CITY OF
HAYWARD
HEART OF THE BAY

Council Sustainability Committee

July 11, 2012

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CITY OF HAYWARD
HEART OF THE BAY

CITY COUNCIL SUSTAINABILITY COMMITTEE MEETING
JULY 11, 2012
CONFERENCE ROOM 2A
4:30 – 6:30 PM

CALL TO ORDER

ROLL CALL

PUBLIC COMMENTS: *(The Public Comment section provides an opportunity to address the City Council Committee on items not listed on the agenda. The Committee welcomes your comments and requests that speakers present their remarks in a respectful manner, within established time limits, and focus on issues which directly affect the City or are within the jurisdiction of the City. As the Committee is prohibited by State law from discussing items not listed on the agenda, your item will be taken under consideration and may be referred to staff.)*

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1. Approval of Minutes of April 4, 2012

   Minutes

2. Update on Stopwaste.org's Building Asset Rating Pilot Study

   Staff Report
   Attachment I Summary of Selected Building Rating Systems

3. Update on the California Building Standards Code and Recommendations for the City's Green Building Ordinance

   Staff Report
   Att I CalGreenTiers and GPR
   Att II Mid Rise GPR & LEED comparison

4. CSC Meeting Topics for 2012

   Meeting Topics 2012

COMMITTEE MEMBER/STAFF ANNOUNCEMENTS AND REFERRALS

ADJOURNMENT

NEXT REGULAR MEETING – 4:30 PM, WEDNESDAY, OCTOBER 3, 2012

****Materials related to an item on the agenda submitted to the Council after distribution of the agenda packet are available for public inspection in the City Clerk's Office, City Hall, 777 B Street, 4th Floor, Hayward, during normal business hours. An online version of this agenda and staff reports are available on the City's website.****

Assistance will be provided to those requiring accommodations for disabilities in compliance with the Americans Disabilities Act of 1990. Interested persons must request the accommodation at least 48 hours in advance of the meeting by contacting the Assistant City Manager at (510) 583-4300 or TDD (510) 247-3340.

CITY COUNCIL SUSTAINABILITY COMMITTEE MEETING
Hayward City Hall – Conference Room 2A
777 B Street, Hayward, CA 94541-5007

April 4, 2012
4:30 p.m.

MEETING MINUTES

CALL TO ORDER: Meeting called to order at 4:34 p.m. by Mayor Sweeney.

ROLL CALL:

Members:
- Michael Sweeney, Mayor
- Olden Henson, Council Member (Absent)
- Bill Quirk, Council Member
- Sara Lamnin, Planning Commissioner
- Al Mendall, Planning Commissioner
- Dianne McDermott, Planning Commissioner
- Laura Oliva, Keep Hayward Clean and Green Task Force

Staff:
- Kelly Morariu, Assistant City Manager
- Alex Ameri, Director of Public Works/Public Utilities & Environmental Services
- David Rizk, Development Services Director
- Erik Pearson, Senior Planner
- Marc McDonald, Sustainability Coordinator
- Glen Martinez, Building Official
- Steve Osborne, Senior Plan Checker
- Vic Avila, Facilities and Building Manager
- Allen Koscinski, Electrician II
- Mary Thomas, City Management Fellow
- Katy Ramirez, Administrative Secretary (Recorder)

Others:
- David Stark, Public Affairs Director, Bay East Association of REALTORS®
- Tim Bankroff, Consultant, Quantum Energy Services and Technologies
- Derek Allbee, General Manager, Berkeley Farms
- David Smydra, Engineering & Maintenance Manager, Berkeley Farms
- Lisette Gozo, Manager, PG&E
- Tom Guarino, Government Relations Representative, PG&E
- Judy Macaluso, Account Manager, PG&E
- Justin Kjeldsen, Senior Program Manager, PG&E
- Eric Braddock, Technical Lead, Ecovia

- Kevin O'Brien, Technical Lead, Ecovia
- Mike Mendoza, President/CEO, Capital Air Systems
- Michael Ludwick, Senior Auditor, Capital Air Systems
- Greg Straughan, Branch Manager, Capital Air Systems

PUBLIC COMMENTS:

David Stark, Public Affairs Director, Bay East Association of REALTORS®, said that Bay East Association of Realtors is working in conjunction with Stopwaste.org and Build it Green on "Greening" the Multiple Listing Systems (MLS), which is the residential realty industry's database of properties for sale. Greening the MLS will help realtors identify "green" properties for customers. It will also help the realty industry track and analyze the effect that "green"labels have on home sales. Mr. Stark said there has been a lot of speculation as to whether upgrades add to the value of homes and if we make these mandatory fields to be included in every MLS listing, then we can do some correlation analysis to determine if it's actually true.

Mr. Stark said he also reviewed the report on the Annual Update on Climate Action Plan (CAP) and was kind of disappointed to read that the funding for the Sustainability Coordinator may be ending this year. Mr. Stark said that he spoke to the Committee in September 2010 about alternative implementation measures for the CAP and one of those measures was to work with the City to develop a DVD containing information about energy efficiency. He said by combining the City's knowledge on the various neighborhoods in Hayward and the various building types in each of those neighborhoods, Bay East Association would create a DVD providing specific information for property owners in those specific neighborhoods on what they can do to make their home energy efficient. Mr. Stark said that since 2010 Bay East Association of Realtors has developed a professional-level video production capacity and would provide this product to the City of Hayward at no cost.

1. Approval of Minutes of January 4, 2012 - minutes approved.

2. Congratulate Berkeley Farms for Improved Energy Use (Presentation)

   Mayor Sweeney said one of the ways the City is helping residents and businesses reduce greenhouse gas emissions is by helping them reduce their utility bill. He said that Berkeley Farms has been bringing superior dairy products to the Bay Area for 102 years and in 1998 they established their 220,000-square-foot milk processing plant in Hayward. Mayor Sweeney said that we are congratulating Berkeley Farms today for their commitment to do its part to reduce greenhouse gas emissions. Mayor Sweeney noted that Berkeley Farms' decision to use $45,000 in energy efficiency rebates from the City and rebates from PGE to upgrade its Hayward plant resulted in its energy bill being reduced by $60,000. In addition, they reduced energy usage by over 600,000 kilowatt hours per year. Those upgrades helped clean up the environment by reducing the plants carbon footprints by over 150 metric tons each year.

Mayor Sweeney presented a plaque to Berkeley Farms and extended his congratulations on behalf of the City of Hayward and thanked Berkeley Farms and PGE.

Mr. Derek Albee, General Manager of the Berkeley Farms Hayward plant, thanked the City of Hayward and PG&E and indicated that Berkeley Farms has a long-term commitment to the City of Hayward and they are very appreciative of what the City and PG&E have done for Berkeley Farms to reach their goals. Mr. Albee said that Berkeley Farms is looking forward to many more years of continued service in Hayward.

There was picture-taking with Mayor Sweeney and Berkeley Farms and PG&E representatives.

3 Status of Benchmarking Municipal Buildings

David Rizk, Development Services Director, said that that Marc McDonald, Sustainability Coordinator, will give a brief overview of what has been going on in terms of benchmarking and municipal buildings, and that Facilities staff, Vic Avila and Allen Koscinski, were invited to attend the meeting today to answer any specific questions the Committee may have.

Mr. McDonald said that one of the things staff has been working on is to make sure our municipal buildings are energy efficient and that staff was exploring ways for buildings in Hayward to get recognized for being among the most energy efficient in the nation by getting the US Environmental Protection Agency's designation as Energy Star buildings. Mr. McDonald introduced Tim Bankroff, an Energy Star consultant.

Tim Bankroff, Consultant, Quantum Energy Services and Technologies, provided a PowerPoint presentation and explained that the purpose of the presentation was to introduce a method of helping municipal facilities managers decide whether their buildings needed energy efficiency improvements and energy savings over time.

Mr. Bankroff noted that he has worked with the City's Facilities Division to enter each of the City's municipal buildings into the US EPA Portfolio Manager Tool. He noted that the Portfolio Manager Tool automatically records and updates energy consumption by each building. This information can be used to determine whether each building is performing as expected or whether energy consumption is trending in an unexpected direction. He noted that the City Hall building is performing well. Facilities staff noted that additional improvements in City Hall's energy performance are anticipated when a planned lighting retrofit project is completed in the summer of 2012. There were questions from the Committee about the energy use at the Police Department/Jail and other facilities to understand what might be done to improve the energy efficiency of those facilities. The Facilities Division staff said that upgrades to the air-handling systems at the Police Department will improve the performance of those buildings.

Mr. Bankroff recommended that the City's Facilities Division staff be trained in the use and interpretation of data available in the US EPA Portfolio Manager Tool and they should use it routinely. He pointed out that the Tool can be used to monitor energy and emissions trends for individual buildings in the City's portfolio of buildings, and such information could be used to determine whether a building is using energy more efficiently or less efficiently compared to its performance in the past as well as the performance of similar buildings.

The second recommendation Mr. Bankroff offered was to use the results of benchmarking as a way to educate and build awareness among building occupants. If staff is made aware that their actions can reduce or increase energy use and energy-related costs, it is more likely they will take action to reduce consumption. The third recommendation from Mr. Bankroff was for the City to take an active role in promoting the use of Portfolio Manager among large commercial property owners and to work with the Chamber of Commerce to put on a free training workshop on this tool.

Mayor Sweeney asked if there were any objections to the staff recommendations as far as using the Portfolio Manager, training folks, and approaching large building owners in the community; the Committee responded no. Mayor Sweeney thanked staff for a job well done.

Mayor Sweeney said that Planning Commissioner Mendall will need to leave the meeting early and since item 4 on the agenda will probably be a lengthy discussion, he asked if the preference is to hold item 4 over to the next meeting or to reverse items 4 and 5 on the agenda. Mr. Rizk suggested that items 4 and 5 be reversed on the agenda. There being no objections from the Committee, Mayor Sweeney asked that item 5 be heard.

5. Incorporation of a Renewable Energy Requirement for New Residential Subdivision Development into Hayward's Green Building Ordinance

Mr. Rizk introduced Mary Thomas, City Management Fellow and graduate of Mills College, and said that Mary has been with the City for several months working on various projects, including some of the Climate Action items, and that she will give an overview of the staff report and recommendations. Mr. Rizk said that he also invited Building staff, Glen Martinez and Steve Osborne, and said that Steve will provide an update to the Committee on CALGreen and Hayward's Green Building Ordinance.

Ms. Thomas provided a PowerPoint presentation and overview of the staff report, which summarized three possible amendments to the Green Building Ordinance. The possible amendments were, 1) require all new subdivisions encompassing twenty units or more to build five percent of units to be grid neutral, as defined by CALGreen, 2) allow new commercial construction to use renewable generation to meet the City's Green Building Ordinance requirement, and 3) be an early adopter of the 2013 "Solar Ready" provision of Title 24. The report also outlined four other possible activities to promote renewable energy, such as revising the solar access section of Hayward's Design Guidelines,

developing guidelines for small wind energy systems, and incorporating awards for outstanding renewable energy projects into Hayward's Annual Environmental Achievement Awards.

Ms. Thomas and Mr. Osborne concluded the presentation with a suggestion that the Committee consider recent and upcoming changes to the State's Building Code, such as the addition of CALGreen, before amending or adding to the City's existing ordinance. Mr. Osborne provided a brief overview of CALGreen's different components, including the Tier systems.

Mayor Sweeney said that it appears that the consensus of the Committee is to move forward with the recommended next steps, except to develop guidelines for small wind systems, with all the steps being sharpened a bit. Mayor Sweeney asked staff to bring back a grid or spreadsheet at the next meeting that will allow a comparison between Hayward's current Ordinance and CALGreen, so the Committee members can see where the gaps need to be filled and determine areas where more can be done. Mayor Sweeney said that the wind energy systems is a lot of work without much benefit and is not a good use of staff time; otherwise, he suggested that staff move forward with their recommendations and bring back a grid/table and a report on CALGreen so the Committee can provide better feedback.

4. Annual Update on Climate Action Plan Implementation and GHG Emissions Inventory Update

Mr. Rizk said that staff typically provides updates on the Climate Action Plan and greenhouse gas emissions inventory on an annual basis. Mr. Rizk said that staff will likely move to a less frequent basis on at least the emissions inventory update for a variety of reasons, such as the tremendous costs and time involved and also given the limited variations that occur in one year.

Mr. Rizk introduced Marc McDonald, Sustainability Coordinator, and said that Mr. McDonald will be provide an overview on where the City was with implementing the various actions in the Climate Action Plan, particularly the near-term actions and where we are with our municipal and community-wide greenhouse gas emissions.

Mr. McDonald provided an overview of the staff report and PowerPoint presentation and outlined the suggested recommendations for moving forward, including working with the business community in reducing transportation related energy consumption through van-pooling, taking advantage of incentives from PG&E and complying with the requirements of the State of California Green Building Code

There was discussion and follow-up questions from the Committee, such as if larger organizations (e.g. Pepsi, Gillig) would consider a van pool and is there any way to contract with our Paratransit Program.

Mayor Sweeney said he would like to provide two small suggestions: one is getting groups of kids to walk, jog, or ride their bikes to school. He said that we know young people are overweight and we have seen a big spike in juvenile diabetics so there is a win-win if we could get our community and school district to get children to walk instead of being driven to school. Mayor Sweeney said the second thing is the whole fiscalization of land use. He said that it's the tendency at the State level to want to do everything and put local governments out of business and maybe we need to engage the debate in a way that says, "you know, maybe the State needs to do less and let local governments have a lot more authority and flexibility."

5. CSC Meeting Topics for 2012

There were no changes to the meeting topics calendar.

COMMITTEE MEMBER/STAFF ANNOUNCEMENTS AND REFERRALS:

Council Member Quirk announced that this is his last Sustainability Committee meeting and said that he thinks staff has really grown in their understanding of this whole issue. He said when we first started we were sort of walking around in the dark and now he feels the group really has a grasps at the issues and is making progress. Council Member Quirk said that if he gets to the State, he will know better on what needs to be done at that level to enable these things to be done in Hayward.

Mr. Rizk thanked Council Member Quirk and said that he appreciates his input in getting the policy document (CAP) implemented; it was a real achievement and keeps the City focused on constant direction; and also thanked him for his efforts on sea level rise and analysis on what can be done to address those inevitable impacts.

ADJOURNMENT:

Meeting adjourned at 6:36 p.m.

CITY OF HAYWARD
HEART OF THE BAY

DATE: July 11, 2012

TO: City Council Sustainability Committee

FROM: Development Services Director

SUBJECT: Update on Stopwaste.org's Building Asset Rating Pilot Study

RECOMMENDATION

That the Committee reviews this informational update on the City's participation in the Building Asset Rating Pilot Study.

SUMMARY

Many of the top action items in the City's adopted Climate Action Plan (CAP) relate to Strategy 3 of the CAP: *Improve Energy Performance of Existing Buildings*. One way to encourage owners to improve building energy performance is to introduce building owners to Building Asset Rating programs that compare their building's performance against similar buildings. Owners whose buildings perform poorly will be motivated to improve their performance to reduce operating costs and enhance their competitiveness.

StopWaste.org has received a $450,000 grant from PG&E to develop a county-wide Building Asset Rating Pilot Study (Study). On January 4, 2012, the Sustainability Committee directed staff to participate in the Study and on May 31, 2012, City staff met with StopWaste.org to discuss City participation in the Study. The Study will serve three purposes: 1) It will set the stage for a County-wide program that demonstrates the value of Building Asset Rating to owners of commercial and residential properties; 2) the Building Asset Rating database accessible to municipal participants can provide cities with data showing building by building progress toward meeting energy and greenhouse gas (GHG) emission reductions; and 3) the database will provide cities with information to decide whether a Commercial Energy Conservation Ordinance (CECO) is needed to encourage building owners to reduce energy consumption, and if so, to identify the measures that should be included in a CECO. No direct costs will be incurred by the City for participation in the Study.

BACKGROUND

The City of Hayward adopted a Climate Action Plan (CAP) in 2009 that establishes greenhouse gas reduction goals for the City. The CAP also prescribes specific actions to address greenhouse gas (GHG) emissions attributed to the City's commercial and residential building stock.

Emissions attributable to the local building stock comprise a significant portion of the community's total. According to the 2010 GHG Inventory Update, local commercial buildings were responsible for approximately 18% (210,542 metric tonnes) of the City's total GHG emissions while residential buildings were responsible for approximately 14% (167,461 metric tonnes) of the City's total GHG emissions[1].

