

County of Santa Clara

Department of Planning and Development



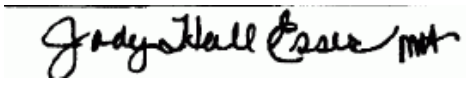
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DATE: August 20, 2009

TO: Supervisor Donald F. Gage, Chairperson
Supervisor Liz Kniss, Vice Chair
Housing, Land Use, Environment, & Transportation Committee (HLUET)

FROM: 
Jody Hall Esser
Director of Planning and Development

SUBJECT: Provide Direction to the Administration on Preferred Strategies to Guide Preparation of Green Building Ordinance for Multi-family Residential and Non-Residential Buildings - continued discussion from May 21, 2009

RECOMMENDED ACTION

Consider recommendations and provide direction to the Administration on preferred strategies to guide preparation of a Green Building Ordinance for Multi-family Residential and

Non-Residential Buildings.

Possible action:

- a. Accept the report.
- b. Provide direction to staff on preferred strategies to guide preparation of a Green Building Ordinance for Multi-family Residential and Non-Residential Buildings with respect to the following questions:
- c. Shall the Ordinance apply to new construction only, or also to rebuilt and remodeled structures?
- d. Shall the Ordinance include higher standards for larger structures?
- e. Shall the Ordinance exempt buildings under a certain size?
- f. Shall the Ordinance exempt certain classifications/uses of buildings?
- g. Shall the Ordinance provide for an “Alternative Means” option to meet green building objectives other than the standards of an existing formal green building program?
- h. Shall the Ordinance provide other features unique to our needs and preferences?

Staff recommendations are provided in the Reasons for Recommendation section for each of these questions.

FISCAL IMPLICATIONS

No fiscal impact would result from action on this report. However, should the Board subsequently adopt a Green Building Ordinance for Multi-family and Non-Residential Buildings, mandatory standards would likely result in some impact to the General Fund. Staff proposes to analyze potential costs once the program is better defined and, unless otherwise directed, will build full cost-recovery into program design and implementation including review and approval of building plans and construction inspection.

REASONS FOR RECOMMENDATION

At the June 3, 2008 Workshop on Energy Efficiency Standards for Single Family Residences and Other Buildings, the Board of Supervisors (Board) directed the Administration to prepare a Green Building Ordinance. The Ordinance, approved in December 2008, contains the following elements:

- 1) Build It Green (BIG) and US Green Building Council (USGBC) Green Building Systems' standards;
- 2) A six-month voluntary phase-in period;

- 3) A sliding scale that includes higher standards for larger homes;
- 4) Standards for single-family dwellings applied to new construction and remodels in excess of fifty-percent of the base dwelling; and
- 5) Incorporation of the State Green Building Code (Title 24, Part 11).

The County's Green Building Ordinance for Single-Family Residential Construction constitutes phase one of the County's Green Building Program. This report is phase two of the program and seeks Board direction regarding the parameters of a Green Building Ordinance for privately owned multi-family and non-residential buildings.

Staff has completed the research directed by the Board and is prepared to recommend the components of a Green Building Ordinance for Multifamily Residential and Non-Residential Buildings that are consistent with those of other jurisdictions and/or recommended by the Santa Clara County Cities Association Green Building Collaborative Recommendations.

- **Attachment 1** provides a comparison summary of the Green Building Programs and Ordinances adopted by neighboring counties and cities related to multi-family residential buildings.
- **Attachment 2** provides a comparison summary of the green building programs and Ordinances adopted by neighboring counties and cities related to non-residential buildings.
- **Attachment 3** summarizes the recommendations of the Silicon Valley Leadership Group for multi-family and non-residential green building programs.

An ordinance for multi-family and non-residential buildings would further the County, the Bay Area region, and the State's efforts to reduce greenhouse gas emissions and conserve natural resources. It would also increase energy efficiency, conserve water, reduce materials usage, and improve indoor air quality for building occupants. The Administration formed a task force that is separately refining standards and requirements for County-owned buildings and facilities. Staff are coordinating efforts to ensure parity and consistency between requirements proposed for public and private buildings and facilities.

