



REPORT TO COUNCIL City of Sacramento

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915 I Street, Sacramento, CA 95814-2671
www.CityofSacramento.org

STAFF REPORT
December 18, 2007

**Honorable Mayor and
Members of the City Council**

Title: Green Building Program (M07-071)

Location/Council District: Citywide

Recommendation: 1) Review and comment on the proposed Green Building Program; and 2) adopt a **Resolution** establishing a Green Building Program.

Contact: Jamie Cutlip, Assistant Planner, (916) 808-8684; Bob Chase, Chief Building Official, (916) 808-8024

Presenters: Bob Chase, Chief Building Official; Jamie Cutlip, Assistant Planner

Department: Development Services

Division: Building

Organization Number: 4883

Description/ Analysis

Issue: At the direction of City Council and as a component of the Sustainability Master Plan, the Development Services Department is designing a green building program to promote sustainable private development in the City of Sacramento. This program is being developed in phases with the first phase to be heard by City Council in December 2007. At this time, staff will be presenting an overview of green building, voluntary and mandatory programs, guidelines, checklists and rating systems, and potential incentives and requirements.

Staff is recommending that the City Council adopt a Resolution establishing a Green Building Program, which incorporates:

- Existing green building guidelines, such as Leadership in Energy and Environmental Design (LEED) and GreenPoint Rated
- Associated checklists for voluntary program participation and
- The creation of public workshops and/or an advisory committee to guide future program development.

Policy Considerations: The General Plan 2030 Vision and Guiding Principles were adopted by the City Council in November 2005. The guiding vision is for Sacramento to become “the most livable city in America”-- and encouraging green building practices is identified as one of the key strategies. Likewise, establishing a green building program is one of the key focus areas under the Sustainability Master Plan adopted by the City Council in April 2007.

On September 21, 2004, City Council adopted Resolution 2004-751, which requires municipal building over 5,000 square feet to reach LEED-Silver. A green building program for private development is consistent with the intent of this resolution and with Executive Order S-20-04, issued by Governor Schwarzenegger in 2004 to establish efficiency measures for state buildings and strongly encouraged private sector green building.

Other measures consistent with a green building program is Council’s recent approval of permit fee waivers for solar photo voltaic systems and solar water heaters installation on existing residential. Through our Department of Utilities, we offer storm water reduction credits for the incorporation of low-impact development. Currently, the City of Sacramento’s zoning codes allows solar energy systems to exceed building height requirements up to 20% and are allowed to project into yard setbacks by four feet [Sections 17.60.40(A) and 17.60.40(B7)].

Committee/Commission Action: The Green Building Program was presented to the Development Oversight Commission on November 5th, 2007 and the Planning Commission on December 6th, 2007 for review and comment. No action has been taken.

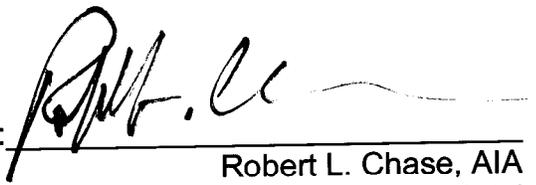
Rationale for Recommendation: By establishing a green building program, an applicant is able to take advantage of several resource conservation programs offered by various departments under the umbrella of Green Building. By linking and augmenting existing programs, significant value can be added at little additional cost and without overwhelming staff or department budgets. Programs with similar goals such as energy conservation and storm water management measures can be coordinated; leveraging outreach efforts and funds to achieve maximum impact rather than operating programs in isolation.

By launching a Green Building program, the City of Sacramento is able to remain consistent with the actions many jurisdictions have been taking throughout the United States, and in particular California, to establish green building programs.

By developing a green building program now, the City is better prepared to respond quicker to anticipated state and federal building policy changes. With a green building program underway, the City is confirming its role as a leader in the region as many jurisdictions are closely tracking our progress with the intent to develop a green building program after the City of Sacramento.

Financial Considerations: There are no financial considerations associated with this report, unless Council directs staff to take steps or implement initiatives that require additional funding.

Emerging Small Business Development (ESBD): No goods or services are being purchased under this report.