Strategy 3 of the City's CAP establishes long-term goals for energy use in existing buildings. By 2050, the reduction target/goal is to reduce electricity consumption to 65% below business-as-usual (BAU) projections, and reduce natural gas consumption to 50% below BAU projections. These reductions in energy use will provide between 5.6% and 19.2% of the GHG reductions necessary to meet 2020 (189,000 MT CO2e) and 2050 (1,084,000 MT CO2e) reduction goals, respectively.

Action 3.1 of the City's CAP recommends that the City develop and continuously update a Residential Energy Conservation Ordinance (RECO) to require improved energy efficiency and energy conservation in residential buildings. The CAP estimates that implementation of a RECO would reduce emissions 639 MT CO2e below BAU projections by 2020 and 39,304 MT below Business as Usual (BAU) projections by 2050. On May 31, 2011, upon recommendation from staff, the City Council decided to not move ahead with development of a RECO at that time, but to focus on efforts to achieve voluntary energy conservation.

Action 3.3 of the City's CAP recommends that the City develop and continuously update a Commercial Energy Conservation Ordinance (CECO) to require improved energy efficiency and energy conservation in commercial buildings. The CAP estimates that implementation of a CECO would reduce emissions 5,164 MT CO2e below BAU projections by 2020 and 105,152 MT below BAU projections by 2050.

At the Sustainability Committee meeting of January 4, 2012, the Sustainability Committee accepted the staff recommendation to defer development and implementation of an ordinance to require commercial building owners to benchmark their buildings to allow the City to participate in a county-wide Building Asset Rating Pilot Study. The City's interest in participating in this program is to collect data to determine if a CECO is needed to improve local building performance and, if so, to use the data collected to identify measures for inclusion in a CECO.

The following sections of this report provide a brief description of various building asset rating systems and their benefits to building owners and the market.

Building Asset Rating Systems – There are a substantial number of building asset rating systems and more are in development. A summary of selected building labels and their associated asset rating systems is provided as Attachment I. A more detailed version is available online[2]. Generally, these systems rate building performance measured by resource consumption or energy consumption. Examples of widely known building asset rating systems are the Leadership in Energy and

[1] Climate Action Plan Update, April 4, 2012: http://www.hayward-ca.gov/CITY-GOVERNMENT/COUCIL-STANDING-COMMITTEES/COUNCIL-SUSTAINABILITY-COMMITTEE/2012/CSC-CCSC040412.pdf

[2] Clean Energy Policy Brief. The Value of Energy Performance and Green Attributes in Buildings: A Review of Existing Literature and Recommendations for Future Research. Lawrence Berkeley National Laboratories. http://eetd.lbl.gov/ea/emp/reports/ee-policybrief_090711.pdf

Environmental Design (LEED) system, the Green Point Rated system, the US Environmental Protection Agency's (EPA) Portfolio Manager Benchmarking Tool (Benchmarking), and the State of California's Home Energy Rating System (HERS).

LEED was introduced in 1998 to serve as the benchmark for the design, construction, and operation of high-performance green buildings. While initially focused on the commercial building sector, LEED has recently entered the residential sector with a LEED for homes rating system. Build it Green was established in 2003 with the mission of promoting energy and resource efficiency in California homes. Generally, LEED and Build it Green ratings are based on implementation of specific measures in the construction and operation of the building. Implementation of the specified measures is intended to reduce consumption of resources associated with location, energy use, water use and materials used, and to improve indoor air quality. Reduced energy consumption is a major component of both of these "green" building asset rating programs.

The U.S. EPA developed Benchmarking to encourage adoption of continuous improvement practices in energy efficiency in non-residential buildings. The energy performance of buildings in the Benchmarking program is measured against the performance of similar buildings. Buildings with high scores are rated as more energy efficient than buildings with lower scores. Buildings with scores of 75 and greater are rated as high performance buildings and are eligible for an Energy Star designation. The EPA also labels homes as Energy Star if they are certified by a third party assessor as more energy efficient than standard homes. The EPA is considering adding residential buildings to the national registry of Energy Star buildings. Inclusion of homes in the Energy Star registry could potentially enable homebuyers to look up the energy efficiency rating of a home that they are considering for purchase.

The State of California's Home Energy Rating System (HERS) provides homeowners an energy score based on the modeled energy efficiency of the home. Homes are rated by a third party assessor on a scale of 0 to 250 with lower scores indicating greater energy efficiency. Homes with score of 0 are considered net zero or the most energy efficient homes, while homes with a score of 250 are considered poor energy performers.

Impacts of Ratings Systems – The positive impact of green ratings on the market value and rental rates of office buildings is documented. A 2008 study compared average rents per square foot for green labeled office buildings against a control group of standard buildings. Both LEED and Energy Star buildings commanded higher rental rates and higher valuations than the control group. A 2009 study found a similar pattern with sales prices of LEED and Energy Star buildings being roughly 16 percent higher when compared to a control group[3]. In March of 2011, the Federal Reserve Bank of Atlanta and Tulane University hosted the Strengthening the Green Foundation Conference. A paper [4] delivered at the conference compared commercial building rents and values of LEED and Energy Star buildings against non-rated buildings between 2007 and 2009. The paper concluded that despite poor market conditions during this period, green designated buildings, in particular Energy Star buildings, showed higher occupancy and rental rates than non-

[3] Effect of LEED Ratings and Levels on Office Property Assessed and Market Values, Sofia V. Dermisi, Journal of Sustainable Real Estate. http://www.costar.com/josre/JournalPdfs/02-LEED-Ratings-Levels.pdf .

[4] The Economics of Green Building. http://www.frbatlanta.org/documents/news/conferences/11green_paper_kok.pdf

rated buildings. The authors indicate that the higher rental premiums may be attributable to the comparatively lower energy costs passed-through to tenants in 'green buildings.'

Information regarding the impact of rating systems on the value of residential properties is limited and generally speculative. The impact of green rating on residential building operating costs is highly variable. Significant influencing factors are climate and occupant behaviors. Additionally, the impact of green rating on residential property values is unclear. Current turmoil in the residential market is leading lenders and their appraisers to be conservative in their assessments of home values. As a result, they are basing home appraisals primarily on comparable sales, including distressed sales. Little if any additional value is being attributed to green ratings, including homes that include features that reduced energy costs[5]. As the market stabilizes, green rated residential properties may begin to sell for a premium above standard homes. A survey by the National Association of Home Builders reports that 70 percent of first time homebuyers have expressed a willingness to pay $5,000 more for a green rated home[6].

DISCUSSION

At the March 31, 2012, meeting of StopWaste.org's Program and Administration Committee, StopWaste.org staff described the objectives of the Building Asset Rating Pilot Study as follows:

- Work closely with local jurisdictions to ensure regional consistency of building asset rating policies and programs;
- Develop a web-based tracking system for commercial buildings that leverages the US EPA's Energy Star ® Portfolio Manager;
- Create education and outreach materials for property owners and industry associations;
- Create a public website to showcase buildings that have voluntarily pursued third—party labels such as Energy Star, Green Point Rated and LEED; and
- Assist municipalities in quantifying their progress in achieving GHG reductions through local programs."[7]

StopWaste.org has hired one person to manage the program. The program design is underway and is scheduled to be completed by December of 2013.

While the Study will benefit all of Alameda County, the cities of Hayward and Berkeley are working with StopWaste.org to help design the program. On May 31, 2012, StopWaste.org held its first organizational meeting to get input from cities interested in working with StopWaste.org during the early stages of the Study. Staff from StopWaste.org, the City of Berkeley, and the City of Hayward were present at the meeting. Three topics were covered: Program Design, Database Design and Outreach.

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[5] Green homes face a red light. http://money.cnn.com/2010/03/10/real_estate/green_homes_redlight/

[6] Young Home Buyers Will Lead Housing Market Recovery, Says NAHB, http://www.nahb.org/news_details.aspx?sectionID=148&newsID=12323

[7] StopWaste.org Staff Report to the Program and Administration Committee regarding the PG&E Innovator Pilot Grant Acceptance, March 1, 2012. http://www.stopwaste.org/docs/03-08-12-pa-pge.pdf

Program Design - The program goal is development of a database of residential and commercial buildings in Alameda County that have been rated by the various whole building rating systems. Participating governmental agencies will have access to the database of information, which can include building performance measured by consumption of utility services.

The Program Design should be appropriate to the needs of the City of Hayward. Given the costs and limited capacity of City staff to develop and administer an energy use disclosure ordinance, City participation in the Study can serve as the data collection phase if in the future the City must develop ordinances to require building energy efficiency improvements to meet the City's community-wide GHG reduction goals.

Database Design - Program participants will design the database to include fields that address local policy objectives. Data from the fields would be delivered to the participating cities for analysis and action.

The City of Hayward should consider participating in the Study to support collection of data that can be used to:

1. Encourage and measure the community's progress in reducing energy consumption and greenhouse gas production;
2. Encourage building owners to pay closer attention to their utility consumption and to compare their rate of consumption against that of their peers and their asset's potential;
3. Identify building owners that are using the most cost-effective ways to reduce energy consumption and greenhouse gas production in the Hayward climate zone and work with those owners to replicate their experience in similar buildings;
4. Track actual energy use for participating buildings; and
5. Work with communities county-wide to identify common opportunities to develop and coordinate initiatives to reduce energy consumption and greenhouse gas production.

Outreach - While StopWaste.org will participate in and coordinate elements of outreach, the organization has limited resources to devote to designing and implementing outreach programs. As a consequence, Study participants will develop and implement outreach programs appropriate to their communities, their objectives and their budgets. StopWaste.org is in discussions with residential realtors County-wide to discuss opportunities to include residential asset rating information to residential Multiple Listing Services.

ECONOMIC IMPACT

Standard building rating systems measure rates of energy and water consumption as well as rates of waste production. Owner awareness of building performance compared to rating system standards can lead owners to take action to reduce energy costs and associated operating costs. The result can be increased productivity, output and hiring for local building owners.

FISCAL IMPACT

StopWaste.org is still developing the details of the Study. As a result, full potential fiscal impacts associated with participation in the Pilot Program are undetermined at this time. It is likely that working with a regional partner to develop an Asset Rating Program that includes the benefit of securing data to assess the utility of and potentially support the design of a CECO will require fewer resources than attempting to develop and implement a similar program without a partner.

Once the Study design and implementation tasks are developed, staff will be able to assess the level of staff support needed for continued participation in the Study and the related fiscal impacts, and will report back to the Committee at that time, anticipated for this fall or early winter.

PUBLIC CONTACT

City Staff has been in contact with the City's commercial building owners through benchmarking awareness campaigns. While commercial building owners have expressed an interest in benchmarking their buildings, they have been reticent to publicly disclose benchmarking results. Staff has made no contact with the public regarding the Building Asset Rating Pilot Study.

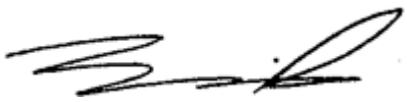
NEXT STEPS

Continue to work with StopWaste.org to complete development of the Pilot Study Program.

Prepared by: Marc McDonald, Sustainability Coordinator

Recommended by: David Rizk, Development Services Director

Approved by:



Fran David, City Manager

Attachment I – Summary of selected building labels or rating systems

Attachment I

Table 1. Summary of selected building labels or rating systems

Label	Sponsor (Geographic Scope)	Market	Label Type	Rating Method	Application	URL
U.S. NATIONAL						
ENERGY STAR Qualified New Homes [a]	EPA (U.S.)	Residential - new	Binary certification based on detailed mandatory checklists and performance	Checklists and variable HERS Index threshold	Voluntary - homebuilders	http://www.energystar.gov/index.cfm?c=new_homes.hm_index
ENERGY STAR Commercial	EPA/DOE (U.S.)	Commercial - new construction or major renovations	Binary certification - energy performance based on operational score	EPA energy performance rating system	Voluntary - developers, owners, managers and tenants	http://www.energystar.gov/index.cfm?c=new_bldg_design.new_bldg_design
Home Energy Score	DOE (U.S.)	Residential - existing	Energy performance scale	Proprietary assessment tool; keeps some assumptions constant	Voluntary - compare energy use between properties	http://www1.eere.energy.gov/buildings/homeenergyscore/
E-Scale/HERS Index	DOE (U.S.)	Residential - existing	Energy performance scale	HERS Index	Voluntary - homebuilders and homeowners	http://www1.eere.energy.gov/buildings/challenge/energysmart.html
LEED® for Homes	US Green Building Council (U.S.)	Single-family and multifamily residential - new construction and renovations	3-tiered point-based certification - 8 categories [b]	Proprietary rating system, includes HERS rating - third party verified	Voluntary - homebuilders and homeowners	http://www.usgbc.org/DisplayPage.aspx?CMSPageID=147
LEED® commercial rating systems	US Green Building Council (U.S.)	1) New Construction 2) Operations & Maint. 3) Commercial Interiors 4) Core & Shell 5) Schools 6) Retail 7) Healthcare	4-tiered point-based certification (Certified, Silver, Gold, Platinum) - 7 categories [c]	LEED documentation process	Voluntary - developers, owners, managers and tenants	http://www.usgbc.org/DisplayPage.aspx?CategoryID=19
National Green Building Standard™	National Association of Homebuilders (NAHB) (U.S.)	Single and multifamily residential - new contruction and renovations	4-tiered point-based certification (Bronze, Silver, Gold, Emerald) - 6 categories [d]	NAHB online Green Scoring Tool; rough and final inspections by third party verifier accredited by NAHB Research Center	Volundary - developers, builders and owners	http://www.nahbgreen.org/NGBS/default.aspx
U.S. REGIONAL/STATE						
Energy Performance Score	Earth Advantage Institute (U.S. Pacific Northwest)	Residential - new and existing	Energy performance scale	HERS and proprietary calculator	Voluntary - for comparing usage between properties	http://www.earthadvantage.org/programs/homes/energy-performance-score/

[a] ENERGY STAR Qualified Homes Version 1 (1995) 30% more efficient than a home built to the 1992 Model Energy Code (MEC). Version 2 (2006) 15% more efficient than IECC 2004. Version 3 (2011-2012): 15-20% more efficient than IECC 2009.

[b] Innovative design process; locations & linkages; sustainable sites; water efficiency; energy & atmosphere; materials & resources; indoor environment quality; awareness & education.

[c] Innovation in design, sustainable sites, water efficiency, energy and atmosphere, materials & resources, indoor environment quality, regional priority.

[d] Lot development; construction resource efficiency; energy efficiency; water efficiency; Indoor environmental quality; operation, maintenance and building owner education.

Table 1. Summary of selected building labels or rating systems (continued)

Label	Sponsor (Geographic Scope)	Market	Label Type	Rating Method	Application	URL
U.S. REGIONAL/STATE						
Earth Advantage® Certified New Homes	Earth Advantage Institute (U.S. Pacific Northwest)	Residential - new	Binary certification for performance in 5 categories [e]	Earth Advantage assessors; two visits - during rough-in and on completion	Voluntary - homebuilders	http://www.earthadvantage.org/programs/homes/earth-advantage-new-homes/
EarthCraft House™	Southface (Southeastern U.S.)	1) EarthCraft House™ for new homes 2) EarthCraft House™ Renovation for existing homes	3-tiered point-based certification (Certified, Gold, Platinum) New construction - 7 categories [f] Renovation - 5 categories [g]	Diagnostic tests, third party verified Gold and Platinum must meet ENERGY STAR requirements	Voluntary - homebuilders and homeowners	http://www.southface.org/green-building-services/programs/earthcraft-building-certification
GreenPoint Rated	Build It Green (CA)	Single and multifamily residential new and existing Offers two labels for existing single family: Whole Home or Elements Label	Binary point-based certification - 5 categories [h]	Third party verification from GreenPoint Certified Rater	Voluntary - offers bonus incentives on top of utility rebates	http://www.builditgreen.org/greenpoint-rated/
Built Green™	Master Builders Association of King and Snohomish Counties (WA)	1) Single family - new 2) Residential remodel 3) Multifamily 4) Communities	5-tiered certification (1 to 5 stars) based on point system for wide variety of "green" attributes	Self-certified via signed checklist for 1-3 stars; third-party verified for 4 or 5 stars	Voluntary - developers, builders and owners	http://www.builtgreen.net/
INTERNATIONAL						
Energy Performance Certificate	UK (Countries of the UK, to comply with EU Energy Performance of Buildings Directive)	Residential - new and existing	Energy performance scale	SAP and RdSAP [i]	Required for all buildings constructed, rented or sold	http://www.direct.gov.uk/en/HomeAndCommunity/BuyingAndSellingYourHome/Energyperformancecertificates/index.htm
R-2000 (EnerGuide)	Natural Resources Canada Office of Energy Efficiency (Canada)	Residential - new	Binary certification - energy/water use, thermal quality, environmental attributes	3rd party evaluators	Voluntary - homebuilders	http://oee.nrcan.gc.ca/residential/business/builders-renovators-trades/r-2000/about.cfm?attr=12
EnerGuide	Natural Resources Canada Office of Energy Efficiency (Canada)	Residential - new and existing Commercial - benchmarking	Energy performance scale	2nd party evaluators	Voluntary - homebuilders and homeowners	http://oee.nrcan.gc.ca/energuide/index.cfm

[e] Energy efficiency; indoor health; water conservation; materials; land use.