POLICY CONSIDERATIONS AND STAFF RECOMMENDATIONS

A. Shall the Ordinance apply to new construction only, or also to “rebuilt and remodeled” structures?

At the June 3, 2008 Residential Energy Efficiency Workshop, the Board of Supervisors directed staff to apply new Green Building Standards for single-family dwellings to buildings that exceed a 50% remodel. The County Ordinance Code currently distinguishes “rebuild” from “remodel” buildings based on the extent of changes proposed in the existing building. This threshold is important for determining if a project qualifies for annexation into neighboring cities or if Planning permits may be required.

Staff is in the process of reviewing the County Ordinance Code regarding the Rebuild / Remodel definition and may recommend revisions to enhance clarity and ease of enforcement. Staff recommends this remodel/rebuild threshold also be used in the proposed Ordinance for multifamily and non-residential structures.

B. Shall the Ordinance include higher standards for larger buildings?

Consistent with the recommendations of the Santa Clara County Cities Association Green Building Collaborative and other jurisdictions' programs, staff recommends that higher standards apply to larger buildings. Our specific recommendations are included in the following chart.

Multifamily Projects		
Type of Project	Minimum Standard	Verification
New Buildings ¹ less than or equal to 5,000 square feet with each unit 1,200 square feet	Submit GreenPoint Rated (GPR) or LEED Checklist	Self Verify
New Buildings ¹ > 2 units and 10 units	GPR or LEED Certification Or Alternative Means approved by Building Official	LEED Accredited Professional Verification ² or GreenPoint Verification Or LEED Certification
New Buildings ¹ greater than or equal to 10 units	GPR (70 points) or LEED Certification or Alternative Means approved by Building Official	LEED Accredited Professional Verification ² or GreenPoint Verification Or LEED Certification

Non-Residential Projects		
Type of Project	Minimum Standard	Verification
New Buildings ¹ & Additions less than or equal to 5,000 square feet	Submit <i>LEED 2009 for New Construction and Major Renovation Project Scorecard</i>	Self Verify
New Buildings ¹ & Additions > 5,000 and < 25,000 square feet	LEED Certified Or Alternative Means approved by Building Official	LEED Accredited Professional Verification ² or LEED Certification
New Buildings ¹ & Additions greater than or equal to 25,000	LEED Silver Or Alternative Means approved by Building Official	LEED Certification

¹ Substantial alterations that result in a project being classified as a “rebuild” (as defined in County Ordinance Code Section C1-10.1) are subject to the same requirements as new buildings.

² LEED Accredited Professional who is a registered architect or engineer and has successfully completed at least one LEED Certified project.

C. Shall the Ordinance exempt buildings under a certain size?

Multifamily Buildings:

Staff recommends the proposed Ordinance exempt multi-family buildings that do not exceed 5,000 square feet in total size and where no individual unit exceeds 1,200 square feet in size, but that a green building checklist be required. (For reference, the existing Single-Family Residential Ordinance exempts dwellings at or below 1,200 square feet in size, and as described above, staff recommends the existing Ordinance be modified to apply this exemption to two-unit properties/duplexes where each unit is 1,200 square feet or less in size.)

Non-Residential Buildings:

Staff recommends the proposed Ordinance apply to all new construction of non-residential buildings 5,000 or more square feet in size. Staff also recommends that for projects less than 5,000 in size, a green building checklist be required.

