defined in the California  
13 Building Code, Title 24, Part 11, Section 202.
- 14 B. Addition means an extension or increase in floor area of an existing building or  
15 structure.
- 16 C. Alteration means any construction or renovations to an existing structure other than  
17 repair or addition.
- 18 D. All-Electric Building means a building in which all appliances are fueled only by  
19 electricity and natural gas is not used.
- 20 E. Clean Air Vehicle means any vehicle certified to zero-emissions standards, high-  
21 efficiency vehicles bearing High-occupancy Vehicle (HOV) carpool lane stickers  
22 issued by the Department of Motor Vehicles, or carpool or van pool vehicles.
- 23 F. Compliance Margin is a percentage that represents the degree to which a given  
24 nonresidential building exceeds the energy budget determined in the California  
25 Energy Code. The compliance margin is calculated by finding the difference between  
26 the energy budget of the building and the actual energy use of the building, both of  
27 which are determined by compliance software, and dividing that number by the  
28 energy budget. The higher the percentage, the lower the energy use of the building.
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- G. Compliance Software is software that has been approved pursuant to Section 10-109 of Part 1 of the California Administrative Code, to demonstrate compliance with the performance approach of Part 6 of the California Building Code (energy code part 6 100.1).
- H. Energy Budget means the maximum energy consumption that a proposed building, or portion of a building can be designed to consume, calculated using compliance software. The Energy Budget of each building is determined using the Compliance Software certified by the California Energy Commission.
- I. Energy Design Rating (EDR) is a number between 0 and 100 that signifies the energy efficiency of a given residential building, with 0 being a zero-net energy building and 100 being equivalent to the energy efficiency of a 2006 International Energy Conservation Code (IECC) compliant building. The EDR of each building is determined using the Compliance Software certified by the California Energy Commission.
- J. EDR Margin means the difference between the EDR value that is required by the California Energy Code and the actual EDR value achieved by a given residential building. Both values are determined using the Compliance Software certified by the California Energy Commission.
- K. Efficiency Margin refers to an EDR Margin that is achieved only by increasing the energy efficiency of the structure itself, without the use of additional photovoltaics or energy storage batteries. This only applies to residential buildings.
- L. Electric Vehicle Charging Station (EVCS) shall have the same meaning as defined in the California Building Code, Title 24, Part 11, Section 202.
- M. Electric Vehicle-Ready Space shall mean a parking space for which construction documents indicate wiring schematics, raceway methods, the raceway termination point and proposed location of future EV spaces and EV chargers. Raceways and related components that are planned to be installed underground, enclosed, inaccessible or in concealed areas and spaces shall be installed at the time of original construction.

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- N. Mixed-fuel Building means a building that is fueled by both natural gas and electricity.
- O. Natural Gas shall have the same meaning as “Fuel Gas” as defined in California Plumbing Code and Mechanical Code.
- P. Newly Constructed Building shall be defined as a building that has never before been used or occupied for any purpose.
- Q. Nonresidential Building means all buildings that are not classified in Occupancy Group R-2, R-3, or R-4, as defined in the 2019 California Building Code, Title 24, Part 2, Section 310.
- R. Multi-family Building means a residential building that contains more than two dwelling units, excluding accessory dwelling units.
- S. Office Building means a building which is classified in Occupancy Group B, as defined by the 2019 California Building Code, Title 24, Part 2, Section 304.1
- T. Permeable Paving means paving using materials and techniques which allow the movement of water around the paving material and allow precipitation to percolate through the paving surface to the soil below.
- U. Single-family Building means a structure that contains one or two dwelling units. An accessory dwelling unit may also be located in or associated with a single-family dwelling and may be attached or detached.
- V. Residential Building means a structure arranged, designed, and intended to be occupied as a primary residence. This includes all buildings of Occupancy Group R-2, R-3, or R-4, as defined in the 2019 California Building Code, Title 24, Part 2, Section 310, including any associated ADU’s.
- W. Repair means reconstruction or renewal of any part of an existing building for the purposes of maintenance or damage correction.
- X. Retail Building means a building which is classified in Occupancy Group M, as defined by the 2019 California Building Code, Title 24, Part 2, Section 309.1
- Y. Resilient Flooring has the same meaning as defined in the California Building Code, Title 24, Part 11, Section 202.