[f] Site planning; energy efficiency; resource efficient design and construction; construction waste management; indoor air quality; water use; homebuyer education.

[g] Energy efficiency, resource efficiency, water conservation, indoor air quality, durability.

[h] Energy efficiency; water conservation; resource use in construction; indoor air quality; community benefit.

[i] Standard Assessment Procedure (SAP) for new homes; Reduced Data SAP (RdSAP) for existing homes.

CITY OF HAYWARD
HEART OF THE BAY

DATE: July 11, 2012

TO: City Council Sustainability Committee

FROM: Development Services Director

SUBJECT: Update on the California Building Standards Code and Recommended Revisions to the City's Green Building Ordinance

RECOMMENDATION

That the Committee reads this report and directs staff to pursue the activities below over the next 18 months as part of the City's adoption of the State's 2013 Building Standards Code (the 2013 Code). The 2013 Code will go into effect on January 1, 2014.

1. Remove the City's energy efficiency requirements when the 2013 Code goes into effect because the 2013 Code will include energy efficiency requirements that exceed the City's current requirements by ten to fifteen percent.

2. To encourage renewable generation, draft an amendment to the Green Building Ordinance that would either require builders of new subdivisions encompassing twenty units or more to:
    a. Offer photovoltaic and solar thermal systems to buyers at an advertised rate, or
    b. Build five percent of units to be grid neutral.

3. Remove the City's requirement that all new residential buildings be Green Point Rated or rated by another rating system approved by the Building Official when the 2013 Code goes into effect. Evaluate the merits of adopting some or all of the 2013 CALGreen (California Green Building Standards Code) Tier measures in the four non-energy categories: 1) planning and design, 2) water efficiency and conservation, 3) material conservation and resource efficiency, and 4) environmental quality. Report back to the Committee at the April 2013 meeting.

4. Review the City ordinances that cover the four categories listed above to confirm that they are consistent and not redundant with the 2013 version of CALGreen. If necessary, combine or amend ordinances to clarify City requirements and eliminate redundancies. Report back to the Committee at the April 2013 meeting.

SUMMARY

The State is currently in the process of updating all parts of its Building Code, including the Energy Code and CALGreen. Starting with the 2013 Code, staff recommends that Hayward use the CALGreen Tiers (which address both residential and commercial new construction) rather than the Green Point Rated system (which addresses only residential construction) when exceeding the State's basic Code requirements. By doing this, Hayward will be consistent with the statewide regulatory framework and will be doing all permitting in-house.

In addition, staff recommends that Hayward remove the energy efficiency requirement from its Green Building Ordinance (Ordinance) when the 2013 Energy Code goes into effect, because the energy standards in the new Code will be 10 to 15 percent more efficient than Hayward's existing requirement.

While the California Energy Commission (CEC) is dramatically tightening its energy efficiency requirements, it will not require onsite renewable generation until future code cycles. In contrast, the implementation timeline for renewable generation in Hayward's Climate Action Plan (CAP) recommends that the City incorporate a renewable energy requirement into its Ordinance by 2013. Because of the recommended CAP strategy and the increasing challenge to exceed state energy efficiency standards due to Hayward's mild climate zone, staff recommends that that the City meet the CAP objective by incorporating a solar requirement for new subdivisions over twenty units. A renewable energy requirement is more likely to be cost-feasible for larger projects than for single-unit projects.

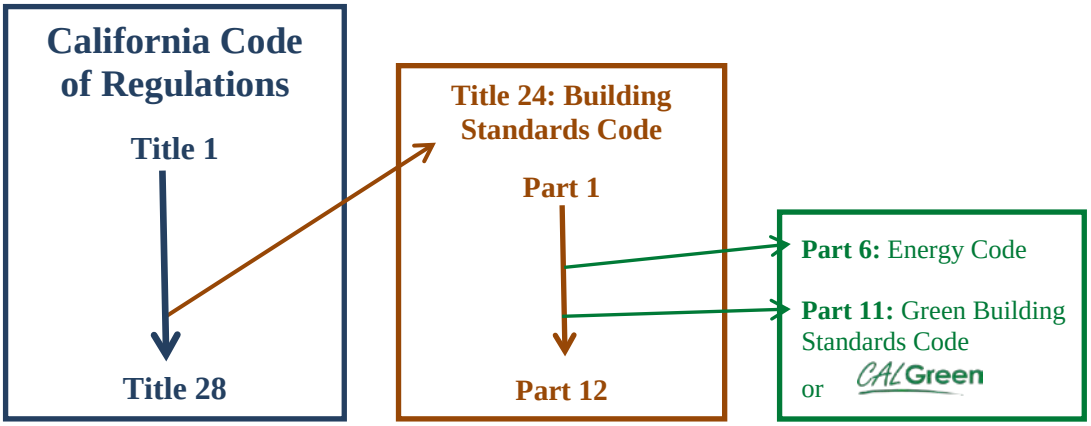
BACKGROUND

At the April meeting of the Sustainability Committee, staff suggested that the Committee review the activities that are happening at the state level before making recommendations to amend the City's Green Building Ordinance (the Ordinance). The Committee requested a report on this topic. There are two major developments that have been happening at the State level since Hayward adopted and amended its Green Building Ordinance in 2009 and 2010: 1) the launch of the California Energy Commission's (CEC) aggressive plan to achieve Zero Net Energy (ZNE) performance in new buildings (which will in most cases in Hayward entail use of renewable energy sources, such as solar), and 2) the continued refinement and expansion of the California Green Building Standards Code, also known as CALGreen.

This background section provides a summary of topics relevant to the two developments above, including the State's Building Code Cycle, Hayward's existing Green Building Ordinance, the CEC's plan to achieve ZNE in all new buildings and the loading order, and CALGreen. It also compares the CALGreen Tier system to private rating systems like Green Point Rated and LEED.

The State Building Code Cycle – The California Building Standards Code is Title 24 of the California Code of Regulations (see Figure 1). The Building Code has twelve parts. Part 6 is the State's Energy Code, which is developed by the California Energy Commission (CEC). Part 11 is CALGreen, which is primarily developed by the California Building Standards Commission (CBSC) and the Department of Housing and Community Development (HCD).

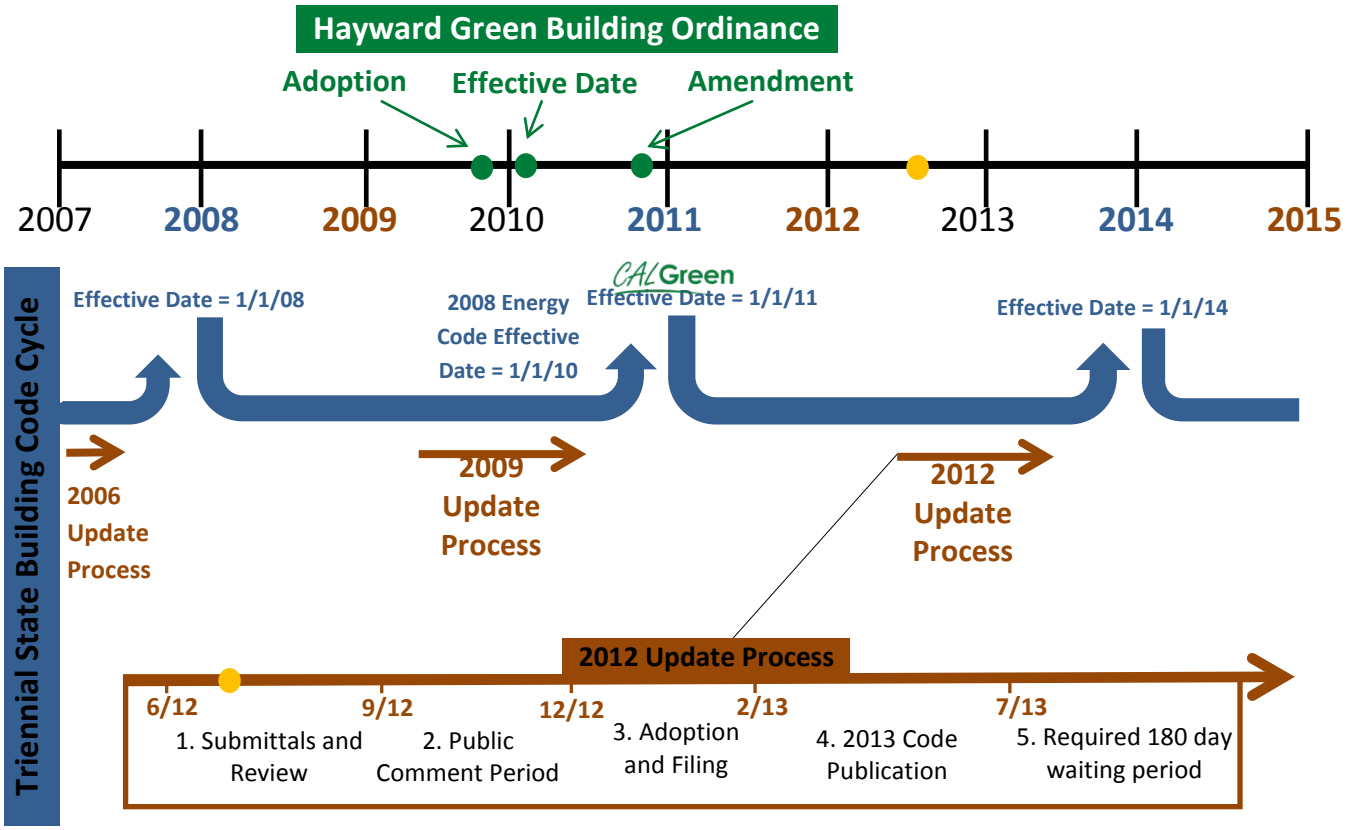
Figure 1: Parts Six and Eleven of the California Building Standards Code



Title 24 is updated on a triennial code cycle (see Figure 2). The State is currently in the middle of the 2012 cycle to update the 2010 Code. Over this summer, amendments to various parts of the Code will be submitted and reviewed by State Departments. The public comment period will begin in September. All parts are expected to be adopted by the State in early 2013 and will go into effect on January 1, 2014. The new code will be known as the 2013 Building Standards Code because it will be published in 2013.

Hayward will adopt its new local codes in the fall of 2013, including any amendments to the State codes. The local codes consist of the Building Code, Mechanical Code, Electric Code, Plumbing Code, Fire Code, amendments to Local Green Building Ordinance, etc.

Figure 2: Timeline of the State Building Code Cycle and Hayward's Green Building Ordinance



Hayward's Green Building Ordinance – Hayward's Green Building Ordinance was adopted in November of 2009. It took effect in January of 2010 and was amended slightly in November of 2010 (see Figure 2). Table 1 summarizes the requirements of the Ordinance.

Table 1: City of Hayward's Green Building Requirements for Private Development

	Activity	Current Requirements	Impact of the 2013 State Code	Recommended changes (starting January 1, 2014)
Residential	New multi or single family unit(s)	Documentation demonstrating that the building has been Green Point Rated	The 2013 Code will exceed Hayward's current energy efficiency requirement by 10%	1. For all categories: a. Remove the existing energy efficiency requirements b. Evaluate the merits of adopting some or all of the CALGreen Tier 1 measures from the four non-energy categories 2. Incorporate a renewable energy requirement for new residential subdivisions over 20 units
	Additions or remodels over 500 square feet	Complete the Green Point checklist (no energy efficiency measures required to be implemented)	The State Code does not apply to residential additions	
Commercial	New construction over 1,000 square feet	Exceed Building Energy Efficiency Standards of the CA Building Code (Title 24, Part 6) by at least 15% using the performance method	The 2013 Code will exceed Hayward's current energy efficiency requirement by 15%	
	Tenant improvement projects over 1,000 sf where at least half of the light fixtures are new or replaced	1. Exceed the lighting load requirements of the 2008 Title 24, Part 6 by 15%, or 2. Include at least 1% or 1kw (whichever is greater) of the electrical power from a renewable source, or 3. Exceed Title 24, Part 6 by at least 5% using the performance method	The 2013 Code will apply to commercial additions over 1,000 sf, and will exceed Hayward's energy efficiency requirement for tenant improvements by 25%	

By State law, any municipality that adopts a local ordinance that exceeds the State's Energy Code must demonstrate to the CEC that the required measures are cost effective in the municipality's climate zone. When Hayward passed its Ordinance in 2009, the City cited a study that was completed by PG&E and StopeWaste.Org that demonstrated the cost-effectiveness of the Ordinance requirements.

The CEC's phased plan to achieve "Zero Net Energy" (ZNE) building performance – The CEC is implementing its plan to achieve ZNE performance in new residential buildings by 2020 and in new commercial buildings by 2030. The ultimate objective of achieving ZNE in new buildings is to meet the greenhouse gas reduction targets of the Global Warming Solutions Act of 2006 (AB 32) while also planning for the energy needs of a growing state. The plan was first proposed in the CEC's *2007 Integrated Energy Policy Report*. In 2010, the California Pacific Utilities Commission (CPUC), the California Air Resource Board (CARB), and California Environmental Protection Agency (Cal/EPA)

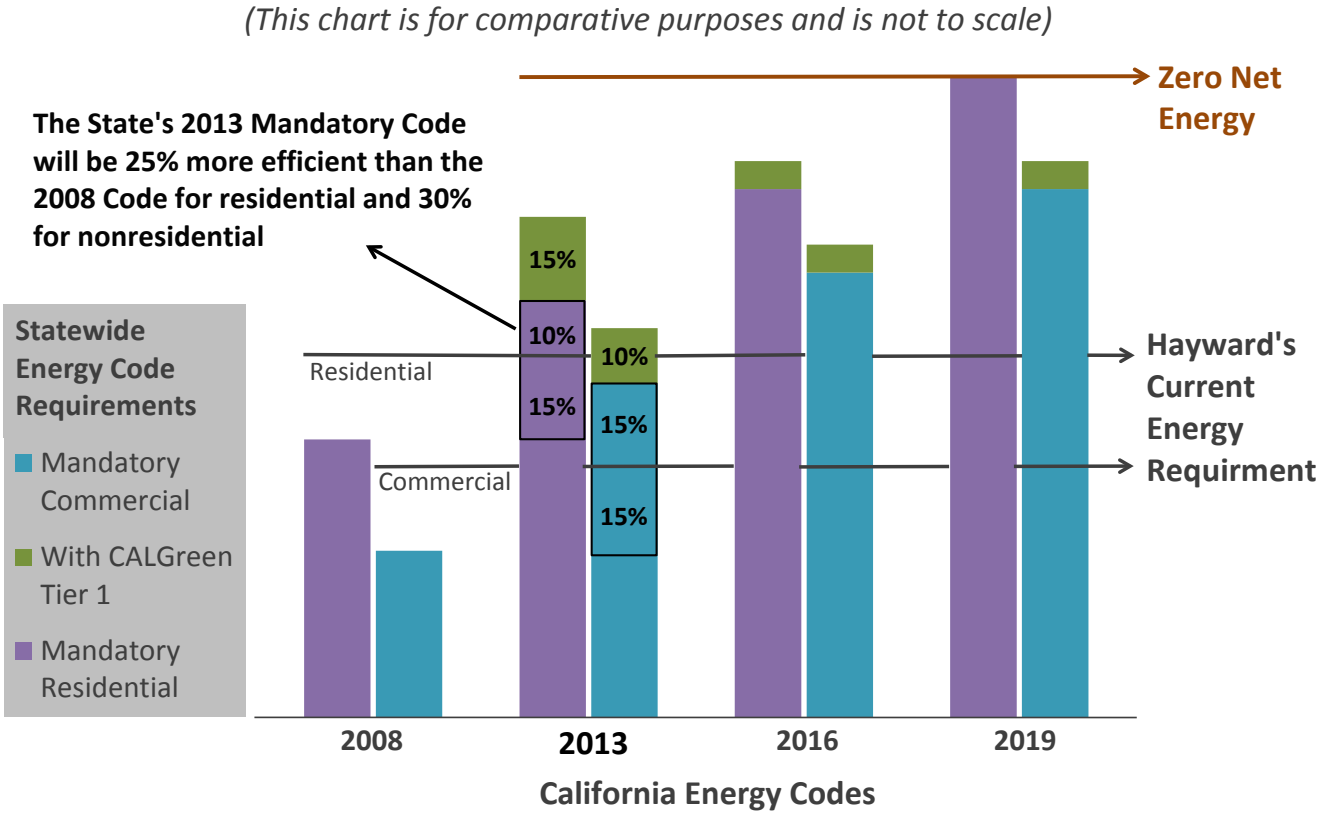
joined the CEC to release *California's Clean Energy Future Implementation Plan*, which identifies ZNE buildings as a top priority for addressing California's energy demands.