Respectfully Submitted by: 
Robert L. Chase, AIA
Chief Building Official

Approved by: 
William Thomas
Director of Development Services

Recommendation Approved:

ben 
Ray Kerridge
City Manager

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Background

On June 2005, the Sacramento City Council directed staff to develop a Sustainability Agenda with the goals of moving the City towards using resources more efficiently including but not limited to, preventing pollution, improving the economic, environmental and social well-being of current and future generations.

On April 4, 2006 City Council held a workshop to review elements of the Agenda including draft focus areas and goals as well as an inventory of current City programs. The City Council also took action to support the United Nations (UN) Urban Environmental Accords, which provides a basis for the City's Sustainability Agenda.

One year later, a draft Sustainability Master Plan was presented to the City Council identifying key focus areas, goals and targets for implementation and to serve as a policy framework. One of the focus areas is centered on Urban Design, Land Use, Green Buildings and Transportation.

As a component of the Sustainability Master Plan, Development Services is designing a green building program to promote sustainable, private development in the City of Sacramento. This program is being developed in phases with the first phase to be heard by City Council in December 2007. At this time, staff will be presenting an overview of green building, voluntary and mandatory programs, guidelines, and potential incentives, checklists and rating systems.

Green building is generally defined as a whole-system approach to designing and building comfortable and durable buildings in a way that provides community and environmental benefits. Green building techniques target site selection, water and energy efficiency, material and resource conservation, and indoor air quality.

Principles and Benefits

Designing and building projects to be green provides environmental, economic, and social benefits. Green building design uses higher quality materials, which result in greater durability and less maintenance costs. Additional cost savings can be achieved by the installation of more efficient energy and water systems, resulting in reduced usage.

Green buildings encourage more efficient land use by favoring infill development with access to public transit and smaller building footprints to maximize open space, farmland and wildlife habitat. Waste water treatment and storm water reducing measures can be incorporated to treat water instead of overwhelming local systems.

Building to a green standard also encourages owners and operators to operate their buildings in environmentally responsible and healthy ways. This includes maintaining heating and air conditioning systems so that they run at peak efficiency, choosing energy-

water-saving equipment and appliances, and reducing the use of toxic cleaning and landscaping materials.

When indoor air quality is improved, user comfort and worker productivity is maximized; resulting in buildings that are more desirable and marketable for the potential homeowners or business owners.

In recent years, there has been much interest among local jurisdictions to develop green building programs to address the growing market interest to build or remodel using more energy efficient and environmental sensitive techniques than are required by the building code. The City of Sacramento has a unique opportunity by facilitating development, best management practices, and resource development in this emerging market.

Voluntary and Mandatory Programs

There are several approaches that any city could take in developing a green building program that includes a broad spectrum of building requirements and incentives. For example, Austin, Texas has developed their own program and set of guidelines. Additionally some cities creating a program that is purely voluntary is favorable, while others prefer mandating regulations to achieve energy, water, and material conservation at a designated level above state building code. Finally, a city may choose to design a program with a mix of voluntary incentives with targeted requirements as prerequisites.

For all scenarios that include mandatory building measures, a phasing in of requirements is generally a preferred approach. This usually begins with a voluntary period starting with minimal requirements. If a mandatory program is favored, then local amendments to one of the following are appropriate:

- 1.) California State Energy Code
- 2.) California State Building Code
- 3.) City of Sacramento Zoning Code Regulations

Guidelines, Checklists and Rating Systems

A key component of a successful green build program is the inclusion of guidelines. This important document acts as a ready-to-use educational tool to direct builders and homeowners who wish to incorporate green building practices in their project.

Along with guidelines, rating systems have also been developed to measure and certify buildings as "green". Green building guidelines, checklists and rating systems vary in requirements, scope, and sponsorship. Some green building programs are sponsored by the building industry; some are designed by government agencies, while others from nonprofits. Some programs are localized, while others have a national focus.

The guidelines and checklists provide a consumer label and recognition mechanism that a developer can achieve through acquiring points to certify their project as green. Checklists

can be utilized to provide project documentation provides a benchmark for both the city and developers to monitor internal processes towards achieving a green building standard and help identify any barriers to specified green building techniques.