1 Z. Solar Zone has the same meaning as defined in 2019 California Energy Code, Title  
2 24, Part 6, Section 100.1 and Section 110.10.

3 AA. Volatile Organic Chemicals, or “VOC” has the same meaning as defined in the  
4 California Building Code, Title 24, Part 11, Section 202.  
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6 **Section 3: Green Building Requirements**  
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8 A. Newly constructed residential buildings, excluding Accessory Dwelling Units (ADUs)  
9 shall be required to meet or exceed the Energy Design Rating (EDR) Margins listed in  
10 Appendix A.

11 B. All new construction, alterations, and additions of residential buildings shall be  
12 required to comply with all applicable measures listed in Appendix B.

13 C. Twenty percent (20%) of the parking spaces in newly constructed multi-family  
14 buildings, rounded to the nearest whole number, shall be Electric Vehicle Charging  
15 Stations. The remainder of the parking spaces shall be Electric Vehicle-Ready. Branch  
16 circuit panelboard(s) shall be installed that contain the physical space to accommodate  
17 the future installation a minimum of one 40-ampere dedicated branch circuit and  
18 overcurrent protective device per EV-Ready space and have sufficient electrical  
19 capacity to deliver a minimum 40 amperes at 208 or 240 volts multiplied by 20% of  
20 the total number of parking spaces. The service panel and/or subpanel circuit directory  
21 shall identify the overcurrent protective device space(s) reserved for future EV  
22 charging purposes as “EV CAPABLE” in accordance with the *California Electrical*  
23 *Code*.

24 D. Newly constructed retail and office buildings shall be required to meet or exceed the  
25 Compliance Margins described in Appendix C.

26 E. All newly constructed nonresidential buildings shall install solar panels on the entire  
27 Solar Zone of the roof.

28 a. Exception: If installing solar panels on the entire Solar Zone will result in more  
29 electricity production annually than the modeled electricity usage of the  
building, as determined by compliance software, the building will not be

1 required to fill the entire solar zone. Instead, the number of solar panels installed  
2 must be sufficient to produce at least as much electricity (kWh) annually as the  
3 modeled electricity usage of the building.

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5 F. All new construction, alterations, and additions of nonresidential buildings shall be  
6 required to comply with the all applicable measures listed in Appendix D.

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8 **Section 4: Exemptions**

- 9 A. The requirements of this section shall not apply to:
- 10 1. Projects that have an active planning review application submitted on or before 30  
11 days after final action by the State of California.
  - 12 2. Projects that are determined by the Community Development Director to be exempt  
13 from planning review.

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15 **Section 5: Hardship or Infeasibility Exemption**

- 16 A. If an applicant for a nonexempt project believes that circumstances exist that make it a  
17 hardship or infeasible to meet the requirements of this resolution they may apply for an  
18 exemption or reduction in requirements as set forth below. In applying for an  
19 exemption, the burden is on the applicant to show financial hardship or physical  
20 infeasibility.
- 21 B. Application. If an applicant for a nonexempt project believes such circumstances exist,  
22 the applicant may apply for an exemption at the time of planning application submittal.
- 23 C. Granting of Exemption. The granting of an exemption shall be made by the overall  
24 project decision-making authority. If an exemption is granted, the applicant shall be  
25 required to comply with this Chapter in all other respects.
- 26 D. Denial of Exemption. If the decision-making authority determines that it is possible for  
27 the applicant to fully meet the requirements of this Chapter, they shall so notify the  
28 applicant.
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1 **Section 6: Effective Date**

2 The requirements of this Resolution shall be effective 30 days after final action by the State of  
3 California.  
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GE'NELL GARY, MAYOR