To reach the ZNE goal, the CEC will increase energy efficiency requirements each code cycle until ZNE performance is realized. As a result, the 2013 Energy Code will require residential buildings to be 25 percent more efficient and nonresidential buildings to be 30 percent more efficient than buildings built under the 2008 Energy Code. This requirement of the 2013 Energy Code will be 10 and 15 percent more aggressive than those of Hayward's existing requirements (see Figure 3).

This efficiency is achieved through better windows, insulation, lighting, ventilation systems and other features that reduce energy consumption. In addition, all new buildings will be required to have solar-ready roofs. According to the CEC, the new standards will increase the cost of constructing a new home by $2,290 on average, but will generate more than $6,200 in energy savings over 30 years.

Figure 3 illustrates the CEC's plan to incrementally adjust the Energy Code to Achieve ZNE. The statewide mandatory requirements for residential buildings, shown in purple, will be adjusted to reach ZNE by 2020. The statewide mandatory requirements for commercial buildings, shown in blue, will be adjusted to reach ZNE by 2030. Hayward's requirements currently exceed the State's. However, the State's requirements will overtake Hayward's current standards in 2013.

Figure 3: The CEC's Plan to Adjust the Statewide Energy Code to Achieve Zero Net Energy in Residential Buildings by 2020 and in Commercial Buildings by 2030



The Loading Order – The other policy guiding the CEC is the energy resource loading order. The loading order was first adopted by the CEC, CPUC, CARB, and Cal/EPA in the *2003 Energy Action Plan*. The order states that the growing need for energy in California must first be met by decreasing electricity

demand through cost-efficient energy efficiency measures, and then with renewable generation, and then with clean fossil-fueled generation.

Because of the loading order, the CEC will seek to reduce as much energy use as possible through energy efficiency before requiring that the remaining energy needs of the building be met through renewable generation. At some point in the near future, the CEC will determine that it is no longer cost-effective to require further energy efficiency gains (applicable especially in mild climate zones, like Hayward's), at which point it will require onsite renewable power. Starting with the 2013 Energy Code, the CEC will take a step in this direction of promoting use of renewable energy sources by allowing builders to use solar PV credits to meet ten percent of a building's energy budget. This could be an incentive for builders to include renewable generation in their projects.

The Addition of CALGreen to the Building Code – The CEC is doing its part to increase sustainable building requirements through the Energy Code. At the same time, the CBSC and HCD are doing their part to increase sustainable requirements in other building areas through CALGreen. CALGreen was added to the Building Standards Code in 2010 after a handful of cities (including Hayward) and counties took the lead to successfully adopt green building standards at the local level.

CALGreen assembles statewide mandatory "green" measures into one part of the Building Code for easy reference. The CALGreen measures are grouped into five sustainability categories, which are listed in Table 2 below. Some of the measures are duplicated from other parts of the Building Code like the Energy Code, while some of the measures only appear in CALGreen. Through CALGreen, the State Building Code also addresses sustainability issues in disciplines typically addressed by City departments other than the Building Division – specifically water, solid waste, and planning.

Table 2: Credit Categories

CALGreen Categories	Examples of Mandatory Requirements	Examples of Prerequisite Requirements from Tiers	Examples of Elective Requirements from Tiers
1. Planning and Design	• Bicycle parking • Designated parking for low-emitting vehicles • Light pollution reduction • Storm water pollution prevention plan	• Plan to manage storm water drainage during construction • At least 20% of parking, walking, or patio surfaces shall be permeable	• Areas disrupted during construction are restored with native vegetation • The selected site is an infill, greyfield, or EPA-recognized Brownfield site
2. Energy Efficiency	• Meet all Energy Code requirements of the CEC	• Exceed the Energy Code requirements by 15%	• 90% of lighting is ENERGY STAR • Duct leakage testing to verify a leakage rate of less than 6% • A solar water heating system is installed
3. Water Efficiency and Conservation	• 20% water savings through plumbing fixtures • Water budget for landscape irrigation • Separate metering	• The maximum flow rate at a kitchen sink is less than 1.5 gallons/minute at 60 psi • Provide water efficient landscape irrigation design	• A rainwater capture and re-use system is installed • Waterless toilets are installed
4. Material Conservation and Resource Efficiency	• Construction waste reduction of at least 50% • Recycling of excavated soil and organic material	• Construction waste reduction of at least 65% • At least a 20% reduction in cement use in the	• Flooring that does not require additional coverings • Includes a permanent

	• Accessible areas for recycling by occupants	foundation mix	overhang of at least 2 feet in depth
5. Environmental Quality	• VOC and Formaldehyde limits • Indoor moisture control • Outside air delivery • Exterior noise transmission	• At least 80% of flooring is VOC compliant • Thermal insulation is installed in compliance with VOC limits	• Use composite wood products with no-added formaldehyde • Direct vent appliances are used

In addition to mandatory measures, CALGreen includes two voluntary levels of measures that can be adopted by local jurisdictions as elements of their building codes: Tier I and Tier II. Each Tier contains prerequisite measures and elective measures in each of the five categories. For example, a residential builder must meet three additional prerequisite measures and two out of fourteen elective measures to achieve Tier 1 certification in the planning and design category (See Table 2 above).

Municipalities can amend their local codes to require some or all of the Tier measures, depending on their needs and policy goals. However, if a municipality requires an elective measure from the energy efficiency category, it must demonstrate to the CEC that the measure is cost effective in the municipality's climate zone.

In contrast to the Energy Code, CALGreen is not expected to change significantly during the 2013 code cycle. Instead, the CBSC and HCD will use this cycle to refine CALGreen based on feedback that they have been collecting over the past two years. The most significant change will be that, starting January 1, 2014, CALGreen will apply to nonresidential additions over 1,000 square feet.

CALGreen in Comparison to Private Certification Systems – The CALGreen Tier system is operating alongside numerous private green building certification systems. The most well-known private systems in the Bay Area are Green Point Rated and Leadership in Energy and Environmental Design (LEED). Hayward currently requires new residential buildings to be Green Point Rated (or "green" per another rating system, like LEED, approved by the Building Official) and new municipal buildings to be certified as LEED Silver.

Like the CALGreen Tiers, Green Point Rated and LEED require measures that fall under five general categories. Because there is general agreement in the industry about what makes a building "green," most green building certification systems will contain the same elements.

The largest distinction between the CALGreen Tiers and the private certification systems is their intended purpose. The Tiers are intended as a regulatory tool for cities that want to exceed the State's basic standards. The Tiers are part of the State's Building Code and are updated as part of the State's regulatory cycle. In contrast, the private certification systems are intended as a market tool for builders that want to incorporate sustainability into a building's design and secure recognition for their achievements.

LEED is intended as a means for builders to secure recognition for substantial green leadership in their industry. The organization that operates LEED, the U.S. Green Building Council, is committed to staying well above government code mandates so that only the top percentiles of buildings can achieve LEED certification. The certification process is demanding and can cost from $10,000 to $15,000. To date, LEED certification has mostly been used for large commercial or public projects.

Green Point Rated was originally created as a recognition system for residential projects that exceed government codes but do not have the resources to undertake LEED certification. The Green Point Rating

system was developed by Stopwaste.org and is administered by Build It Green, a nonprofit organization based in Berkeley. Buildings are labeled as Green Point Rated when they secure 50 or more points on a rating system administered by Build it Green. The cost to be certified as a Green Point Rated building ranges from $800 to $2,000.

California cities that developed green building ordinances before the State adopted CALGreen looked to the private certification systems as policy tools. Hayward, along with around twenty other cities, adopted the Green Point Rated standard as its requirement for new residential buildings. Some cities chose to use LEED certification as the requirement for certain nonresidential buildings, such as Oakland and Redwood City. Other cities, like Hayward, chose to develop their own requirements for nonresidential buildings.

Once CALGreen was adopted in 2010, cities wanted to understand how the CALGreen Tier system compared to Green Point Rated. Both the Bay Area Climate Collaborative, of which Hayward is a member, and the Green Building Code Education Collaborative created matrices to compare the systems (see Attachments 1 and 2). In summary, the rating systems require many of the same building practices and will therefore result in similar building performance. One key difference is that CALGreen only applies to new residential buildings, whereas Green Point Rated also provides a certification for existing homes. Also, Green Point Rated involves independent third-party rating for a fee, whereas projects built per CalGreen and its Tiers would be reviewed and inspected by City of Hayward staff.

Build It Green will begin its update process of Green Point Rated in 2013. The final changes are expected to be adopted in September 2013 to coordinate with the effective date of the 2013 State Code. It is unclear how the updated Green Point Rated system will compare to the 2013 Code.

DISCUSSION

The purpose of this report is to explain the two major developments that have been happening at the state level since Hayward adopted its Green Building Ordinance, and to recommend a direction for the City in light of these developments. In addition, this discussion is a follow up to the April Sustainability Committee agenda item entitled "Incorporation of a Renewable Energy Requirement for New Residential Subdivision Development into Hayward's Green Building Ordinance."

The City must adopt the State's 2013 Building Standards Code between the publication date and the effective date, which are July 1, 2013 and January 1, 2014. In preparation for this adoption, staff recommends that the City take the following actions:

1. Remove the City's energy efficiency requirements from the Green Building Ordinance when the 2013 Code goes into effect.

Building staff has found that Hayward's existing energy efficiency requirements are posing a challenge for some builders, especially for commercial builders. One example is a recent tenant improvement project in the Industrial area of the City. In order to meet the City's requirements, the builder was faced with the choice to either purchase $100,000 of LED lights or reduce lighting. Another example is a recent new franchise restaurant, which was delayed for several weeks because the standardized plans used by the franchise throughout the nation did not meet the City's lighting requirements. The bottom line is that it costs money for builders to achieve energy efficiency and there are decreasing returns, especially in this climate zone, as a building's design becomes increasingly efficient.

Once the 2013 Energy Code goes into effect, these builders will be required by the State to be ten to fifteen percent more efficient than Hayward's existing requirements (which are based on achieving efficiency above the 2008 Energy Code standards). Because of this, and to respond to the building

construction industry's desire to have standardized requirements, staff recommends that the City remove its local requirements for energy efficiency when the 2013 Code goes into effect and follow the State's lead towards Zero Net Energy for all new buildings (by 2020 for residential and by 2030 for commercial).

2. Draft an amendment to the Green Building Ordinance that would either require builders of new subdivisions over 20 units to: 1) offer photovoltaic and solar thermal systems to buyers at an advertised rate, or 2) build 10 percent of units to be grid neutral.

While the CEC is dramatically tightening its energy efficiency requirements, it will not require onsite renewable generation until future code cycles. In contrast, the implementation timeline for Hayward's Climate Action Plan recommends that the City incorporate a renewable energy requirement into its local ordinance starting in 2013. Staff recommends that the City meet the CAP objective by incorporating a solar requirement for new subdivisions over twenty units. A renewable energy requirement is more likely to be cost-feasible for larger projects than for single-unit projects.

Staff has identified two possible requirements. The first would require that all new single-family subdivisions encompassing twenty units or more build five percent of units (one in twenty) to be grid neutral, as defined by CALGreen. Staff presented this option at the April meeting to the Sustainability Committee.

A grid neutral requirement would give developers more flexibility to choose the most cost-effective renewable generation system for the site than would a solar-specific requirement. CALGreen defines grid neutral as "A site that produces at least as much electricity as it uses in a year." Staff feels that grid neutral is a more useful concept than ZNE for Hayward at this time because the definition for grid neutral only includes electricity consumption and production, while the definition for ZNE also includes natural gas. There is not yet an agreed-upon standard for measuring the amount of renewable generation needed to offset natural gas.

Because a grid neutral building must produce electricity onsite, a grid neutral requirement would ensure the use of renewable generation technologies like solar. However, such a requirement will almost certainly trigger a cost-effectiveness study for the CEC. There is no existing study that the Hayward could cite because no other city has adopted such a requirement. The primary consultant in the area will not be able to complete a study for at least a year. Staff can conduct further research to identify other qualified consultants if the Committee authorizes proceeding with a grid neutral requirement, though currently no funding source has been identified for such study.

Based on feedback from the Committee in April, staff has also identified a second requirement for the Committee to consider, which is to require subdivisions encompassing twenty units or more to offer photovoltaic and solar thermal systems to buyers at an advertised rate. This would encourage builders to form relationships with solar system providers and would allow homebuyers the opportunity to purchase solar systems as part of a new home. The convenience of purchasing and financing a solar system with the home may encourage more homebuyers to adopt these technologies. This requirement would not trigger a cost-effectiveness study because the option for the buyers would be voluntary.

3. Remove the City's requirement that all new residential buildings be Green Point Rated starting January 1, 2014. Instead, use the CALGreen Tiers when exceeding the State requirements.

By requiring all new residential buildings to be Green Point Rated, the City is currently exceeding the State's minimum green building requirements. As stated above, staff recommends that the City remove its requirements for the energy category when the 2013 Code goes into effect. However, the City may want to continue to exceed the State in the four non-energy categories.

Starting with the 2013 Code, staff recommends that Hayward use the CALGreen Tiers rather than Green Point Rated system when exceeding the State's baseline requirements. By doing this, the City will improve customer service by allowing all permitting to be done within the City rather than by a third party. Also, the City will be consistent with the statewide regulatory framework.

In addition, unlike Green Point Rated, the City has the option of tailoring the Tiers to meet its needs. Cities can elect to adopt all or only a few of the Tier measures for all building projects or only certain types of buildings. In addition, the City can make an elective measure mandatory (however, for the energy efficiency electives, this will trigger a cost effectiveness study). Staff will present recommendations about the measures that Hayward should adopt at the April 2013 meeting.

4. Review other City ordinances that cover the four non-energy categories.

With the adoption of CALGreen, the State's Building Code encompasses subject areas that have been overseen by City departments other than the Building Division – specifically water, solid waste, and planning/land use. Once the 2013 CALGreen is adopted by the State, staff will review City ordinances to reconcile them with the 2013 version of CALGreen, will consider recommendations from the Committee from its April 2013 meeting regarding what CalGreen Tier measures should be included in Hayward's local Ordinance, and will make final recommendations to City Council in the fall of next year when other Codes are adopted, to ensure duplicative regulations are eliminated.

ECONOMIC IMPACTS

The 2013 Energy Code, which will be mandatory for all cities, will have a substantial impact on the development community. According to the CEC, the new standards will increase the cost of constructing a new home by $2,290 on average. The construction cost will rise further if the City decides to adopt some of the Tier measures. Staff will present the estimated construction cost associated with select Tier measures as part of the recommendations at the April 2013 meeting.

There would also be an impact to developers if Hayward decides to require new residential subdivisions of twenty units or more to be grid neutral. This impact will need to be further analyzed in a cost-effectiveness study.

FISCAL IMPACTS

Staff foresees the following General Fund fiscal impacts resulting from the above recommendations. There will be one-time staffing costs associated with evaluating the 2013 Tier measures and reviewing and possibly amending other City ordinances to bring them in line with CALGreen. If the City does decide to adopt some Tier measures, there will be additional inspection costs for building staff. The cost will depend of the number of measures that the City requires.