Existing programs such as those offered by Build It Green and the United States Green Building Council incorporate a third party verification system that requires special inspection of targeted green features. This preserves the integrity of the project as green and frees city plan review and building inspection staff to focus on building code issues such as life safety and structural review.

To date, neither federal nor state level mandate of green building standards have been adopted. Instead most green building programs occur as voluntary programs or as locally designated requirements. The most widely accepted and recognized rating system is the *Leadership in Energy and Environmental Design* (LEED) program developed by the U.S. Green Building Council. LEED has four levels of certification:

| | Level for LEED Certification | Points Required |
|---|-------------------------------------|------------------------|
| 1 | Certified | 26-32 points |
| 2 | Silver | 33-38 points |
| 3 | Gold Level | 39-51 points |
| 4 | Platinum Level | 52-69 points |

LEED offers green building guidelines and checklists for the following development types:

- 1) New Construction
- 2) Existing Buildings (Operations and Maintenance)
- 3) Commercial Interiors
- 4) Core and Shell
- 5) Home (in pilot phase)
- 6) Neighborhood (in pilot phase)
- 7) Retail (in pilot phase)
- 8) Schools
- 9) Healthcare

Build It Green, a nonprofit based in Alameda County, has developed a set of green building guidelines specifically for new home construction, residential remodels and multi-family. A checklist based on a minimum achievement of 50 points provides a builder or homeowner with a pass/fail certification under the GreenPoint Rated system.

There are several other rating systems including the Green Building Initiative's *Green Globes* assessment software and the *California Green Builder*, developed by the Building

Industry Institute and California Building Industry Association (CBIA). The National Association of Home Builders has also developed its own set of guidelines and a corresponding checklist that focuses primarily on cost-effective green building techniques. While LEED and GreenPoint Rated are preferred, staff will consider other green building certification programs but require a third party verification system. If a third party verification is not part of the certification process, the project should be further conditioned by city staff.

Education & Outreach: A key component of the green building program is ongoing public outreach and education coupled with internal training. As part of program development, Development Services has partnered with the Sacramento Municipal Utilities District (SMUD) and Build It Green, with the support of the local chapter of the U.S. Green Building Council, to establish a Public Agency Council (PAC). The PAC, along with a monthly meeting of Sacramento Valley building officials, provides an ongoing forum for regional jurisdictions to dialogue and develop best green building practices.

Staff has conducted a Green Building Lunch and Learn presentation for the general public and has met with several groups including the Building Industry Association, American Institute of Architects and the Sacramento Area Realtors to discuss the design of a green building program (For a full meeting and outreach list, please see Attachment 2.) Educational resources are being developed for the City's public website and public counter. Thus far, the outreach groups have been supportive of establishing a green building program and favor a voluntary program with developer and homeowner incentives. Ongoing public outreach is a key component of the green building program and staff has targeted the Environmental Council of Sacramento and Neighborhood Advisory Groups for additional outreach.

Several LEED orientations for employees have been held in April 2007 and additional training to increase the number of city staff who are LEED Accredited Professionals, is being developed.

Recommendations: There are several approaches to developing a green building program. The first approach is to establish a customized program based on guidelines designed by Development Services staff with local stakeholder input. The second option is to adopt an established rating system such as the US Green Building Council's Leadership in Energy and Environmental Design (LEED) program or the Build It Green's GreenPoint Rated. A third approach is to adopt existing guidelines but tailored to highlight policy priorities for the city of Sacramento which can be achieved by the following staff recommendations:

- a) With the establishment of a green building program, staff recommends that City Council pass a resolution to adopt existing green building guidelines, such as LEED and GreenPoint Rated, as these have gone through lengthy stakeholder processes which includes regularly updates.
- b) Staff is recommending that the City Council adopt the associated checklist as a voluntary program measure. This option allows the City to begin a green building program by using tools already in place subsequently saving the City time and money. The guidelines, in conjunction with the checklist, provide a comprehensive overview of green building concepts and provides