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11 **Attachments:**

- 12 Appendix A: Energy Design Rating Margin (Residential)  
13 Appendix B: Residential Non-Energy Measures  
14 Appendix C: Compliance Margin (Non-Residential)  
15 Appendix D: Non-Residential Non-Energy Measures  
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**Appendix A: Energy Design Rating Margin (Residential)**

Single family mixed-fuel buildings: 10 EDR Margin

Single family all-electric buildings: 4.7 Efficiency EDR Margin

Multi-family mixed fuel buildings: 10.3 EDR Margin

Multi-family Electric buildings: 0 EDR Margin (no additional requirement)

**Appendix B: Residential Non-Energy Measures**

<b>Measure</b>	<b>Construction type</b>	<b>Building type</b>
Newly installed paving shall meet the Tier 2 requirements of the 2019 California Green Building Standards Code, Title 24, Part 11, Section A4.106.4.	New construction, alterations, and additions	Multi-family, Single family, and ADU's
In each unit where a dishwasher or clothes-washer is being installed, at least one dishwasher or clothes-washer shall be Energy Star approved.	New construction, alterations, and additions	Multi-family, Single family, and ADU's
Kitchen faucets shall have a maximum flow rate of no more than 1.5 gallons per minute.	New construction, alterations, and additions	Multi-family, Single family, and ADU's
The cement content of all concrete shall be reduced by at least 25%. The cement shall be replaced by fly ash, slag, silica fume, rice hull ash, or another suitable material.	New construction, alterations, and additions	Multi-family, Single family, and ADU's
Outdoor lighting systems shall meet the requirements of the 2019 California Green Building Standards Code, Title 24, Part 11, Section A4.106.10.	New construction, alterations, and additions	Multi-family only
At least 90% of the total area of resilient flooring installed shall comply with the VOC-emissions limits set forth in the 2019 California Green Building Standards Code, Title 24, Part 11, Section A4.504.2	New construction, alterations, and additions	Multi-family, Single family, and ADU's

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**Appendix C: Compliance Margin (Non-Residential)**

Mixed-Fuel Office Building: 20% Compliance Margin

All Electric Office Building: 10% Compliance Margin

Mixed-Fuel Retail Building: 16% Compliance Margin

All Electric Retail Building: 16% Compliance Margin



**Appendix D: Non-Residential Non-Energy Measures**

<b>Measure</b>	<b>Construction Type</b>
Designated parking spaces for clean air vehicles shall make up 12% of the parking spaces constructed, rounding to the nearest whole number. Parking spaces shall be marked as described in 2019 California Green Building Standards Code, Title 24, Part 11, Section A5.106.4.1.3.	New construction, alterations, and additions
Outdoor lighting shall comply with 2019 California Green Building Standards Code, Title 24, Part 11, Section A5.203.1.1.1	New construction, alterations, and additions
A 12% reduction in potable water use within the building will be achieved by complying with 2019 California Green Building Standards Code, Title 24, Part 11, Section A5.303.2.3.1	New construction only
Concrete shall comply with 2019 California Green Building Standards Code, Title 24, Part 11, Sections A5.405.2.1 and A5.405.2.1.1	New construction, alterations, and additions
At least 90% of the total area of resilient flooring installed shall comply with the VOC-emissions limits set forth in the 2019 California Green Building Standards Code, Title 24, Part 11, Section A4.504.4.7	New construction, alterations, and additions

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

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Reviewed by: NA

**SUBJECT:** Green Building Measures

**REPORT BY:** Michelle Plouse, Community Development Analyst  
Jeff Bond, Community Development Director

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**SUMMARY**

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**CLIMATE ACTION COMMITTEE RECOMMENDATION**

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**PLANNING & ZONING COMMISSION RECOMMENDATION**

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**STAFF RECOMMENDATION**

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**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):**

<b>Type</b>	<b>EDR Margin</b>	<b>Incremental Cost to Construction</b>	<b>CO<sub>2</sub> Reduction</b>
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. On 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