The 2013 fee schedule includes additional building permit fees to cover costs associated with additional plan check and inspection times needed to review and confirm installation of Tier measures. The adopted Fiscal Year 2013 Master Fee Schedule includes a fee increase of 35 percent if a builder choses to include Tier 1 measures into a project and a 50 percent fee increase if Tier 2 measures are included. The City Council may ultimately determine in the fall of 2013 that such fees should not exist, to encourage incorporation of such measures.

A five percent grid neutral requirement for subdivisions would trigger a cost-effectiveness study for CEC approval. Staff has not yet identified a consultant who is willing to provide a quote for such a study, but

such study would be expected to cost a few thousand dollars. No funding source to support such a study has been identified at this time.

NEXT STEPS

Contingent upon direction from the Committee, staff will complete the following tasks:

1. Pursue an amendment to the Green Building Ordinance that would require builders of new subdivisions over twenty units to 1) offer photovoltaic and solar thermal systems to buyers at an advertised rate, and/or 2) build five percent of units to be grid neutral. The first option will not trigger a cost-effectiveness study, but the second option will. If the Committee decides to pursue the second option, staff will identify possible sources of funding for a cost-effectiveness study and search for a qualified consultant, including seeking grants or pilot program opportunities with other agencies, PG&E, and/or the State. Staff will report back to the Committee at the April 2013 meeting.
2. Evaluate the merits of adopting some or all of the 2013 CALGreen Tier measures in the four non-energy categories, including meeting with builders to collect input regarding the impact of each requirement. Report back to the Committee at the April 2013 meeting.
3. Review City ordinances that cover the four non-energy categories to reconcile them with the 2013 version of CALGreen. Report to the Committee at the April 2013 meeting.
4. Draft changes to the Green Building Ordinance to present to the Committee at the July 2013 meeting.
5. Aim to adopt a revised Green Building Ordinance in the fall of 2013 with other Codes adoption.

Prepared by: Mary Thomas, City Management Fellow

Recommended by: David Rizk, Development Services Director

Approved by:

Fran David, City Manager

Attachment 1 CALGreen Tier GreenPoint Rated Comparison by the Bay Area Climate Collaborative

Attachment 2 CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes by the Green Building Code Education Collaborative

PRELIMINARY
CALGreen Tier Pre-requisite Provision Review For GreenPoint Rated Comparison

PRELIMINARY: The criteria for CALGreen Tiers is still in developement. This analysis is based upon assumptions of CALGreen Tiers as written in the code appendices and is subject to change.

CAL GREEN CODE TIER PRE-REQUISITE PROVISIONS	*GPR Points	TIER 1	TIER 2	GPR Measure Number		GPR Threshold	NOTES / COMMENTS *The GreenPoint Rated label is earned only with full third party verification. *Points are earned if meet GPR criteria
				SF	MF		
PLANNING AND DESIGN							
Site Development							
A4.106.2.3 Topsoil shall be protected or saved for reuse as specified in this section.							
Tier 1. Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.	0*	X	X	A1a	A1a	GPR Higher	*The GreenPoint Rated criteria is more stringent and is not feasible for many projects. Most projects would not be eligible for credit.
Tier 2. The construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area.	0*		X	A1b	A1b	GPR Higher	*The GreenPoint Rated criteria is more stringent and is not feasible for many projects. Most projects would not be eligible for credit.
A4.106.4 Permeable paving is utilized for the parking, walking, or patio surfaces in compliance with the following:							
Tier 1. Not less than 20% of the total parking, walking, or patio surfaces shall be permeable. Driveway and entry walkway is exempted.	0*	X		PA1a	PA1a	GPR Higher	*The GreenPoint Rated criteria is more stringent without exemption for driveways and walksways and may not be within reach of most green projects. Most projects would not be eligible for credit.
Tier 2. Not less than 30% of the total parking, walking, or patio surfaces shall be permeable. Driveway and entry walkway is exempted.	0*		X	PA1a	PA1a	GPR Higher	*The GreenPoint Rated criteria is more stringent without exemption for driveways and walksways and may not be within reach of most green projects. Most projects would not be eligible for credit.
A4.106.5 Roofing materials still have a minimum 3-year aged solar reflectance and thermal emittance or a minimum Reflectance Index (SRI)							
Tier 1. Roof covering shall meet or exceed the values contained in Table A4.106.5(1).	0*	X		J2	J1		*There is no GreenPoint Rated measure for this provision. Credit is gained through performance metric captured in Title 24 software and 2 points are earned for every 1% above Title 24
Tier 2. Roof covering shall meet or exceed the values contained in Table A4.106.5(2).	0*		X	J2	J1		*There is no GreenPoint Rated measure for this provision. Credit is gained through performance metric captured in Title 24 software and 2 points are earned for every 1% above Title 24

PRELIMINARY
CALGreen Tier Pre-requisite Provision Review For GreenPoint Rated Comparison

PRELIMINARY: The criteria for CALGreen Tiers is still in developement. This analysis is based upon assumptions of CALGreen Tiers as written in the code appendices and is subject to change.

CAL GREEN CODE TIER PRE-REQUISITE PROVISIONS	*GPR Points	TIER 1	TIER 2		GPR Measure Number		GPR Threshold	NOTES / COMMENTS *The GreenPoint Rated label is earned only with full third party verification. *Points are earned if meet GPR criteria
					SF	MF		
ENERGY EFFICIENCY								
General								
A4.203.1 Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 15%.	30*	X			J2	J1	Equal	*The GreenPoint Rated program includes a requirement for 15% above Title 24, earning 30 points.
A4.203.1 Exceed the California Energy Code requirements, based on the 2008 Energy Efficiency Standards, by 30%.	60*		X		J2	J1		*The GreenPoint Rated program includes a requirement for 15% above Title 24. 60 total points would be gained with a performance of 30% above T24.
WATER EFFICIENCY AND CONSERVATION								
Indoor Water Use								
A4.303.1 Kitchen faucets and dishwashers shall comply with this section.								
Tier 1. The maximum flow rate at a kitchen sink faucet shall not be greater than 1.5 gallons per minute at 60 psi.	0*	X	X		G2c	G1di	GPR Lower	*The GreenPoint Rated criteria is 1.8 gal/miniute and is a required provision for CALGreen mandatory provisions. No additional points would be earned for this Tier provision.
Tier 2. In addition to the kitchen faucet requirements for Tier 1, dishwashers in Tier 2 buildings shall be ENERGY STAR qualified and not use more than 5.8 gallons of water per cycle.	3		X		M2	M1a	Equal	
A4.304.4 Provide water-efficient landscape irrigation design that reduces the use of potable water.								
Tier 1. Does not exceed 65% of Eto times the landscape area.	1 - 8*	X			C11a	B1gi	GPR Higher and Lower	*GreenPoint Rated awards credit for compliance with this measure plus perscriptive landscaping practices implemented. The GPR thresholds are 50% and 70% Eto
Tier 2. Does not exceed 60% of Eto times the landscape area.	2 - 9*		X		C11b	B1gi	GPR Higher and Lower	*GreenPoint Rated awards credit for compliance with this measure plus perscriptive landscaping practices implemented. The GPR thresholds are 50% and 70% Eto

PRELIMINARY
CALGreen Tier Pre-requisite Provision Review For GreenPoint Rated Comparison

PRELIMINARY: The criteria for CALGreen Tiers is still in developement. This analysis is based upon assumptions of CALGreen Tiers as written in the code appendices and is subject to change.

CAL GREEN CODE TIER PRE-REQUISITE PROVISIONS	*GPR Points	TIER 1	TIER 2	GPR Measure Number		GPR Threshold	NOTES / COMMENTS *The GreenPoint Rated label is earned only with full third party verification. *Points are earned if meet GPR criteria
				SF	MF		
MATERIAL CONSERVATION AND RESOURCE EFFICIENCY							
Foundation Systems							
A4.403.2 Cement use in foundation mix design is reduced.							
Tier 1. Not less than a 20% reduction in cement use.	2	X		B1	D1	Equal	
Tier 2. Not less than a 25% reduction in cement use.	0*		X	B1	D1	GPR Lower	*2 points are earned when meet the GreenPoint Rated threshold of 20%. No additional points are available.
Material Sources							
A4.405.3 Post-consumer or pre-consumer recycled content value (RCV) materials are used on the project.							
Tier 1. Not less than a 10% recycled content value.	0-3*	X		A3, B1, C12, D3, E1, F1, K5, K6, L1			*It is not clear that this measure can be met in wood frame construction (vs steel construction). More evaluation is needed. Engineered lumber is virgin lumber and therefore can not be used for
Tier 2. Not less than a 15% recycled content value.	0-3*		X				*It is not clear that this measure can be met in wood frame construction (vs steel construction). More evaluation is needed. Engineered lumber is virgin lumber and therefore can not be used for compliance.
Construction Waste Reduction, Disposal and Recycling							
A4.408.1 Construction waste generated at the site is diverted to recycle or salvage in compliance with one of the following:							
Tier 1. At least a 65% reduction.	0 -1*	X		A2b	A2b	GPR Higher	*Points are earned if meet higher GPR threshold which requires diverting 100% of asphalt and concrete plus 65% of remaining materials
Tier 2. At least a 75% reduction.	0 - 2*		X	A2c	A2c	GPR Higher	*Points are earned if meet higher GPR threshold which requires diverting 100% of asphalt and concrete plus 75% of remaining materials

PRELIMINARY
CALGreen Tier Pre-requisite Provision Review For GreenPoint Rated Comparison

PRELIMINARY: The criteria for CALGreen Tiers is still in developement. This analysis is based upon assumptions of CALGreen Tiers as written in the code appendices and is subject to change.

CAL GREEN CODE TIER PRE-REQUISITE PROVISIONS	*GPR Points	TIER 1	TIER 2		GPR Measure Number		GPR Threshold	NOTES / COMMENTS *The GreenPoint Rated label is earned only with full third party verification. *Points are earned if meet GPR criteria
					SF	MF		
ENVIRONMENTAL QUALITY								
Pollutant Control								
A4.504.2 Install VOC compliant resilient flooring systems.								
Tier 1. At least 80% of the resilient flooring installed shall comply	incl	**X**			L3	L2	GPR Higher	*The GreenPoint Rated criteria requires low emitting floor covering to cover a minimum of 50% of all floor area, including carpet. Additional credit is earned for higher % of flooring. *Points are shown in Mandatory Comparison matrix
Tier 2. At least 90% of the resilient flooring installed shall comply	incl		**X**		L3	L2	GPR Higher	*The GreenPoint Rated criteria requires low emitting floor covering to cover a minimum of 50% of all floor area, including carpet. Additional credit is earned for higher % of flooring. *Points are shown in Mandatory Comparison matrix
Tier 1. VOC limits must comply with CHPS low emitting materials list	0	**X**			None	None		All insulation currently meets this criteria and therefore was dropped from GreenPoint Rated
Tier 2. Insulation contains No-Added Formaldehyde and must comply with CHPS low emitting materials list	0		**X**		None	None		Most all insulation currently meets this criteria and therefore was dropped from GreenPoint Rated
TOTALS								
CALGreen Mandatory Requirements	**18 - 28**							***See Accompaning Comparsion Matrix *CALGreen provisions meet the GreenPoint Rated minimum thresholds for IAQ and Water and do not meet the minimum for Energy or Resource Conservation**
TIER 1 Pre-requisites and Electives	**33 - 42**							**CALGreen Tier 1 provisions meets the GreenPoint Rated minimum threshold for Energy Efficiency but may not meet the GreenPoint Rated minimum for Resource Conservation**
TIER 2 Pre-requisites and Electives	**65 - 76**							**CALGreen Tier 2 provisions exceed the GreenPoint Rated minimum threshold for Energy Efficiency but may not meet the GreenPoint Rated minimum for Resource Conservation**

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

Introduction

In January 2010, California adopted the first statewide mandatory green building code in the country. In January 2011, the California Green Building Standards Code (or CALGreen) will go into effect. The new code establishes minimum green building standards for most new construction projects.

Purpose

The purpose of this document is to provide users a quick reference between CALGreen and the rating systems used in GreenPoint Rated (GPR) and LEED for Homes. This document does not provide extensive analysis of the similarities or differences between the rating systems or CALGreen. For full information on CALGreen see: www.hcd.ca.gov (search for CALGreen), for GreenPoint Rated see: www.builditgreen.org, for LEED for Homes see: www.usgbc.org.

Verification

CALGreen is part of the California Building Standards Code and is enforced by local jurisdictions and building officials (see CALGreen Chapter 1). GreenPoint Rated and LEED for Homes are voluntary rating systems that are interpreted by their authors, Build it Green and the U.S. Green Building Council respectively, and documentation is reviewed by Build It Green and a LEED for Homes Provider, respectively. Some California local jurisdictions have local ordinances that require use of GPR for residential buildings.

Legend & Notes

	CALGreen	Note
Black	**Mandatory Measure**	This will be required in all jurisdictions.
Blue	**Tier 1 & 2 Prerequisite**	If a Tier is adopted, this will be a mandatory measure in that jurisdiction. Tier requirements and the full text of CALGreen measures can be found on the HCD website.
Green	Elective Measure	If a Tier is adopted, a set number of elective measures must be met, but the choice of measures is up to the applicant. Separately, local jurisdictions may make specific elective measures mandatory at their discretion. Tier requirements and the full text of CALGreen measures can be found on the HCD website. Elective measures require interpretation by local officials to be compared to GPR or LEED for Homes.
"Earns Credit or Points in GPR / LEED"		These columns indicate if meeting the required CALGreen measure also meets a prerequisite or earns point(s) for the related measure in either GreenPoint Rated or LEED for Homes. "Maybe" indicates that the CALGreen measure meets part but not all of the comparable GPR or LEED prerequisite or credit. **key:** n/a = not applicable, **Y**es **M**aybe **N**o

GPR	Note
Prerequisite	A project must meet all GPR prerequisites to qualify for any level of GPR certification.
	n/a
Point	Different measures are worth different numbers of green points, with a higher total rating indicating a "greener" home. A minimum number of points overall and within specific categories is required. GPR credits are described in the GreenPoint Rated Manuals.
"Meets CALGreen"	Indicates whether completing the GPR prerequisite or measure meets the requirements of the related CALGreen measure. **key:** n/a = not applicable, **Y**es **M**aybe **N**o

LEED	Note
Prerequisite	A project must meet all LEED prerequisites to qualify for any level of LEED certification.
	n/a
Credit	Different measures are worth different numbers of LEED credits. Higher point totals are required to meet Certified, Silver, Gold and Platinum levels of certification. LEED credits are described in the LEED reference guide.
"Meets CALGreen"	Indicates whether completing the LEED prerequisite or credit meets the requirements of the related CALGreen measure. **key:** n/a = not applicable, **Y**es **M**aybe **N**o