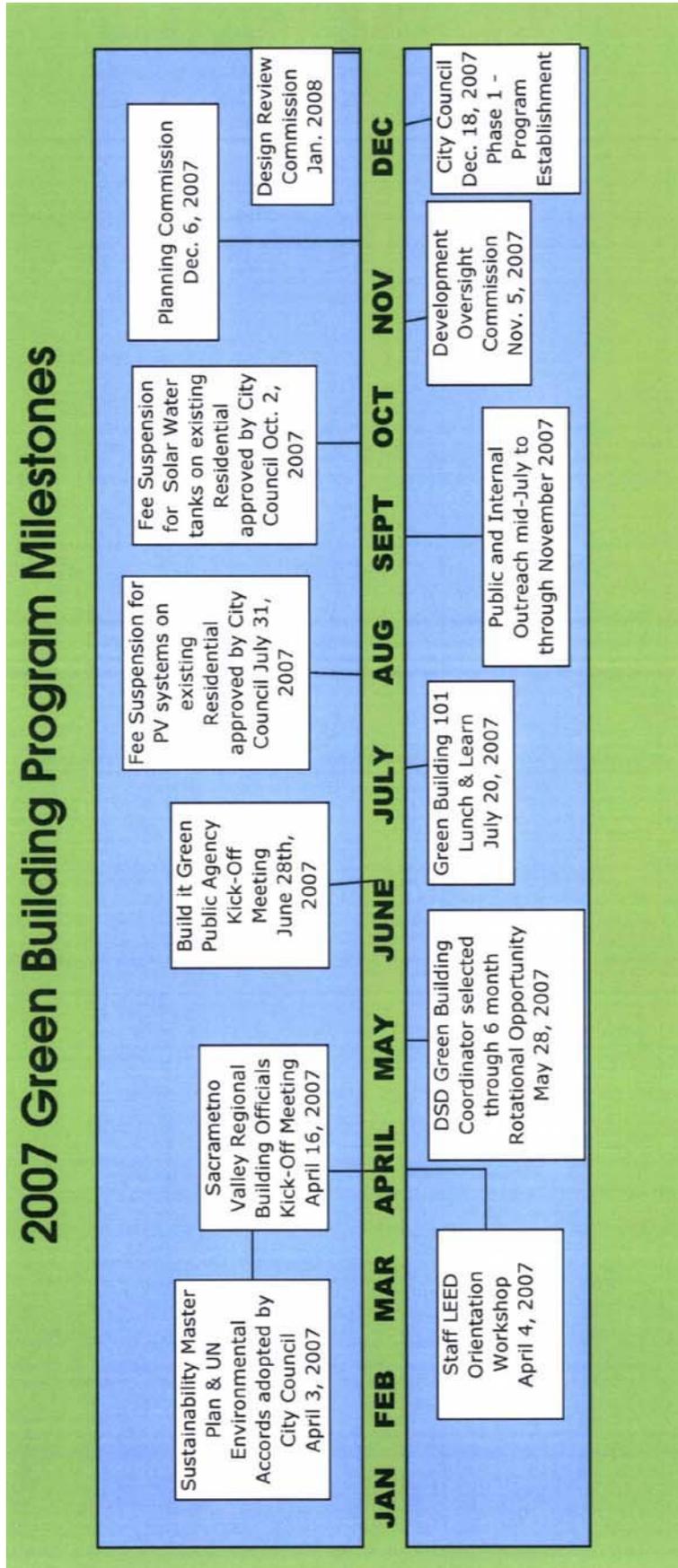
direction for builders or homeowner who wish to incorporate green building techniques in their project. By adopting the green building checklist, staff will be able to monitor what type of green features and materials are being incorporated into development projects and target building aspects for future incentives or requirements and identify additional educational needs.

- c) Recognizing the role of the City as a facilitator and at the recommendation of the Mayor, staff recommends creating a series of workshops and/or charrettes to involve partnering agencies and the general public. This would provide a more focused conversation on green building and related sustainability issues. Staff recommends the formation of working groups formed out of this event to begin addressing various aspects and potential challenges of green building. While strengthening existing partnerships and creating synergy around larger sustainability issues, potential working group topics could address historical preservation and green building techniques, local resources development and constraints, affordable housing and building operation/homeowner education.