The 5,000 square feet threshold is consistent with the recommendation of the Santa Clara County Cities Association Green Building Collaborative and the ordinances adopted by the cities of San Francisco, San Rafael, Sunnyvale, and Palo Alto. The City of Morgan Hill has also included this threshold in their draft Green Building Ordinance. Other jurisdictions apply lower or higher thresholds. (See Attachment 2). In addition, it is noted that new construction of non-residential buildings of 5,000 square feet or less will be required to meet California Energy Efficiency Standards (Title 24 Part 6) and California Green Building Standards (Title 24 Part 11); there are few non-residential buildings of 5,000 square feet or less constructed in the unincorporated county; and non-residential buildings larger than 5,000 square feet in size present greater opportunity/options for employing green building systems and standards.

D. Shall the Ordinance exempt certain classifications/uses of buildings?

Staff recommends that "Agricultural Buildings" and "Unenclosed Buildings" (or "Open Parking Garage" structures) be exempt from all Ordinance requirements because the limited mechanical, electrical, and plumbing in these structures; thus, the limited opportunities for GreenPoint savings. Any and all of such structures would still be required to meet State Green Building and Energy Efficiency standards.

For a listing/definition of all types of buildings as defined by use and occupancy in Title 24, Part 2 of the 2007 CA Building Code, see Attachment 6.

For the definition of "Agricultural Buildings" and "Unenclosed Structures" that staff recommends be exempted from the proposed Ordinance for multi-family and non-residential structures, see Attachment 7.

E. Shall the Ordinance provide for an "Alternative Means" option to meet green building objectives other than the standards of an existing formal green building program?

Staff recommends the proposed Ordinance provide a means other than GreenPoint Rated program or LEED for meeting the standards of an existing formal green building program. To pursue this option, applicants would be required to apply to the Building Official for approval of the alternative means prior to submitting a building permit. In this approach, an applicant would justify and document that the alternate process or system would achieve equivalent efficiencies or resource conservation, and the alternate approach would be independently verified in design and installation/operation. In providing for an "Alternative Means" option to other formal green building standards, it is our intention to allow for verifiable innovation

and “equal or better” approaches to the same goal. Certain institutions, most notably Stanford University, may be pursuing novel, innovative green building strategies that do not easily lend themselves to standardized rating systems.

F. Shall the Ordinance provide other features unique to our needs and preferences?

There is a finite amount of water that is available to the region, which is anticipated to decrease over time. Therefore, we need to consider the water demands of new buildings in such a way that the demand does not continue to increase while the supply decreases. There are many ways in which water conservation and efficiencies can be included in a building and landscape, but it is not possible to eliminate the demand for water completely. Staff has identified three measures we believe are uniquely appropriate to County goals and concerns about water availability and quality. Staff recommends further investigation of 1) A limited opportunity to purchase “Water Credits”; 2) The potential requirement to off-set water demand on a one-to-one basis; and 3) The potential requirement that certain buildings in urban areas be pre-plumbed for recycled water.

Staff proposes to further research these concepts and return with a final recommendation at the time the proposed Ordinance is presented for consideration.

“Water Credits”: Staff recommends exploring a provision that would allow a limited opportunity for developers of multifamily and non-residential buildings to purchase "water credits," with the revenue generated being made available for energy/green building retrofitting of public buildings and lower-income residential units.

Staff will also research the possibility of a similar limited opportunity for the purchase of “energy credits.”

Water Demand Offset: This water conservation measure would require a 1:1 offset for water use. This means that, after a building is as water-efficient as possible, the remaining water demand will need to be found in other buildings. Developers could do water efficiency projects in other buildings that they own so that the water savings equal the new demand. Or they could pay a “water credit” to the County for the amount of water that the building will use and the County would designate these funds for water efficiency projects within civic buildings, schools or lower-income residential units. In either case, the amount of water that the new building requires is offset in other places and the demand on the finite amount of water that is available remains the same in spite of new development.

Pre-Plumbing for Recycled Water: This water conservation measure would require pre-plumbing of multifamily and non-residential developments for recycled water in urban areas where recycled water is anticipated to be available within a specified period of time.