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code			Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen	LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
CALGreen Section		**CALGreen Requirements Summary**			**Measure**	**Requirements Summary**		**Credit**	**Requirements Summary**	
Mandatory measures					**Comparable GPR credits & prerequisites**			**Comparable LEED credits & prerequisites**		
4.1	**Planning and Design**				**Site, Community Design & Planning**			**Location & Linkages, Sustainable Sites**		
4.106.2	**Storm water drainage and retention during construction**	Projects which disturb less than one acre of soil and are not part of a larger common plan of development which in total disturbs one acre or more, shall manage storm water drainage during construction, including one or more of retention basins, filtration, or compliance with a storm water management ordinance.	**Y**	**M**	**Q.1**	Mirrors CALGreen 4.106.2 Storm water management during construction.	**Y**	**SS 1.1**	Prerequisite: Erosion Control During Construction: do all of the following: stockpile soil for reuse, control runoff, protect sewer inlets, surface waters and hillsides, provide swales.	**Y**
4.106.3	**Surface drainage**	The site shall be planned and developed to keep surface water from entering buildings. Construction plans shall indicate how the site grading or drainage system will manage surface water flows.	**Y**	**M**	**Q.2**	Mirrors CALGreen 4.106.3 Design for surface water drainage away from buildings.	**Y**	**ID 2.1**	Prerequisite: Part of durability plan.	**Y**
4.2	**Energy Efficiency**				**HVAC, Building Performance, Renewables**			**Energy & Atmosphere**		
4.201	**Energy efficiency (minimum standard)**	Meet California Energy Code (Title 24, Part 6).	**N**	**N**	**J.2**	Required: Minimum 15% better than Title 24.	**Y**	**EA 1.1**	Prerequisite: Minimum 15% better than Title 24.	**Y**
4.3	**Water Efficiency and Conservation**				**Landscape, Plumbing**			**Water Efficiency**		
4.303.1	**Indoor Water Use Savings**	20% savings: either each fixture meets reduced flow rates per Table 4.303.2 or calculation demonstrating building water use reduction per Table 4.303.1. Met fixtures standards in Table 4.303.3. *note: this measure effective July 1, 2011*	**Y**	**Y**	**G.2-3**	Showerheads ≤2.0 Gallons Per Minute (gpm) at 80 psi, Bathroom Faucets ≤ 1.5 gpm at 60psi, Kitchen and Utility Faucets ≤1.8 gpm, Toilets Dual-Flush or ≤1.28 Gallons Per Flush (gpf).	**Y**	**WE 3.1**	Showerheads ≤2.0 Gallons Per Minute (gpm), Bathroom Faucets ≤ 2.0 gpm, Toilets Dual-Flush or ≤1.3 Gallons Per Flush (gpf).	**N**
4.303.2	**Multiple showerheads serving one shower**	When a single shower is served by more than one showerhead, the combined flow rate shall not exceed the maximum flow rate specified or the shower shall be designed to only allow one shower to operate at a time.	**Y**	**Y**	**G.2**	Showerheads ≤2.0 Gallons Per Minute (gpm) at 80 psi, including requirement for multiple shower heads.	**Y**	**WE 3.1**	Showerheads rated per stall, more than 2.0 gpm per stall not allowed.	**Y**
4.304.1	**Irrigation Controllers**	Provide weather or soil moisture based controllers that automatically adjust in response to plants' needs as weather conditions change.	**Y**	**Y**	**C.6.b**	System Has Smart (Weather-Based) Controller.	**Y**	**WE 2.1.k**	Install a moisture sensor or rain delay controller.	**M**

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code			Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen	LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
CALGreen Section		CALGreen Requirements Summary			Measure	Requirements Summary		Credit	Requirements Summary	
4.4	**Material Conservation and Resource Efficiency**				**Foundation, Exterior, Frame & Envelope**			**Materials & Resources**		
4.406.1	**Joints and Openings**	Openings in the building envelope separating conditioned space from unconditioned space needed to accommodate gas, plumbing, electrical lines and other necessary penetrations shall be protected against rodents.	**Y**	n/a	**Q.4**	Mirrors CALGreen 4.406.1 Joints and openings. Annular spaces around pipes, electric cables, conduits, or other opening in plates at exterior walls shall be protected against rodents.	**Y**		none	n/a
4.408.1	**Construction waste reduction of at least 50%**	Recycle and/or salvage for reuse a minimum of 50% of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent. (Excavated soil and land-clearing debris excluded).	**Y**	**Y**	**A.2.a**	Required: Divert 50% (by weight) of all Construction and Demolition Waste (Including Green Waste and Existing Structures).	**Y**	**MR 3.2**	Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less that 2.5 lbs per sq. ft. of built space.	**M**
4.408.2	**Construction waste management plan**	Where a local jurisdiction does not have a construction and demolition waste management ordinance, a construction waste management plan shall be submitted for approval to the enforcing agency.	**Y**	**Y**	**A.2.a**	Required: Pre Construction Debris Recovery Plan.	**Y**	**MR 3.1**	Prerequisite: Construction waste management plan and documentation of the diversion rate for construction waste.	**Y**
4.410.1	**Operation and maintenance manual.**	An operation and maintenance manual shall be provided to the building occupant or owner, describing: 1. Keeping manual with property 2. O&M instructions for equipment and appliances, drainage, irrigation, etc. 3. Local utility conservation resources 4. Public transportation / carpool options 5. Health benefits of 30-60% relative humidity 6. Landscape water conservation 7. Gutter and downspout maintenance 8. Routine maintenance 9. State solar energy and incentive programs 10. Special inspection records	**N**	**N**	**N.4.a**	Develop a Homeowner Manual of Green Features/Benefits including: 1. Description of green features 2. O&M for green maintenance 3. Instructions for equipment & appliances 4. Recycling opportunities 5. Water & energy use optimization 6. Safety and controls labeling 7. Pest inspection procedure 8. Green pest control, fertilizer, cleaning information 9. Indoor air quality information 10. Gutter and downspout maintenance 11. Landscape maintenance 12. Handling of hazardous chemicals 13. Requirements of CALGreen O&M manual	**Y**	**AE 1.1.a**	Prerequisite: Provide a minimum one-hour walkthrough of the home plus an operations and training manual including: 1. Project LEED checklist 2. Project LEED accountability forms 3. Project durability inspection checklist 4. Product manuals for equipment & appliances 5. General energy, water, resource efficiency information 6. O&M guidance for equipment, including irrigation 7. Guidance on cleaning, landscaping, irrigation, etc. 8. Information on "green power"	**N**
4.5	**Environmental Quality**				**Finishes, Flooring, HVAC**			**Indoor Environmental Quality**		
4.503.1	**Fireplaces**	Any installed gas fireplace shall be a direct-vent sealed-combustion type. Any installed woodstove or pellet stove shall comply with US EPA Phase II emission limits where applicable. Woodstoves, pellet stoves and fireplaces shall also comply with applicable local ordinances.	**Y**	**N** **M**	**Q.5**	Mirrors CALGreen 4.503.1 - Gas fireplace shall be a direct-vent sealed combustion type. Woodstove or pellet stove shall comply with US EPA Phase II emission limits.	**Y**	**EQ 2.1** **EQ 2.2**	Prerequisite: Basic Combustion Venting Measures: sealed combustion or power-vented exhaust. CO detectors required. Credit: Wood and pellet stoves are EPA certified.	**N** **Y**
4.504.1	**Covering of duct openings and protection of mechanical equipment during construction**	At the time of rough installation, or during storage on the construction site and until final startup of the heating and cooling equipment, all duct and other related air distribution component openings shall be covered with tape, plastic, sheet metal or other methods acceptable to the enforcing agency to reduce the amount of dust or debris which may collect in the system.	**Y**	**Y**	**A.5.a**	Construction Environmental Quality Management Plan - Duct openings and other related air distribution component openings shall be covered during construction.	**Y**	**EQ 8.1**	Upon installation, seal all permanent ducts and vents to minimize contamination during construction.	**Y**
4.504.2.1	**Adhesives, sealants, and caulks**	Adhesives, sealants, and caulks shall comply with local or regional air pollution control or air quality management district rules where applicable, or SCAQMD Rule 1168 VOC limits and Rule 1168 prohibition on the use of certain toxic compounds. Aerosol adhesives shall meet CCR Title 17 section 94507 et seq.	**Y**	**Y**	**K.4**	Use Low-VOC Caulks & Construction Adhesives that meet SCAQMD Rule 1168. Sealants meet SCAQMD Rule 1168. Aerosol adhesives shall meet CCR section 94507.	**Y**	**MR 2.2**	Environmentally preferable products: adhesives & sealants meet SCAQMD Rule 1168.	**M**
4.504.2.2	**Paints and coatings**	Paints, stains, and coatings shall comply with VOC limits the ARB Architectural Coatings Suggested Control Measure, unless more stringent local limits apply. (See 4.504.2.4 for verification process.)	**Y**	**Y**	**K.2-3**	Use Low-VOC Interior Wall/Ceiling Paints (<50 Grams Per Liter (gpl) VOCs Regardless of Sheen) and Low-VOC Coatings that meet SCAQMD Rule 1113	**Y**	**MR 2.2**	Environmentally preferable products: paints meet Green Seal GS-11, GC-03, or SCAQMD Rule 1113 as applicable.	**Y**
4.504.2.3	**Aerosol Paints and Coatings**	Aerosol paints and coatings shall meet the Product-Weighted MIR Limits for ROC, other toxic compounds, and ozone depleting substances, in CCR Title 17 section 94520 and 94522 et seq.	n/a	n/a		none	n/a		none	n/a

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code					GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System			LEED for Homes California (non-Midrise) Rating System		
CALGreen Section		CALGreen Requirements Summary	Earns GPR Cred/Pts	Earns LEED Cred/Pts	Measure	Requirements Summary	Meets CALGreen	Credit	Requirements Summary	Meets CALGreen
4.504.3	Carpet systems	All carpet installed in the building interior shall meet the testing and product requirements of one of the following: 1. Carpet and Rug Institute's Green Label Plus Program 2. California Department of Public Health Standard Practice for the testing of VOCs (Specification 01350) 3. NSF/ANSI 140 at the Gold level 4. Scientific Certifications Systems Indoor Advantage Gold	M Y	M	L.3 L.4	Low Emitting Flooring: 50% of total floor area meets relevant criteria (carpet: CRI Green Label Plus, resilient flooring: FloorScore Certified). Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.	N Y	MR 2.2	Environmentally preferable products: Carpet and pad meets CRI Green Label Plus for 45% or 90% of total floor area.	N
4.504.3.1	Carpet cushion	All carpet cushion installed in the building interior shall meet the requirements of the Carpet and Rug Institute Green Label program.	M Y	M	L.3 L.4	Low Emitting Flooring: 50% of total floor area meets relevant criteria. Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.	N Y	MR 2.2	See above.	N
4.504.3.2	Carpet adhesive	All carpet adhesive shall meet the requirements of Table 5.504.1. (VOC limit of 50 g/L)	M Y	M	L.3 L.4	Low Emitting Flooring: 50% of total floor area meets relevant criteria. Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.	Y Y	MR 2.2	Environmentally preferable products: adhesives & sealants meet SCAQMD Rule	Y
4.504.4	Resilient flooring systems	At least 50% of floor area receiving resilient flooring shall comply with the VOC-emission limits defined in the Collaborative for High Performance Schools (CHPS) Low-emitting Materials List or certified under the Resilient Floor Covering Institute (RFCI) FloorScore program.	M Y	M	L.3 L.4	Low Emitting Flooring: 50% of total floor area meets relevant criteria. Mirrors CALGreen 4.504.3-4 All carpet and 50% of resilient flooring is low emitting.	N Y	MR 2.2	Environmentally preferable products: flooring is FloorScore certified for 45% or	M
4.504.5	Composite wood products	Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure for Composite Wood (17 CCR 93120 et seq.). See 4.504.5.1 for documentation requirements.	Y	N	K.7	Required: Meet Current CARB Airborne Toxic Control Measure (ATCM) for Composite Wood Formaldehyde Limits by Mandatory Compliance Dates	Y	MR 2.2	Environmentally preferable products: cabinet, counter, and trim composite materials contain no added urea-formaldehyde resins.	Y
4.505.2.1	Concrete slab foundations	Concrete slab foundations required to have a vapor retarder by California Building Code shall also have a capillary break.	Y	M	Q.6	Mirrors CALGreen 4.505.2 Vapor retarder and capillary break is installed at slab on grade.	Y	ID 2.1	Prerequisite: Part of durability plan.	Y
4.505.3	Moisture content of building materials	Building materials with visible signs of water damage shall not be installed. Moisture content of building materials used in wall and floor framing is checked before enclosure.	Y	M	Q.7	Mirrors CALGreen 4.505.3 19% moisture content of building framing materials.	Y	ID 2.1	Prerequisite: Part of durability plan.	Y
4.506.1	Bathroom exhaust fans	ENERGY STAR compliant exhaust fans which terminate outside the building are provided in every bathroom, and have humidistat control capable of adjustment between a relative humidity range of 50-80%.	Y	M M	H.8	Install ENERGY STAR Bathroom Fans on Timer or Humidistat.	M	EQ 5.1.d EQ 5.2.b/c	Prerequisite: exhaust fans in all bathrooms and kitchen are Energy STAR, meet ASHRAE standards, exhaust outdoors. Credit: occupancy sensor, humidistat, timer control, or continuous operation.	N M
4.507.1	Openings	Whole house exhaust fans shall have insulated louvers or covers which close when the fan is off. Covers or louvers shall have a minimum insulation value of R-4.2.	Y	n/a	H.9.b	Install Whole House Fan.	Y		none	n/a
4.507.2	Environmental Comfort: Heating and air conditioning system design	Heating and air conditioning systems shall be sized, designed, and equipment is selected using the following methods: 1. The heat loss and heat gain is established according to ACCA Manual J, ASHRAE handbooks or equivalent. 2. Duct systems are sized according to ACCA 29-D Manual D, ASHRAE handbooks or equivalent. 3. Select heating and cooling equipment according to ACCA 36-S Manual S or equivalent.	Y	Y	H.1.a	Design and Install HVAC System to ACCA Manual J, D, and S Recommendations.	Y	EQ 6.1	Prerequisite: Design Calcs and install ducts or system according to ACCA Manual J and D, and ASHRAE Handbook of Fundamental Procedures.	Y
702.1	Qualifications	HVAC systems installers are trained and certified in the proper installation of HVAC systems.	N	n/a	Q.8	Mirrors CALGreen 702.1 HVAC systems installers are trained and certified in the proper installation of HVAC systems.	Y		none	n/a

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code					GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System			LEED for Homes California (non-Midrise) Rating System		
CALGreen Section		CALGreen Requirements Summary	Earns GPR Cred/Pts	Earns LEED Cred/Pts	Measure	Requirements Summary	Meets CALGreen	Credit	Requirements Summary	Meets CALGreen
Tier 1 additional prerequisites					**Comparable GPR credits & prerequisites**			**Comparable LEED credits & prerequisites**		
4.1	**Planning and Design** - all measures below plus 2 electives				**Site, Community Design & Planning**			**Location & Linkages, Sustainable Sites**		
A4.106.2.3	**Soil Analysis and Protection**	Tier 1: Displaced topsoil shall be stockpiled for reuse in a designated area and covered or protected from erosion.	N	M	A.1.a	Protect Topsoil and Reuse after Construction.	Y	SS 1.1.a	Prerequisite: Stockpile and protect disturbed topsoil from erosion.	Y
A4.106.4	**Water permeable surfaces**	Tier 1: Not less than 20% of the total parking, walking, or patio surfaces shall be permeable (excluding primary driveway, walkway and porch areas).	N	N	P.A.1.a	Permeable Paving for 25% of Driveways, Patios and Walkways (no excepted areas).	Y	SS 4.1	At least 70% of the built environment, excluding roof area, is permeable or designed to capture water runoff.	Y
A4.106.5	**Cool Roof**	Tier 1: Roofing materials shall have a minimum 3- year aged solar reflectance and thermal emittance or a minimum Reflectance Index (SRI) equal to or greater than the values specified in Tables A4.106.5(1) and A4.106.5(2). Steep slope >64, low slope >10 or 16 (depending on climate zone)	n/a	n/a		none	n/a		none	n/a
4.2	**Energy Efficiency** - all measures below plus 4 electives				**HVAC, Building Performance, Renewables**			**Energy & Atmosphere**		
A4.203.1	**Energy performance**	Tier 1: 15% reduction compared to Title 24.	Y	Y	J.2	Required: Minimum 15% better than Title 24.	Y	EA 1.1	Prerequisite: Minimum 15% better than Title 24.	Y
4.3	**Water Efficiency and Conservation** - all measures below plus 1 elective				**Landscape, Plumbing**			**Water Efficiency**		
A4.303.1	**Kitchen faucets**	Tier 1: Max. flow rate of 1.5 gpm.	Y	n/a	G.2.c	Kitchen faucets 2.0 gpm max.	N		Kitchen faucets not included as used for filling lasses or pots.	n/a
A4.304.4	**Potable water reduction**	When landscaping is provided by the builder, a water efficient landscape irrigation system shall be installed that reduces potable water use. Tier 1: Reduce the use of potable water to a quantity that does not exceed 65% of ETo times landscape area.	Y	Y N	C.11.a	Design Landscape to meet Water Budget: Install Irrigation System That Will Be Operated at ≤70% Reference ET.	N	SS 2.5 WE 2.3	Reduce Overall Irrigation Demand by at Least 20% (to 80% of ET). Reduce Overall Irrigation Demand by at Least 45% (to 55% of ET).	N Y
4.4	**Material Conservation** - all measures below plus 1 elective				**Foundation, Exterior, Frame & Envelope**			**Materials & Resources**		
A4.408.1	**Enhanced construction waste reduction**	Recycle and/or salvage for reuse non-hazardous construction and demolition debris (excavated soil and land-clearing debris excluded). Tier 1: 65% Reduction.	Y	Y	A.2.b	Divert 100% of Asphalt and Concrete and 65% (by weight) of Remaining Materials.	N	MR 3.2	Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less that 2.5 lbs per sq. ft. of built space.	M
A4.403.2	**Reduction in cement use**	As allowed by the enforcing agency, reduce cement used in foundation mix design. Products commonly used to replace cement in concrete mix designs include, but are not limited to fly ash, slag, silica fume, rice hull ash. Tier 1: Not less than a 20% reduction in cement use.	Y	N	B.1	Replace Portland Cement in Foundation Concrete with Recycled Fly Ash and/or Slag (Minimum 20%).	Y	MR 2.2	Environmentally Preferable Products: Foundation and concrete wall cement contains at least 30% fly ash.	Y
A4.405.3	**Recycled content**	Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a percent of the total materials cost. (RCV equals percent post-consumer + 1/2 percent pre-consumer times material cost.) Tier 1: minimum 10%.	M	M	A.3.a C.12 E.1 F.1 K.5 K.6 L.1	Use Recycled Content Aggregate Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing Use Environmentally Preferable Decking Insulation has 75% Recycled Content Use Recycled-Content Paint Use Environmentally Preferable Materials for Interior Finishes Use Environmentally Preferable Flooring	N	MR 2.2	Environmentally Preferable Products: Points earned for each of 21 building components (framing, siding, flooring, trim, cabinets, etc.) that contains a minimum of 25% postconsumer (or 50% postindustrial) recycled content, as long as recycled content is reached in 90% of the material used in that component.	N
5.5	**Environmental Quality** - all measures below plus 1 elective				**Finishes, Flooring, HVAC**			**Indoor Environmental Quality**		
A4.504.2	**Resilient flooring systems**	Tier 1: At least 80% of resilient flooring installed shall comply with the criteria listed above.	M	M	L.3	Low Emitting Flooring: 50% of total floor area is certified (resilient flooring: FloorScore).	N	MR 2.2	Environmentally preferable products: flooring is FloorScore certified for 45% or 90% of total floor area.	N
A4.504.3	**Thermal Insulation**	Tier 1: Install thermal insulation in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List.	n/a	Y		none	n/a	MR 2.2	Environmentally preferable products: insulation complies with CA Practice for Testing of VOCs from Building Materials.	Y