Attachment 2

Green Building Timeline

1. On June 2005, the Sacramento City Council directed staff to develop a Sustainability Agenda.
2. On April 4, 2006 City Council held a workshop on Sustainability and took action to support the United Nations Urban Environmental Accords.
3. On April 3, 2007, a draft Sustainability Master Plan was presented to the City Council identifying key focus areas, goals and targets for implementation.
4. LEED orientations held for staff on April 4, May 7 and May 14, 2007; over 65 employees attend.
5. April 16, 2007 Sacramento Valley Regional Building Officials kick-off meeting.
6. May 28, 2007, DSD Green Building Coordinator selected for a six month Rotational Opportunity.
7. June 28th, 2007, Build it Green Public Agency Council (BIGPAC) kick-off meeting.
8. July 20, 2007, a Green Building 101 *Lunch & Learn* was held and marked the beginning of internal and external stakeholders outreach.
9. July 31, 2007, City Council approve ordinance to waive fees for the installation and repair of solar photo voltaic systems on existing residential.
10. August 20, 2007 meeting with San Francisco Green Team to discuss program design parameters.
11. Oct. 2, 2007, ordinance suspending fees for solar water heaters on existing residential until December 31, 2008 approved by City Council.
12. Green building program presentation for Review and Comment was given to the Development Oversight Commission on November 5, 2007.
13. On December 6, 2007, the green building program was presented for review and comment to the Planning Commission.



Attachment 3

2007 Public & Internal Outreach Schedule

| Meeting Type | Contact Person | DATE | LOCATION |
|--|--|------------|-------------------------|
| Working Groups | | | |
| Building Officials Monthly -SVABO | Greg Mahoney | June 30th | City Hall |
| | | Aug. 28th | Ranch Cordova |
| | | Oct. 25th | DPR, Sacramento |
| | | Nov. 30th | City Hall |
| Build it Green Public Agency Council - BIGPAC | | June 28th | SMUD |
| | | Oct. 31st | SMUD |
| BIGPAC -Steering Committee | | Sept. 6th | SMUD |
| Build it Green Public Agency Council - BIGPAC | | June 28th | SMUD |
| Focus Groups/Public Presentations | | | |
| United States Green Building Council–Northern California Chapter Sacramento Advocacy Committee | Brian Sehnert | April 24th | Sacramento |
| Lunch & Learn | General Public | July 20th | NPC |
| Sacramento Area Realtors Downtown/Midtown Regional Meeting | Rob McQuade | Aug. 28th | UC Davis Galleria |
| Associated General Contractors, Delta Sierra | Cindy Zazzi, zazzic@agc-ca.org | Sept. 10th | AGC in W. Sac |
| Building Industry Association | Ardie Zahedani, ardie@northstatebia.org | Sept. 12th | BIA in Roseville |
| American Institute of Architects | Kimberly Anderson, kanderson@aiacv.org | Sept. 13th | Sacramento |
| Capital Area Development Authority | Todd Leon | Sept. 28th | Sacramento |
| City Management Academy | Yvonne Riedlinger | Oct. 17th | Sacramento |
| Environmental Council of Sacramento – Land Use Committee | Barry Wasserman | Dec. 10th | Sacramento |
| | | | |
| Informational | | | |
| GreenSacramento | Ric Murphy | July 12th | GreenSacramento |
| San Francisco - Green Team | Laura Rodormer, Commercial Green Building Coordinator | Aug. 20th | SF Dept. of Environment |
| San Francisco - Green Team | Mark Palmer, Institutional Green Building Coordinator | Aug. 20th | SF Dept. of Environment |
| San Francisco - Green Team | Rich Chien, Residential Green Building Coordinator | Aug. 20th | SF Dept. of Environment |

