



Public Works Department
Environmental Programs Unit
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To: Environmental Quality Commissioners

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Subject: Introduction to Sustainable Building Policy

Potential Environmental Quality Commission Action

Sustainable Building Policy is part of the Environmental Quality Commission's (EQC) two year work plan, and the EQC may want to consider forming a subcommittee or having an individual commissioner assist with feedback and policy/program development.

Background

The Environmental Protection Agency (EPA) has estimated that buildings are responsible for 39 percent of carbon dioxide (CO₂) emissions, 40 percent of energy consumption and 13 percent of water use every year. Buildings in the city of Menlo Park are the second largest contributor to GHG emissions (35.5%), second to transportation (45.8%).

As a direct result of AB 32, The Global Warming Solutions Act of 2006 to reduce greenhouse gas emissions, California adopted the nation's first statewide building regulation that sets minimum standards for green building and applies to every newly constructed residential and non-residential building. Commonly referred to as CALGreen, the new standards became mandatory on January 1, 2011.

The state literature for CALGreen encourages local communities to take greater action to adapt new buildings to reduce greenhouse gas emissions, improve energy efficiency and conserve natural resources. Even before CALGreen, many California cities and counties had already adopted green-building ordinances for new construction and alterations that used third-party verification systems, such as LEED and Build It Green.

On November 16, 2010, the City Council adopted the minimum State CALGreen requirements. Staff from the Building and Environmental Divisions is working collaboratively to make recommendations to the Council as to which, if any, voluntary measures should be made mandatory. A separate Council study session on this topic is being planned for early 2011. Staff's recommendations for adopting local amendments that exceed minimum CALGreen requirements will focus on those with the greatest positive environmental impact while balancing ease of implementation.

Summary of CALGreen

CALGreen sets minimum standards for green building that applies to every newly constructed residential and non-residential building. CALGreen is designed to increase energy efficiency in buildings, conserve water use by 20% and recycle 50% of construction waste. The California Air Resources Board estimates that the mandatory provisions in CALGreen will reduce greenhouse gas emissions (CO₂ equivalent) by three million metric tons in 2020.

CALGreen has two voluntary packages above the minimum mandatory green building requirements called "Tiers" that local cities may adopt. Tier 1 and Tier 2 are optional portions that include all mandatory measures plus additional required practices, with a further requirement to choose a set number of optional measures called "electives". Tiers can also be modified when adopted by a local jurisdiction.

Tier 1 includes energy compliance 15% above minimum California Energy Commission (CEC) Efficiency Standards, while Tier 2 exceeds energy compliance by 30%. At the moment, most Bay Area cities are not adopting the Tiers as mandatory requirements because the local cities consider the Tiers a "work in progress" because there is a lack of definition, guidance and training, but Tiers can easily be incorporated into the existing permitting processes and can define green criteria for the local area.

Benefits of Adopting Voluntary Tiers:

- Less expensive method for building permit applicants to get a green certification label than current third party point rating systems.
- Provides a defined method for building owners on how to get a green certification label with defined methodology written in familiar code language.

- Provides ease of compliance since building inspectors will verify all work before occupancy.

Disadvantages of Tiers

- Less uniformity in the area because the code allows for local jurisdictions to vary codes and many Bay Area cities not making Tiers mandatory.
- May be less environmentally sustainable compared to third party rating systems.
- Compliance and budget challenges for many building departments because lack of staff or logistical enforcement to implement all of Tier I and II certification.

Summary of Third-Party Rating Systems: LEED and Build It Green

A third-party rating system can also provide a path for utilization above and beyond mandatory CALGreen measures. Instead of adopting a CALGreen Tier, compliance in a third-party rating system, such as the U.S. Green Building Council's **Leadership in Energy and Environmental Design (LEED)** or Build It Green's GreenPoint Rated could also be used. The LEED certification program for new residential and non-residential buildings is an internationally recognized green building certification system that provides a concise framework for all building types. The four levels of LEED certification are Certified, Silver, Gold and Platinum. Currently, 44 cities in the Bay Area require one of these LEED standards for commercial construction. LEED also has some differences that are not fully reconciled with the mandatory CALGreen measures.

Build It Green (BIG) is a non-profit organization that promotes healthy indoor air quality, energy and resource conservation building practices in California. Build-It-Green has developed and sponsors the GreenPoint Rated (GPR) system, a green building certification program for residential buildings that is currently used by 51 cities in the Bay Area. The program is updated every three-years in conjunction with changes to Title 24, Part 6 of the California Building Energy Efficiency Standards. The rating system is verified through Certified GreenPoint Raters and the GreenPoint Rated system is fully integrated with mandatory CALGreen. CALGreen's Tier 1 plus mandatory measures would roughly approximate between 51 and 70 points under Build-It-Green's GreenPoint Rated Checklist.