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CALGreen Residential Building Code			Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen	LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
CALGreen Section		**CALGreen Requirements Summary**			**Measure**	**Requirements Summary**		**Credit**	**Requirements Summary**	
Tier 2 additional prerequisites (Tier 1 prerequisites also apply)					**Comparable GPR credits & prerequisites**			**Comparable LEED credits & prerequisites**		
4.1	**Planning and Design** - all measures below plus 4 electives				**Site, Community Design & Planning**			**Location & Linkages, Sustainable Sites**		
A4.106.2.3	**Soil Analysis and Protection**	Tier 2: Tier 1, plus the construction area shall be identified and delineated by fencing or flagging to limit construction activity to the construction area.	N	N	A.1.b	Limit and Delineate Construction Footprint for Maximum Protection .	Y	SS 1.2	Minimize disturbed area of site around trees, leave undeveloped area, undo soil compaction.	Y
A4.106.4	**Water permeable surfaces**	Tier 2: Not less than 30% of the total parking, walking, or patio surfaces shall be permeable (excluding primary driveway, walkway and porch areas).	N	N	P.A.1.a	Permeable Paving for 25% of Driveways, Patios and Walkways (no excepted areas).	Y	SS 4.1	At least 70% of the built environment, excluding roof area, is permeable or designed to capture water runoff.	Y
A4.106.5	**Cool Roof**	Tier 2: Steep slope > 78, low slope >20.	n/a	n/a		none	n/a		none	n/a
4.2	**Energy Efficiency** - all measures below plus 6 electives				**HVAC, Building Performance, Renewables**			**Energy & Atmosphere**		
A4.203.1	**Energy performance**	Tier 2 - 30% reduction compared to Title 24.	Y	Y	J.3	Design and Build Near Zero Energy Homes.	Y	EA 1.2	Exceptional Energy Performance (16-60% better than Title 24).	N
4.3	**Water Efficiency and Conservation** - all measures below plus 2 electives				**Landscape, Plumbing**			**Water Efficiency**		
A4.303.1	**Kitchen dishwashers**	Dishwashers shall be EnergySTAR qualified and 5.8 gal/cycle max.	n/a	n/a		none	n/a		none	n/a
A4.304.4	**Potable water reduction**	Tier 2: Reduce the use of potable water to a quantity that does not exceed 60% of ETo times landscape area.	N	N	C.11.b	Install Irrigation System That Will Be Operated at ≤50% Reference ET.	Y	WE 2.3	Reduce Overall Irrigation Demand by at Least 45% (to 55% of ET).	Y
4.4	**Material Conservation** - all measures below plus 4 electives				**Foundation, Exterior, Frame & Envelope**			**Materials & Resources**		
A4.408.1	**Enhanced construction waste reduction**	Recycle and/or salvage for reuse non-hazardous construction and demolition debris (excavated soil and land-clearing debris excluded). Tier 2: 75% reduction.	N	Y	A.2.c	Divert 100% of Asphalt and Concrete and 80% (by weight) of Remaining Materials.	Y	MR 3.2	Construction Waste Reduction: divert 25-88% of waste (excluding land clearing and demolition waste), or generate less that 2.5 lbs per sq. ft. of built space.	M
A4.403.2	**Reduction in cement use**	Reduce cement used in foundation mix design. Tier 2: 25% reduction.	Y	N	B.1	Replace Portland Cement in Foundation Concrete with Recycled Fly Ash and/or Slag (Minimum 20%).	N	MR 2.2	Environmentally Preferable Products: Foundation and concrete wall cement contains at least 30% fly ash.	Y
A4.405.3	**Recycled content**	Use materials, equivalent in performance to virgin materials, with post-consumer or pre-consumer recycled content value (RCV) for a percent of the total materials cost. (RCV equals percent post-consumer + 1/2 percent pre-consumer times material cost.) Tier 2: minimum 15%.	M	M	A.3.a C.12 E.1 F.1 K.5 K.6 L.1	Use Recycled Content Aggregate Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing Use Environmentally Preferable Decking Insulation has 75% Recycled Content Use Recycled-Content Paint Use Environmentally Preferable Materials for Interior Finishes Use Environmentally Preferable Flooring	N	MR 2.2	Environmentally Preferable Products: Points earned for each of 21 building components (framing, siding, flooring, trim, cabinets, etc.) that contains a minimum of 25% postconsumer (or 50% postindustrial) recycled content, as long as recycled content is reached in 90% of the material used in that component.	N
5.5	**Environmental Quality** - all measures below plus 1 elective				**Finishes, Flooring, HVAC**			**Indoor Environmental Quality**		
A4.504.2	**Resilient flooring systems**	Tier 2: At least 90% of resilient flooring installed shall comply with the criteria listed above.	M	Y	L.3	Low Emitting Flooring: 50% of total floor area is certified (resilient flooring: FloorScore).	N	MR 2.2	Environmentally preferable products: flooring is FloorScore certified for 45% or 90% of total floor area.	N
A4.504.3	**Thermal Insulation**	Tier 2: Tier 1 plus Install insulation which contains No-Added Formaldehyde (NAF) and is in compliance with the VOC-emission limits defined in Collaborative for High Performance Schools (CHPS) Low-emitting Materials List.	n/a	Y		none	n/a	MR 2.2	Environmentally preferable products: insulation complies with CA Practice for Testing of VOCs from Building Materials.	N

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CALGreen Residential Building Code			Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen	LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
CALGreen Section	**CALGreen Requirements Summary**				**Measure**	**Requirements Summary**		**Credit**	**Requirements Summary**	
Elective measures					**Comparable GPR credits & prerequisites**			**Comparable LEED credits & prerequisites**		
4.1	**Planning and Design** (choose two for Tier 1 or four for Tier 2)				**Site, Community Design & Planning**			**Location & Linkages, Sustainable Sites**		
A4.103.1	Site Selection: Infill, Greyfield, or Brownfield.		Y	M	**O.1-2**	Develop Infill Sites, Build on Designated Brownfield Site.	Y	**LL 3.1-3.3**	Preferred Locations: Edge, Infill, Previously Developed.	Y
A4.104.1	Site Preservation: Staff Trained in Environmentally Friendly Development.		M	N	**N.2 N.3**	Pre-Construction Kick-Off Meeting with Rater Subs, Management Staff are Certified Green Building Professionals.	Y	**ID 1.2-1.4**	Integrated project planning, Professional credentialed with respect to LEED for Homes, Design charrette.	Y
A4.105.1	Deconstruction and Reuse of Existing Materials.		M	M	**A.2.b,c**	Divert 100% of Asphalt and Concrete and 65% (and 75%) (by weight) of Remaining Materials.	M		would contribute to MR 2.2a (reused materials) and MR 3.2 (deconstruction).	N
A4.106.1	Solar Orientation within 30 degrees of South.		N	N	**J.3**	Design and Build Near Zero Energy Homes.	M	**ID 1.5**	Building orientation within 15 degrees of South, meets glazing ratios.	Y
A4.106.2.1	Soil Analysis used in structural design of building.		n/a	n/a		none	n/a		none	n/a
A4.106.2.2	Soil Protection minimizes erosion, cut and fill, and trenching.		n/a	N		none	n/a	**SS 1.2**	Minimize disturbed area of site around trees, leave undeveloped area, undo soil compaction.	M
A4.106.3	Landscape Design	Do one or more of: 1. Restore areas disrupted by construction with native species	M	n/a	**C.3c**	75% of Plants are Drought Tolerant, California Natives or Mediterranean Species	M		none	n/a
		2. Turf Reduction: - Tier 1: Turf limited to 50% of total landscaped area	N	Y	**C.4**	Minimize Turf in Landscape Installed by Builder: less than 25% or 10% of total area	Y	**SS 2.3**	Limit conventional turf to 60%-0% of softscape area	N
		- Tier 2: Turf limited to 25% of total landscaped area	Y				Y			
		3. Use 75% native Californian or drought tolerant species	Y	Y	**C.3c**	75% of Plants are Drought Tolerant, California Natives or Mediterranean Species	Y	**SS 2.4**	Drought-tolerant plants are 40%-90% of installed plants	N
		4. Use hydrozoning irrigation techniques	Y	Y	**C.1**	Group Plants by Water Needs (Hydrozoning)	Y	**WE 2.1.f**	Create separate zones for each type of bedding area based on watering needs	Y
4.2	**Energy Efficiency** (choose four for Tier 1 or six for Tier 2)				**HVAC, Building Performance, Renewables**			**Energy & Atmosphere**		
*** energy note**	Indicates prescriptive energy measures in CALGreen without a prescriptive counterpart in GPR or LEED, but which would contribute to energy performance prerequisites and points/credits in GPR (J.2) and LEED (EA 1).		*	*	* Indicates prescriptive energy measures in GPR without a prescriptive counterpart in CALGreen, but which would contribute to energy performance prerequisites in Tier 1 or Tier 2.		*	* Indicates prescriptive energy measures in LEED without a prescriptive counterpart in CALGreen, but which would contribute to energy performance prerequisites in Tier 1 or Tier 2.		*
A4.205.1	Radiant Barrier*		*	*		* see energy note	*		* see energy note	*
A4.205.2	Exterior Shading on South & West Windows		*	*		* see energy note	*		* see energy note	*
A4.206.1	Blower Door Testing		Y	N	**J.1.b-c**	Blower Door Test	Y	**EA 1.1**	Prerequisite: envelope leakage testing	Y
A4.207.1	Innovative Radiant, Hydronic, or Ground Source Heating & Cooling System		M	*	**H.3**	High Performing Zoned Hydronic Radiant Heating	Y		* see energy notes at top	*
A4.207.2	HVAC Commissioning		n/a	n/a		none	n/a		none	n/a
A4.207.4	Furnace AFUE .90 or higher		Y	*	**H.2.a**	Sealed Combustion Units (Furnace).	Y		* see energy note	*
A4.207.5	Electric Heat Pump HSPF 8.0 or higher*		Y	*	**H.4**	High Efficiency Air Conditioning, HSPF >8	M		* see energy note	*
A4.207.6	Cooling Equipment SEER higher than 13.0 and EER 11.5 or higher		N	*	**H.4**	High Efficiency Air Conditioning, SEER >14, EER>11 or 12	Y		* see energy note	*
A4.207.7	Interior and/or Insulated Ductwork		Y	*	**H.5.a**	Install HVAC Unit and Ductwork within Conditioned Space	Y		* see energy note	*
A4.207.8	Duct Leakage Testing Shows <6% Leakage*		M	n/a		* see energy note	*	**EA 1.1**	Prerequisite: envelope leakage testing	M
A4.207.9	Whole House Fan		Y	*	**H.9.b**	Whole House Fan	Y		* see energy note	*
A4.207.10	Energy STAR Ceiling Fans		Y	Y	**H.9.a**	Energy STAR Ceiling Fans	Y	**EA 9.1.b**	Energy STAR Ceiling Fans	Y
A4.208.1	Gas Water Heater EF higher than .6		M	Y	**H.2.b**	Sealed Combustion Units (Water Heater)	M		none for LEED-H in California	*
A4.208.2	Gas Water Heater EF higher than .8		Y	Y	**H.2.b**	Sealed Combustion Units (Water Heater)	N		none for LEED-H in California	*
A4.208.3	Minimize Hot Water Wait Time		N	M	**G.1**	Distribute Domestic Hot Water Efficiently	Y	**EA 7.1**	Efficient Hot Water Distribution System	M
A4.209.1	Hard-wired Lighting Fixtures at least 90% Energy STAR		Y	Y	**M.5**	High-Efficacy Lighting and Design Lighting System	Y	**EA 8.3**	Lighting - up to 80% Energy STAR	N
A4.210.1	All Applicable Appliances Energy STAR		Y	Y	**M.1-3**	Energy STAR Dishwasher, Clothes Washer, Refrigerator	Y	**EA 9.1.a,c,d**	Energy STAR Refrigerator, Dishwasher, Clothes Washer	Y
A4.211.1	Solar PV System meeting CEC NSHP program		M	N	**I.3**	Onsite Renewable Generation	M	**EA 10**	Renewable Energy System	Y
A4.211.2	Solar Water Heating System with Solar Fraction > 0.5.		M	Y	**I.3**	Onsite Renewable Generation	M		none for LEED-H in California	*
A4.211.3	Roof Space for Future Solar Installation - 300 sq ft. min.		Y	n/a	**I.2**	Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft2 of South-Facing Roof.	N		none	n/a
A4.211.4	Conduit for Future Solar Installation - 1" min.		Y	n/a	**I.2**	Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 sq ft of South-Facing Roof.	Y		none	n/a