BACKGROUND

This report responds to a referral from the Board of Supervisors dated March 18, 2008 to develop green building standards for residential and other buildings and structures as well as to the actions of the Board on June 3, 2008 and August 26, 2008 establishing green building standards for single-family structures and deferring for separate consideration, green building standards for non-residential and multifamily residential buildings.

This report was originally presented to HLUET on May 21, 2009 and continued to August in order to respond to questions from Chair Gage (see Attachment 8).

GREEN BUILDING RATING SYSTEMS

In recent years, several green building rating programs have become commonly used in the planning, design, operation, construction, use and occupancy, maintenance, removal and demolition of buildings throughout the state. The most commonly used model programs are:

- 1) Leadership in Energy and Environmental Design (LEED) standards developed by the United States Green Building Council (USGBC) for non-residential buildings. The number of LEED certified buildings in California reached 1,879 at the end of 2008.
- 2) GreenPoint Rated program developed by Build It Green for single and multi-family residential buildings.
- 3) State Green Building Code and Energy Efficiency Standards: Title 24, Part 6 and Part 11.

Attachment 1 provides a comparison summary of the Green Building Programs and Ordinances adopted by neighboring counties and cities related to multi-family residential buildings.

Attachment 2 provides a comparison summary of the green building programs and Ordinances adopted by neighboring counties and cities related to non-residential buildings.

Attachment 3 summarizes the recommendations of the Silicon Valley Leadership Group for multifamily and non-residential green building programs.

LEED Program

LEED is a third-party certification program and a widely recognized standard for design, construction, and operation of high-performance green buildings. The program promotes a whole-building approach to sustainability by measuring performance in five key areas: sustainable site development, water savings, energy efficiency, material selection, and indoor environmental quality. A checklist and point system is used to design and certify a completed building. The newest version, LEED v3, went into operation on April 27, 2009.

LEED's checklist and point system are used to establish the degree to which a building is sustainably designed, constructed, and operated. There are four levels at which a building could be LEED certified. From high to low, they are: Platinum, Gold, Silver and Certified. The certification process begins with a project being registered with USGBC, and then plans and specifications are submitted for review, construction is monitored, and performance testing is done on the completed building. Attachment 4 includes a list of rating categories, maximum points assigned, and minimum number of points to be certified at one of the four levels.

LEED's "Green Building Design and Construction Guide (2009)" is the basis for new non-residential projects. Topics include: new construction, core and shell, schools, healthcare, and retail. Likewise, the "Green Interior Design and Construction Guide (2009)" (GIDCG) addresses interior alterations for commercial and retail projects. For existing non-residential and school buildings, the "Green Building Operations and Maintenance Guide (2009)" is used for ongoing improvements.

For the reasons above, LEED is the preferred guideline for non-residential buildings.

LEED for Homes is a voluntary rating system that promotes the design and construction of high-performance green homes, including affordable housing, mass-production homes, custom designs, stand-alone single-family homes, duplexes and townhouses, suburban and urban apartments, and condominiums and lofts in historic buildings. LEED for Homes is targeting the top 25% of the single-family residential market. The same checklist is used for single-family and multifamily homes. However, for low-rise multifamily buildings, the required number of points for a Certified or Silver rating is multiplied by a series of factors that take into account the floor area of each unit, the number of bedrooms in each unit, the number of units per building, the number of buildings, etc.

For more information see Attachment 4.

GreenPoint Rated Program

Build it Green (BIG) is a professional non-profit membership organization whose mission is to promote healthy, durable, energy- and resource-efficient buildings in California. It connects consumers and building professionals with the tools and technical expertise they need to build quality green homes. BIG fosters collaboration with key stakeholder groups to accelerate the adoption of green building standards, policies, and programs.

The BIG 2008-2011 *Edition Multi-family Green Building Guidelines* and corresponding Multi-family GreenPoint Rated Checklist consists of 66 recommended measures grouped into six sections: Planning and Design, Site, Structure, Systems, Finishes and Furnishings, and Operations and Maintenance. The main principles of BIG are to plan livable communities, use energy wisely, improve indoor environmental quality and health, conserve natural resources, and conserve water.