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| San Francisco - Green Team | Cristy Tao, Green Building Associate | Aug. 20th | SF Dept. of Environment |
| San Francisco Planning | Craig Nikitas, Senior Planner | Aug. 20th | San Francisco Planning Dept. |
| BOMA- SF | Ken Cleaveland, Director of Government & Public Affairs | Aug. 20th | BOMA |
| | | | |
| Workshops | | | |
| Build it Green Public Policy Workshop | | June 27th | San Jose - Adobe Headquarters |
| West Coast Green Conference | | Sept. 19-22 | San Francisco, Bill Graham Auditorium |
| Build It Green - Climate Calculator | Kimberly Williams | Aug. 22nd | Build It Green, Oakland |
| CA State Energy Commission Green Building Public Workshop | Elaine Hebert | Sept. 26th | CEC State Building |
| | | | |
| Internal | | | |
| Infill Housing Coordination | Desmond Parrington | July 17th | |
| Utilities - Storm water | Sherri Hun | Sept. 13th | |
| Solid Waste -C&D Ordinance | Julie Freidman/Marty Strauss | Aug. 24 & Sept. 6 | |
| DSD Exempt Management meeting | Dee Barone | Oct. 4th | |
| Development Oversight Commission | Emilee Chlarson | Nov. 5th | |
| Planning Commission | Emilee Chlarson | Dec. 6th | |
| Design Commission | Emilee Chlarson | Jan. 2008 | |
| City Council | Jason Hunter | Dec. 18th | |

Green Building Incentives and Requirements

Incentives adopted by other cities have mostly taken the form of expedited permitting, fee discounts or waivers, grants and loans, and technical assistance. Incentives can encourage more developers to build green and can help promote competition within the construction market. Incentive can range from low-cost options like publicity and promotion of green projects to financial incentives such as grants programs. The table below includes a list of potential incentives and requirements that the City may consider. Both lists are developed from a mixture of other green building programs and components specific to the City of Sacramento.

Incentives and requirements should be evaluated for the intended audience and for intended policy goals. Some incentives such as public information and technical assistance can be enlisted immediately and offered as ongoing resources. Other incentives such as developer recognition and financial incentives may be short term to aid market transformation and encourage early adopters to build to a green standard. Requirements or penalties for not building green can be phased in later or can be part of the initial approach.

The incentives and requirements listed below that are in **bold** represent measures that are already available or could be incorporated immediately with little additional resources. Items that are not bold, such as extensive public workshops or a Commercial Energy Conservation Ordinance, may be appropriate to initiate once funding becomes available.

| | Incentives | Description | Implications for Sacramento |
|---|----------------------------------|---|--|
| 1 | Free Green Building Consultation | Require Green Checklist with development application as educational tool & incorporate green building consultation in pre-application meeting to encourage early incorporation. | Requires additional staff training. Could be a general consultation or more specific as design review assistance. |
| 2 | Green Building Liaison | Knowledgeable Green Building staff including LEED Accredited Professionals and certified Green Building Professionals | Can be built into existing Matrix Program & Team Lead position. Requires additional staff training. |
| 3 | Green Resource Center | Green Building educational materials located on City Website and at the public counter. | Resource development from brochures to public displays with sample building materials. |
| 4 | Project Tracking | Track Green Projects and Alternative Means Request through Accela. | Allows staff to monitor green building projects, obstacles and could link to web-based public green building "best practices" forum and future incentive development |
| 5 | GIS Map Project Tracking | Project recognition with GIS to showing location & green building features. | Would be on DSD website and could be linked to developer website as a marketing tool. |