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

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CALGreen Residential Building Code				GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System			LEED for Homes California (non-Midrise) Rating System		
CALGreen Section	CALGreen Requirements Summary	Earns GPR Cred/Pts	Earns LEED Cred/Pts	Measure	Requirements Summary	Meets CALGreen	Credit	Requirements Summary	Meets CALGreen
4.3	**Water Efficiency and Conservation** (choose one for Tier 1 or two for Tier 2)			**Landscape, Plumbing**			**Water Efficiency**		
A4.303.2	Non-water urinals or toilets	Y	Y	P.G.4	Composting or Waterless Toilet.	Y		Non-water fixtures would contribute to WE 3.1.	N
A4.304.1	Minimize spray heads in irrigation system (all areas except turf).	N	M	C.6.a	Install High-Efficiency Irrigation System with Low-Flow, Drip, Bubblers or low-flow Sprinklers for all areas.	Y	WE 2.1.e,i	Drip irrigation for 50% of landscape planting beds, High-efficiency nozzles with distribution uniformity at least 0.70.	M
A4.304.2	Rainwater capture, storage, and re-use for 65% of roof area.	M	M	C.8	Rain Water Harvesting System .	M	WE 1.1	Rainwater Harvesting System.	M
A4.304.3	Water budget for irrigation.	N	M	C.11.a	Design Landscape to Meet Water Budget.	Y	WE 2.1.a	Irrigation System Design by Certified Professional.	M
A4.304.5	Landscape design uses no potable water.	n/a	n/a		none	n/a		none	n/a
A4.305.1	Piping for future graywater system.	Y	N	P.G.1	Greywater Pre-Plumbing.	Y	WE 1.2	Graywater Reuse System.	Y
A4.305.2	Recycled water piping for future toilet flushing.	N	N		none	n/a		none	n/a
A4.305.3	Recycled water used for irrigation.	Y	Y	C.9	Irrigation System Uses Recycled Wastewater, or is pre-plumbed.	M	WE 1.3	Municipal Recycled Water System.	Y
4.4	**Material Conservation** (choose one for Tier 1 or four for Tier 2)			**Foundation, Exterior, Frame & Envelope**			**Materials & Resources**		
A4.403.1	Frost-Protected Shallow Foundation.	Y	n/a	B.2	Use Frost-Protected Shallow Foundation in Cold Areas (CEC Climate Zone 16).	Y		none	n/a
A4.404.1	Efficient Framing Lumber Size: Beams and Headers.	M	M	D.1.b	Apply Optimal Value Engineering - Door and Window Headers Sized for Load.	Y	MR 1.4	Framing Efficiencies.	M
A4.404.2	Efficient Framing Building Dimensions and Layouts.	N	Y	D.1.a	Apply Optimal Value Engineering - Place Joists, Rafters and Studs at 24-Inch on Center.	Y	MR 1.2, MR 1.4	Detailed Framing Documents, Framing Efficiencies.	M
A4.404.3	Pre-manufactured Building Systems.	M	Y	D.2-3,6	Construction Material Efficiencies, Engineered Lumber, Solid Wall Systems.	Y	MR 1.4, MR 1.5	Framing Efficiencies, Off-site Fabrication.	Y
A4.404.4	Pre-cut Materials and Details.	M	N	D.2-3,6	Construction Material Efficiencies, Engineered Lumber, Solid Wall Systems.	Y	MR 1.3	Detailed Framing Documents, Cut List and Lumber Order.	Y
A4.405.1	Windows, Trim, and/or Siding Do Not Require Paint or Stain.	M	n/a	E.4	Durable non-Combustible Siding Material.	Y		none	n/a
A4.405.2	Flooring Without Additional Coverings, e.g. Concrete.	Y	M	L.1, L.2	Environmentally Preferable Flooring Thermal Mass Floors.	M	MR 2.2	1/2 point for 90% hard surface flooring; sealed concrete counts towards flooring component.	Y
A4.405.4	Renewable Materials, e.g. Bamboo, Cork, Wood, Agricultural Sources.	N	N	K.6, L.1	Use Environmentally Preferable Materials for Interior Finish, Flooring: A) FSC-Certified Wood, B) Reclaimed, C) Rapidly Renewable, D) Recycled-Content or E) Finger-Jointed F) Local.	M	MR 2.2	Environmentally Preferable Products: Linoleum, cork, or bamboo count towards flooring component - 90% of total flooring must be renewably sourced to count.	Y
A4.407.1	Install Foundation and Landscape Drains.	N	M	B.4	Install a Foundation Drainage System .	Y	ID 2.1	Prerequisite: Part of durability plan.	Y
A4.407.2	Roof Drains Connected to Landscape Features.	N	Y	P.A.1.c	Route Downspout Through Permeable Landscape.	Y	SS 4.3	Permanent stormwater controls designed to manage roof runoff.	Y
A4.407.3	Flashing Details Provided.	N	Y	E.2	Flashing Installation Techniques Specified and Third-Party Verified.	Y	ID 2.1	Prerequisite: Part of durability plan.	Y
A4.407.4	Construction Materials Protected from Moisture Damage.	N	Y	A.5.b	Construction Environmental Quality Management Plan - Full environmental plan with flush out.	Y	ID 2.1	Prerequisite: Part of durability plan.	Y
A4.407.5	Ice/Water Barrier on Roof (Climate Zone 16 only).	n/a	Y		none	n/a	ID 2.1	Prerequisite: Part of durability plan.	Y
A4.407.6	Exterior Doors Protected from Water Intrusion.	n/a	n/a		none	n/a		none	n/a
A4.407.7	Permanent Overhang or Awning on Exterior Walls.	Y	n/a	D.8.b	Overhangs and Gutters.	Y		none	n/a
5.5	**Environmental Quality** (choose one for Tier 1 or one for Tier 2)			**Finishes, Flooring, HVAC**			**Indoor Environmental Quality**		
A4.504.1	Early Compliance with CARB Particleboard Formaldehyde Standards.	Y	M	K.8	Exceed Current CARB ATCM for Composite Wood Formaldehyde Limits Prior to Mandatory Compliance Dates.	Y	MR 2.2	Environmentally preferable products: cabinet, counter, and trim composite materials contain no added urea-formaldehyde resins.	M
A4.506.1	Filters on Air and Ventilation Systems higher than MERV 6.	Y	N	H.6	High Efficiency HVAC Filter (MERV 6+).	Y	EQ 7.1	Prerequisite: Filters >= MERV 8.	Y
A4.506.2	Direct Vent or Isolated Equipment.	Y	N	H.2	Sealed Combustion Units.	Y	EQ 2.1	Prerequisite: Basic Combustion Venting Measures: sealed combustion or power-vented exhaust. CO detectors required.	Y

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

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CALGreen Residential Building Code		Earns GPR Cred/Pts	Earns LEED Cred/Pts	GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen	LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
CALGreen Section	**CALGreen Requirements Summary**			**Measure**	**Requirements Summary**		**Credit**	**Requirements Summary**	
Note: this column is intentionally left blank as there are no CALGreen measures comparable to the remaining GPR and LEED for Homes measures listed here.				**Additional GPR credits & prerequisites**			**Additional LEED credits & prerequisites**		
				Site, Community Design & Planning			**Location & Linkages, Sustainable Sites**		
				A.4	Reduce Heat Island Effect on Site.		SS 3	Reduce local heat island effect.	
				C.13	Reduce Light Pollution by Shielding Fixtures and Directing Light Downward.			none	
				N.1	Required: Incorporate GreenPoint Rated Checklist in Blueprints.			none	
				O.3	Cluster Homes & Keep Size in Check.		SS 6	Compact Development, Home Size Adjuster.	
				O.4	Design for Walking & Bicycling.		LL 5	Basic Community Resources / Transit.	
				O.5	Design for Safety & Social Gathering.			none	
				O.6	Design for Diverse Households.			none	
				P.A.1.b-e	Stormwater Control: Landscape and Site Features.		SS 4.1	See above.	
				PA.2	Capture and Treat 85% of Total Annual Stormwater Runoff.		SS 4.3	Management of roof runoff: manage 50% or 100% on site.	
							ID 1.1	Prerequisite: Integrated Project Planning.	
							LL 2	Site Selection (Avoid Sensitive Sites).	
							LL 4	Existing Infrastructure.	
							LL 6	Access to Open Space.	
							SS 2.1	Prerequisite: No Invasive Plants.	
							SS 4.2	Permanent Erosion Controls.	
				HVAC, Building Performance, Renewables			**Energy & Atmosphere**		
				C.3	Construct Resource-Efficient Landscapes.			none	
				C.5	Plant Shade Trees.		SS 3	Reduce Local Heat Island Effects: trees or high-albedo hardscape.	
				C.7	Incorporate Two Inches of Compost in the Top 6 to 12 Inches of Soil.		SS 2.2.e	All compacted soil must be tilled to at least 6 inches.	
				D.7	Energy Heels on Roof Trusses.*			* see energy notes at top	
				H.9.c	Automatically Controlled Integrated HVAC System with Variable Speed.*			* see energy notes at top	
				I.1	Pre-Plumb for Solar Water Heating.			none	
				J.1.a	Verify Quality of Insulation Installation & Thermal Bypass Checklist.*			* see energy notes at top	
				J.5-6	Third Party Energy Plan Review.*			none	
				L.2	Thermal Mass Floors.*			* see energy notes at top	
				N.5	Install a Home System Monitor OR Do Time-of-Use Pricing Program.			none	
				P.H.1	Humidity Control Systems.		EQ 3	Moisture Control: mechanical dehumidification system.	
				P.H.2	Design HVAC System to Manual T for Register Design.			none	
							EA 8.1	Prerequisite: Meet California Title-24 lighting requirements.	
							EA 11.1	Prerequisite: Refrigerant Charge Test.	
							EA 11.2	Appropriate HVAC Refrigerants.	
				Landscape, Plumbing			**Water Efficiency**		
				C.2	Mulch All Planting Beds to the Greater of 3 Inches or Local Water Ordinance Requirement.		SS 2.2.d	Add mulch or soil amendments as appropriate.	
				C.10	Submetering for Landscape Irrigation.		WE 2.1.d	Submeter for irrigation system.	
				C.12	Use Environmentally Preferable Materials for 70% of Non-Plant Landscape Elements and Fencing.		MR 2.2	Environmentally Preferable Products: Decking and Patio material.	
				P.G.2	Greywater System Operational.		WE 1.2	Graywater Reuse System.	
				P.G.3	Innovative Wastewater Technology (Constructed Wetland, Sand Filter, Aerobic System).			none	
				P.G.5	Install Drain Water Heat-Recovery System.			none	
				P.G.6	Install a Hot Water Desuperheater.			none	
							WE 2.1	Additional irrigation efficiency measures.	
							WE 2.2	Third-party inspection of irrigation system.	
							WE 3.2	Very high efficiency fixtures and fitting.	

CALGreen Low-Rise Residential comparison to GreenPoint Rated and LEED for Homes

version 1.0, September 1, 2010

CALGreen Residential Building Code		Earns GPR Cred/Pts	Earns LEED Cred/Pts
CALGreen Section	**CALGreen Requirements Summary**		
Note: this column is intentionally left blank as there are no CALGreen measures comparable to the remaining GPR and LEED for Homes measures listed here.			

note: 2010 California Building Code and California Residential Code require CO alarms

GreenPoint Rated Single Family New Home 4.2 - 2008 Rating System		Meets CALGreen
Measure	**Requirements Summary**	
Foundation, Exterior, Frame & Envelope		
A.4	Cool Site: Reduce Heat Island Effect On Site.	
B.5	Moisture Controlled Crawlspace.	
B.6	Design and Build Structural Pest Controls.	
D.4	Insulated Headers.	
D.5	FSC-Certified Wood.	
E.1	Environmentally Preferable Decking.	
E.3	Rain Screen Wall System.	
E.4	Durable and Non-Combustible Siding.	
E.5	Durable and Fire Resistant Roofing Materials or Assembly.	
M.4	Install Built-In Recycling Center or Composting Center .	
N.4.b	Conduct Educational Walkthroughs (Prerequisite is N4a).	
P.N.2	Educational Signage of Project's Green Features.	
P.D.1	Design, Build and Maintain Structural Pest and Rot Controls.	
P.D.2	Use Moisture Resistant Materials in Wet Areas.	
P.E.1	Vegetated Roof.	
P.K.1	Materials Meet SMaRT Criteria.	
P.N.1	Detailed Durability Plan & Verification.	
Finishes, Flooring, HVAC		
A.5.b	Full environmental quality management plan and pre-occupancy flush out is conducted (Prerequisite is A5a).	
B.3	Use Radon Resistant Construction.	
D.9	Reduce Pollution Entering the Home from the Garage.	
H.1.b-c	HVAC System Diagnostic Testing.	
H.7	No Fireplace OR Sealed Gas Fireplace(s) with Efficiency Rating >60%.	
H.10	Advanced Mechanical Ventilation for IAQ.	
H.11	Install Carbon Monoxide Alarm(s).	
J.1.d	Combustion Safety Backdraft Test.	
J.4	EPA Indoor airPlus Certification.	
K.1	Design Entryways to Reduce Tracked-In Contaminants.	
K.9	After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27 ppb.	

LEED for Homes California (non-Midrise) Rating System		Meets CALGreen
Credit	**Requirements Summary**	
Materials & Resources		
SS 3	Reduce Local Heat Island Effects: trees or high-albedo hardscape.	
	none	
SS 5	Pest Control Alternatives: structural measures.	
	none	
WE 2.1	Prerequisite: FSC Certified / Tropical Wood.	
MR 2.2	EPP Materials: decking.	
ID 2.1	Prerequisite: Part of durability plan.	
ID 2.1	Prerequisite: Part of durability plan.	
ID 2.1	Prerequisite: Part of durability plan.	
	none	
AE 1.1.b	One-hour walkthrough with occupant(s).	
AE 1.2-1.3	Enhanced Training, Public Awareness.	
SS 5	See above.	
	none	
SS 4.3	Manage Roof Runoff (see above).	
	none	
ID 2.1-2.3	Prerequisite: Durability Planning, Management & Verification.	
MR 1.1	Prerequisite: Framing Order Waste Factor <10%.	
Indoor Environmental Quality		
EQ 8.3	Preoccupancy Flush.	
EQ 9	Prerequisite: Radon Protection in High-Risk Areas, additional credit in moderate-risk areas.	
EQ 10	Prerequisite: No HVAC in Garage, additional credit for garage pollutant protection.	
	none	
EQ 2.2	No fireplace, or do back-draft potential test.	
	none	
EQ 2.1.b	CO monitors on each floor.	
EQ 2.2	Enhanced Combustion Venting Measures.	
EQ 1	Energy STAR with Indoor Air Package.	
EQ 8.2.a,b	Indoor Contaminant Control: walk-off mats or shoe removal area.	
	none	
EQ 4.1	Prerequisite: Basic Outdoor Air Ventilation (ASHRAE 62.2).	
EQ 4.2	Enhanced Outdoor Air Ventilation.	
EQ 4.3, 5.3, 6.3	Third-Party Performance Testing of Outdoor Air Supply/ Exhaust / Room-by-Room.	
EQ 5.1	Prerequisite: Basic Local Exhaust: Bathroom & kitchen fans and ducts meet ASHRAE 62.2 and exhaust outdoors.	
EQ 6.1	Prerequisite: Room-by-Room Heating and Cooling Load Calculations.	
EQ 6.2	Return Air Flow / Room Controls.	
EQ 7.2-7.3	Filters > MERV 10 or 13.	
EQ 8.2.c	Central Vacuum System	

Suggested Sustainability Committee Quarterly Meeting Topics for 2012

Presenting Department	Date	Topics	Climate Action Plan Action Number (Priorities are per Appendix D in the Climate Action Plan)
~~PW~~	~~January 2012~~	~~Countywide Single-Use Bag Reduction: StopWaste's Proposed Revised Ordinance~~	~~6.4 (40)~~
~~PW~~		~~Countywide Mandatory Recycling: StopWaste's Proposed Revised Ordinance~~	~~6.1 (28), 6.3 (14), 6.6 (34), 6.7 (11), 6.8 (16*)~~
~~DS~~		~~Climate Action Team (continuation of July 6 meeting discussion)~~	
~~DS~~		~~Possible Benchmarking Requirements for Commercial Buildings~~	~~3.3 (3)~~
~~DS~~	~~April 2012~~	~~Require Energy Efficiency and Renewable Energy for New Construction~~	5.3 (19)
~~DS~~		~~Annual Update on Climate Action Plan Implementation and GHG Emissions Inventory Update~~	
~~DS~~		~~Status of Benchmarking Municipal Buildings~~	3.12 (2*)
DS	July 2012	Update on Stopwaste.org's Building Asset Rating Pilot Study	3.3 (3)
DS		Update on the California Building Standards Code and Recommendations for the City's Green Building Ordinance	5.3 (19)
U&ES	October 2012	Maximize Renewable Generation on Municipal Property	5.5 (4*), 5.6(5*)
DS/U&ES		Update on Financing for Efficiency and Renewables, including Property Assessed Clean Energy (PACE)	3.9(1), 3.7(6), 3.8(7), 5.2(8), 5.1(29)
U&ES		Waste Reduction Report – Annual Update on Recycling Programs (food scraps, construction & demolition debris, multi-family recycling, recycling and organics collection in City facilities and waste to energy)	6.1 (28), 6.2 (26), 6.3 (14), 6.6 (34), 6.7 (11), 6.8 (16*), 6.9 (13*)
U&ES		Discussion of Agenda Topics for 2013	
Standing Committee	January 2013	Environmentally Preferred Purchasing Policy Annual Report	

*Municipal Actions Priority per Appendix D in the Climate Action Plan.