Both LEED and BIG use checklists with a multitude of sustainable building measures to choose from in order to achieve a level of certification.

Benefits of Third-Party Rating Systems:

- Offers regional consistency for the development community and an array of measures to choose from.
- Less city staff resources needed to enforce compliance as building applicants work with third party for certification.
- Third-party rating systems parallel state and national code processes and promote best practices for green building.

Disadvantages of Third-Party Rating Systems:

- May add additional costs and wait times to developers because of verification.
- Confusion in the marketplace with additional labels that may overlap with CALGreen measures.

CALGreen vs. Third Party Verification

Regardless of the different viewpoints between the voluntary Tier approach and third-party rating systems, there does not appear to be much disagreement in the local community regarding the need of using more green building practices because of the efficient use of energy, reduction of waste and the overall health of the occupants.

Green Building Ordinance Status of Local Bay Area Cities

Many local cities in the Bay Area are adopting more stringent green building policies. The cities of Burlingame and San Mateo have both implemented additional green building measures. Both cities will utilize third party rating systems, specifically the LEED and the Build It Green's GreenPoint Rated system in both renovation projects and new development. The level must exceed Title 24's energy efficiency requirements by a minimum of 15 percent. Residents and builders will be able to choose the third party rating method. For example, in Burlingame, people can choose LEED for homes or Build It Green points, as well as other methods. Applicants have the ability to determine how they earn points by choosing from a list of items, depending on the project. Currently, residential projects in San Mateo require the equivalent of 75 Build It Green

points if they are new construction or remodels valued at more than \$100,000. Burlingame requires residential projects valued greater than \$50,000 to be the equivalent of 50 points or more. Both cities require commercial new construction and commercial additions larger than 10,000 square feet to obtain LEED Silver rating.

Summary of Local Cities:

- Many cities have adopted standards of LEED for municipal and commercial standards and Build It Green's GreenPoint Rated for residential standards.
- Numerous cities and counties have adopted standards for residential and commercial additions and alterations/remodels even though CALGreen covers only new buildings.
- Local approaches to standards typically require higher standards for larger buildings and more flexibility for smaller buildings.

Attached is a list of current sustainable building policies in other cities.

Cost Effectiveness for Buildings Exceeding Title 24 Energy Efficiency Requirements

A recent Energy Cost Effectiveness Study prepared by Gabel Associates, LLC on behalf of PG&E, found that regardless of the building design, occupancy profile and number of stories, the incremental improvement in overall annual energy performance of buildings which exceed the Title 24 Building Energy Efficiency Standards by 15% appears to be cost effective.

However, each building's design may allow for a large range of incremental first cost and payback time. If Menlo Park (Climate Zone 3) were to implement a plan that exceeds T24 energy standards by 15% (for example: CALGreen mandatory measures and voluntary Tier 1 or GreenPoint Rated for residential between 51-70 points), typical single-family residences of 2,025 square feet should expect an additional \$ 0.82 per square foot cost with an estimated payback time of approximately 15 years depending upon energy measures implemented.

Multi-family projects may see an additional \$1.20 per square foot cost with average estimated payback time of 17 to 22 years. A typical low-rise commercial project should expect an additional \$1.50 per square foot cost with estimated a payback time of

approximately 6.4 years. In summary, the study showed a simple payback of between 15 to 22 years for a 15% increase in energy efficiency.

Next Steps

City staff is exploring policy options for sustainable building measures above and beyond CALGreen, this includes:

- Adopting a Phase I strategy to increase efficiency standards for new buildings 15% above state energy code standards this summer.
- Evaluating a Phase II strategy that would include measures beyond energy efficiency and CALGreen minimum standards between July 2011 and June 2012. This would include evaluating:
 - Possible thresholds for compliance based on scope of development
 - Cost impacts to the community
 - Impacts to city resources and development review process
 - Analyzing GHG reductions and other environmental benefits of each option

Phase II would also include a community engagement plan to educate the community about sustainable building and also receive feedback about the proposed policy before it is reviewed by City Council.