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| 6 | Developer Recognition | Recognition of developers & projects on public website, or through city sponsored awards program or partnering with an existing awards program. | |
| 7 | Lecture series, workshops, special events | Offer ongoing educational opportunities for developers, homeowners, and the design community to dialogue about green building techniques and products. | |
| 8 | Taskforce / Advisory Committee | Set up a group to continue developing green building program and provide support for developing new resources. | Could be ad hoc or a standing committee. |
| 9 | Expedited / priority processing | Green projects move ahead of the line and are reviewed more quickly than non-green projects. | Instead of expedited processing the emphasis is on priority processing to keep green projects moving quickly. Potential ideas include assigning a gold star sticker for green projects so that the reviewer knows that project is a priority. |
| 10 | Storm water management credits | Runoff reduction credits apply to both new residential and commercial projects that incorporate porous pavement, alternative driveways, disconnected roof drains, and inceptor trees. | This is an existing incentive offered by the Department of Utilities. For more info. www.sactostormwater.org/newdevelopment |
| 11 | Water Development Fee Waiver | Project must be surrounded on at least two sides by residential development; of 5 acres or less for single family, or two or acres or less for multi-family; and available to be served by public utilities. | Available through Infill Strategy Program for residential infill development that is in a redevelopment area, target infill area, or an area where housing has a median age of 1965 or older. |
| 12 | Sewer Impact fee Waiver | Allocation of reduced fees for green projects that are in targeted infill areas and incorporate water conserving design and appliances. | Currently offered for through Infill Strategy Program. Must be coordinated with Sacramento Regional County Sanitation District (SRCSD) |
| 13 | Solar Height Incentive | Solar energy systems erected on top of building may exceed up to 20% of zoning height requirements. | Already permitted by Zoning Code Section 17.60.040(A). |
| 14 | Solar Projections Incentive | Solar energy systems may project into the required front, side or rear yard setbacks up to four feet. | Already permitted by Zoning Code Section 17.60.040(B7). |
| 15 | Solar Fee Waiver | Waived suspension for installation of or repair of solar photo voltaic systems on existing residential. | Ordinance adopted by City Council July 31, 2007. Incentive is available through December 31, 2009. |
| 16 | Solar Water Heater Fee Waiver | Waived suspension for installation of solar water heaters for existing residential. | Ordinance adopted by City Council October 2, 2007. Incentive is available through December 31, 2009. |

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| 17 | Infill Program, Green Building option | As part of the Infill Housing Program, offered a pre-approved plans with a green residential option | Residential, could be as an option for all pre-approved plans or as a specific product type. |
| 18 | Energy Review Waiver | Waive energy review in plan check phase for projects achieving LEED or GreenPoint Rated certification. | Energy review would have to be 3rd party verified and proof of certification would have to be submitted before building permits or Certificate of Occupancy could be issued. |
| 19 | Parking Reductions | Eliminate/reduce any minimum parking requirements | Allow a lower minimum requirement for green projects that are located close to transit. |
| 20 | Green Roof/Open Space Incentive | Allow green roofs with public access features to count towards open space requirements | |
| 21 | Floor Area Ratio Incentive | Allow green projects to exceed maximum building floor area ratio zoning requirements. | Example: Allow an additional 5% Floor Area Ratio (FAR) for buildings located in the industrial zoning districts, without a Use Permit when the building is designed for LEED certification. |
| 22 | Height Incentive | Allow green projects to exceed maximum building heights permitted by zoning. | For high achieving commercial and institutional projects. |
| 23 | Density Bonuses | Allow projects to exceed maximum density allowed in a given zone. | For high achieving residential projects. Currently offered as an incentive for low income, very low income, and senior households. |
| 24 | Signage Incentive | Allow increased signage, either in size of sign or as an additional sign. | For high-achieving commercial or institutional green projects |
| 25 | Zoning Ordinance amendment for Solar Easement language and provisions | Address the following State requirements in local zoning code: 1) California's Solar Shade Act of 1978 addresses shade from neighboring vegetation. Solar Easement Law (Civil code sections 801 & 801.5) Provides the opportunity to protect future solar access via a negotiated easement with neighboring property owners. 2) Solar Rights Act amended in 2003 by AB 1407 (Civil Code section 714): Requires that public entities do not place unreasonable restrictions on the procurement of solar energy systems when applying for state-sponsored grants and loans. | Local Zoning Code would be updated to include State solar language. |
| 26 | Fee Reduction | Offer fee reduction for planning entitlements or building fees for green projects | Can offer reduction for all projects that achieve a minimum of 50 points on GreenPoint Rated or 26 points for LEED. |
| 27 | Grants for LEED | Bonding/funding to offered grants to assist with Commission or registration under LEED. | For high achieving commercial, institutional or large scale residential projects. |