BIG continually updates its standards in order to exceed those established in Title 24 of the CA State Building Codes.

Build it Green thoroughly revised and updated its 2004 Multi-family Guidelines in 2008. All measurements reflect the current state of the green building and development industries. Every recommendation in the current 2008 Guidelines has carefully weighed the measure's cost against its benefits to justify its inclusion. While not all measures will be applicable to all projects, the measures included are relevant and reasonable for multifamily developments built and renovated today. For these reasons, Build it Green is the preferred guideline for multifamily green buildings.

For more information see Attachment 5.

State Building Code Standards

Energy Efficiency Standards (Title 24, Part 6): The 2008 State of California's Energy Commission building code standards will become effective August 1, 2009. The code contains mandatory regulations that apply to both residential and non-residential buildings statewide. These standards will be upgraded over time to reduce general electricity usage and peak demand, and to reduce greenhouse gas emissions. Some jurisdictions have green building standards that exceed those in this State Code.

Green Building Standards (Title 24, Part 11): Effective August 1, 2009, the 2008 California Green Building Standards Code (CGBSC) will become operational. The state code will apply to every building or structure connected or attached to such a building or structure throughout the State of California. Its regulations are voluntary now, but are expected to become mandatory with the adoption of the 2010 State Building Standards Codes (effective date is expected to be on or about January 1, 2011). It is the intent of the CGBSC to set minimum green building standards and allow local governments to retain the discretion to exceed those standards. The 2008 Code contains both voluntary and mandatory green building measures that apply primarily to residential, but also to non-residential buildings statewide. Alternate materials, appliances, installations, devices, etc. may be considered equivalent to those specified in the code when approved by the Building Official.

Alternative Means

While the LEED and GreenPoint Rated (GPR) programs both provide opportunities for innovation, it is recognized that alternative technologies or means of evaluating green buildings may exist that are not encompassed within the LEED and GPR programs. These alternative technologies or evaluation methods may also be used to demonstrate that a building accomplishes green building objectives of minimizing energy and water usage, reducing the use of natural resources, and improving indoor air quality.

The 2008 California Green Building Standards Code (Title 24, Part 11) sets minimum standards. Local governments may decide to exceed Building, Housing and Fire Protection directions contained in various sections of the State Health and Safety Code by adopting local amendments and additions. The Green Building Standards Code also allows alternate materials, designs, and methods of construction that can be shown to be equivalent or better compliant to its regulations. The process for doing so is found in the administrative chapter of the various base codes.

Throughout California, many local governments using LEED to adopt green building standards also provide for an "Alternate Means" to LEED. In this approach, an applicant would justify and document that the alternate process or system would provide equivalent standards, and the alternate standard would be independently verified in design and installation/operation. In providing for an "Alternative Means" option to other formal green building standards, it is to allow for verifiable innovation and "equal or better" approaches to the same goal.

The County of Santa Clara adopted a Green Building Ordinance for new single-family buildings that became effective on January 15, 2009. The adopted Ordinance provided for a voluntary phase-in period: During this period, only a green building checklist is required to be submitted with every permit application for construction of a new single-family dwelling in excess of 1,200 square feet in size. Since January 15, 2009, the Development Services Office has received 66 applications for building permits: no permits have been issued for these applications as of this date. Prior to issuance, completed checklists will be required to be submitted for these single-family residential structures.

The regulations imposing mandatory green building requirements for new single-family dwellings greater than 1,200 square-feet in size (including rebuilds) is scheduled to become effective on July 1, 2009. Staff has recently learned that a new BIG checklist will be adopted in July. Shortly, staff will ask the Board to delay the date the mandatory requirement kicks-in to August 1, 2009 and will also ask the Board to extend these regulations to one and two family dwellings.