January 2011: Local Bay Area Green Building Ordinance Status

City	Mandatory Point/ Certification Level and Thresholds	3rd Party/ City Staff Rating	Incentives above requirements	Notes
Belmont: Pop. 24,918 (2009)	<u>Existing Residential:</u> One BIG point for <400sf & <\$50,000. Three BIG pts for <400sf & <\$100,000. 25 pts BIG for <400sf & >\$100,000. <u>New Residential:</u> 70 pts BIG for new residential or > 400sf <u>New Commercial:</u> LEED Silver	City review for small alterations. Third Party for larger projects.	Guaranteed 10 day plan check, next day building inspection.	Becomes mandatory in May, 2011. Build It Green for residential. LEED Silver for new commercial.
Burlingame: Pop. 27,890 (2009)	<u>Residential:</u> >\$50,000= 15% over Title 24 Energy Standards Point systems optional. Commercial: 15% over T24 or LEED Silver	City Staff or Third Party		Allows alternate compliance method through third party rating systems. City wants a lot of flexibility.

City	Mandatory Point/ Certification Level and Thresholds	3 rd Party/ City Staff Rating	Incentives above requirements	Notes
County of San Mateo: Pop. 718,980 (2009)	<u>Residential:</u> New construction or 50% valuation remodel/addition = 50 pts BIG and/or LEED for Homes certification. <u>Commercial:</u> >3,000 sq ft LEED Certification (revisiting this)	Third party verification.	75 pts-30 day plan check. 100 pts-30 day plan check and 2 day turnaround on inspections.	
Redwood City: Pop. 74,508 (2009)	<u>Residential</u> New or Additions >1000 sq ft 50 pts (or future min. level) Build It Green. <u>Commercial New or additions:</u> > 1,000 sq ft must submit LEED check list prepared by a LEED AP.	City staff review & inspection for projects under 10,000 sq. ft. No third party unless applicant wants certification.	City staff review rather than inspection delays due to 3 rd party. (under 10,000 sq ft.)	Adopted 10/09 and in effect 5/2010.

City	Mandatory Point/ Certification Level and Thresholds	3 rd Party/ City Staff Rating	Incentives above requirements	Notes
<p>San Carlos:</p> <p>Pop. 27,424 (2009)</p>	<p><u>New Residential, and > 500 sq ft additions:</u> Mandatory Tier 1 CALGreen</p> <p><u>All New Commercial and additions >5,000 sq ft.:</u> Mandatory Tier 1 CALGreen and 15% over T24 Energy Efficiency Standards</p>	<p>City staff plan review and inspection. Allows alternate compliance method through Third party rating systems.</p>		
<p>San Mateo: (city)</p> <p>Pop. 92,791 (2009)</p>	<p><u>Residential Remodels/Additions</u> > \$100,000= 25 BIG Points</p> <p><u>Residential New</u> 75pts BIG Points</p> <p><u>New Commercial, and Remodels/Additions</u> >10,000 sq ft. LEED Silver</p>	<p>Third Party</p>		

City	Mandatory Point/ Certification Level and Thresholds	3 rd Party/ City Staff Rating	Incentives above requirements	Notes
<p>Palo Alto: (Santa Clara County)</p> <p>Pop. 60,171 (2009)</p>	<p><u>New Residential:</u> ≥ 1250 sq ft = 70 BIG points +1 point per additional 70 sf over 2550 (150 pt max).</p> <p><u>Residential Additions or remodels</u> ≥ 1250 Two Options – BIG 50 points or CA Energy Code T-24 Part 6 and HERS II.</p> <p><u>Commercial</u> – includes additions >500sf and <5000sf LEED +5 points</p> <p>New ≥ 5000 sf LEED Silver</p> <p>TI ≥ 5000sf LEED certified</p>	Third Party		Required to exceed T24 15%.

City	Mandatory Point/ Certification Level and Thresholds	3 rd Party/ City Staff Rating	Incentives above requirements	Notes
<p>San Rafael: (Marin County)</p> <p>Pop. 55,901 (2009)</p>	<p><u>Residential – BIG</u> 50 pts, up to 200 points depending on size.</p> <p><u>Remodel or Additions</u> No BIG if < \$50,000</p> <p><u>Commercial – LEED</u> Up to 4,999sf LEED Prerequisites</p> <p>5000-49,999sf LEED Silver</p> <p>50,000sf+ LEED Gold</p> <p><u>Commercial Renovations</u> >\$5mil or 25,000sf LEED Silver</p>	<p>Third Party verification</p> <p>City Inspector for residential remodels and additions.</p>		<p>CALGreen does not include remodels. Marin County permits are mainly for remodels.</p>