COST OF GREEN BUILDING - RESEARCH SUMMARY

Recently published research on the cost premium for green construction ranges from one percent (1%) to six percent (6%). In summary, the following results were found depending on how cost was analyzed.

- One approach is to compare the cost of a green project to the original project budget or the original anticipated project cost. Studies using this approach mostly report green premiums of one percent (1%) to two percent (2%) to achieve a level of sustainable design generally equivalent to LEED Silver. Closer analysis of the data also showed that as many as half of the green buildings studied reported no increase in cost over budget.
- Another approach is to analyze the cost of individual added green features. Using this approach, the studies report somewhat higher green premiums of two percent (2%) to six percent (6%).

The US Green Building Council (USGBC) and Build It Green have not conducted research on construction costs for green building - they refer to independent researchers to publish analysis of that topic. However, they do discuss the cost of certification.

- Build It Green GreenPoint Rated certification costs \$500 for a single family home, plus \$700-\$1,500 in GreenPoint Rater fees. For a multi-family building of 30 units, Rater fees are estimated at \$3,750-\$6,000 plus an additional \$50 certification fee for each unit.

- US Green Building Council For USGBC members LEED certification costs \$0.025/sq. ft. (i.e. \$1,250 for a 50,000 square foot building). In addition, fees for LEED Accredited Professionals range depending on the schedule, the level of certification sought, the difficulty in documenting the points, and other factors. Anecdotally, a good rule of thumb is between 0.5% to 1% of construction costs, and the smaller the project, the larger the percentage (according to a June 2006 post by Eric Freed on greenerbuildings.com).

Academic Buildings

The cost premium for construction of green academic buildings is of particular interest because the largest percentage of non-residential construction in the unincorporated county is on the Stanford University campus. Davis Langdon's research titled *Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption* (July 2007), compared the cost premium for 60 academic buildings - 17 LEED-seeking and 43 non-LEED. This analysis revealed that while the cost per square foot for LEED academic buildings varies, overall, there is no significant difference in costs. It is worth noting that the Silver buildings do tend to cost more than average. The sample size of Gold buildings in this study was too small to draw meaningful conclusions.

Green Building Benefits and Life-Cycle Costs

It is generally accepted that the additional up-front constructions costs are recovered through reduced costs for operation and maintenance of green buildings and through higher lease rates. It is important to consider the benefits as well as the costs associated with green building. Benefits for building owners generally include:

- Potential higher occupancy rates
- Higher future capital value
- Reduced risk of obsolescence
- Less need for refurbishment in the future
- Ability to command higher lease rates
- Higher demand from institutional
- Investors
- Lower operating costs
- Mandatory for government tenants
- Lower tenant turnover
- Costs less to maintain and operate (Source: Davis Langdon, *The Cost and Benefit of Achieving Green Building* (2007), 2.
<https://www.usgbc.org/ShowFile.aspx?DocumentID=2583>)

CONSEQUENCES OF NEGATIVE ACTION

If this report is not accepted or if no direction is provided regarding preferred options for addressing energy efficiency standards for non-residential buildings, staff would not have benefit of Board guidance in preparing a new Green Building Ordinance for Non-Residential Buildings and Other Structures.

STEPS FOLLOWING APPROVAL

A draft Ordinance will be prepared and a summary of the main components will made available for public comment in August and September 2009; the draft Ordinance will then be presented to the Housing, Land Use, Environment, and Transportation Committee of the Board of Supervisors in October 2009 and to the Board of Supervisors for consideration in November 2009.

ATTACHMENTS

- 1) Comparison of Multifamily Residential Green Building Programs
- 2) Comparison of Non-Residential Green Building Programs
- 3) SCC Cities Association Green Building Collaborative Recommendations
- 4) LEED Point Summary
- 5) GreenPoint Rated Point Summary
- 6) Use and Occupancy Classifications (Title 24, Part 3)
- 7) Proposed Exempt Structures
- 8) Responses to Supervisor Gage's Questions from May 21, 2009 HLUET meeting