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| 28 | Implement fee-bate building permit fee structure | Instead of reducing fees, charge higher fees for code compliant projects | Neutral cost to the City |
| 29 | Implement a fee-bate type fee structure for Parking Garages | Offer lower fees for parking lots/garages with hybrids, electrics or carpool facilities. | Neutral cost to the City |
| 30 | Tax Incentive | Equalization of green assessment evaluations, to avoid increase taxes for green features | Would have to be coordinated with the County Assessor |
| 31 | Historical Preservation Green Remodeling Guides & Incentives | Develop guidelines and incentives specifically for remodeling historical commercial and residential buildings incorporating green building features and resources. | |
| 32 | Green Affordable Housing Program | Offer resources and incentives specifically geared towards multi-family, low-income housing and target redevelopment areas. | Partnership with SHRA to create program. |

| | Requirements | Description | Implications for Sacramento |
|---|--|--|--|
| 1 | LEED-NC checklist for Commercial, Institutional all development applications | Submittal requirement for all applications subject to discretionary review. | Can be used purely as an educational tool or can have a minimum requirement of points required. |
| 2 | LEED for New Construction standards or the equivalency of for New Commercial | Require LEED Silver or equivalent green building standards for new commercial buildings | Potential thresholds could be: non-residential buildings with 25,000 square feet or more of new construction and tenant improvements of 25,000 square feet or more. |
| 3 | LEED for Home, GreenPoint Rated standards or the equivalency of for all new residential | All new residential construction, and encourages all remodels, to obtain 60 points on the Green points Checklist. Applicant must hire a certified green building professional to rate the project and then provide documentation to the City. | Planning staff verifies green consultant's analysis throughout the planning process and plan check, and Building & Engineering department verifies at plan check. If a minimum of 60 points are not achieved, a certificate of occupancy will not be issued. |
| 4 | Implement LEED or BIG or the equivalency for all new multi-family | Multi-family Green Points checklist must be submitted for multi-family projects and a minimum points could be required. | Sample thresholds could be: residential mixed use and multi-family residential buildings four stories in height or more or for projects with 20 units are more. |
| 5 | Review Title 24 Submittals In Greater Detail | This would consist of Development Services closely reviewing all title 24 documentation for compliance with code at an earlier phase. | Projects could be assigned an energy rating based on Title 24 energy requirements. This rating could be included on staff reports for projects requiring planning entitlements. |

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| 6 | Require Title 24 energy calculations to be included on plans for in field verification | Currently Title 24 calculations can be submitted on a 8.5"x11" sheet separate from the full plans that are verified in the field. | Projects under LEED or GreenPoint Rated will be third party verified but City staff will need to confirm all other projects. |
| 7 | Title 24 Testbed Program | The California Energy Commission (CEC) updates its energy code every 3 years. This project would consist of the City and CEC working to implement proposed changes to the Title 24 code 1 to 3 years in advance of the actual code change. Minimal scope would include a list of proposed changes provided to plan holders and recommendations to install with feedback loop to CEC . | This program would require additional staff time and would need to be coordinated with DGS. |
| 8 | Title 24 State Energy Code by 15% | Require exceeding Title 24 State Energy Code by 15% | Required as a condition of approval to be verified in the plan check phase for building permits. Could be a standard for all building or for a specified development threshold. |
| 9 | Title 24 Calculations for Cold Shells | Require energy calculation for cold shells that can be saved to Accela and reference later at time of Tenant Improvement. | Allows the City to achieve greater energy compliance with Title 24 for commercial buildings as features such as windows in cold shell development are generally not part of Title calculations during later tenant improvements. |
| 10 | GreenPoint Rated for PUDs | New residential projects in a PUD zoning district must include a minimum of 50 points per the GreenPoint Checklist. | This would be a condition of approval for Planning entitlements. |
| 11 | Solar & Energy Efficient Residential | Through separate development agreements residential projects are requires to install solar photovoltaic systems in a portion of the units, or wire the remainders of the units for solar photovoltaic and meet the ENERGY STAR energy efficient standards in all residential projects. This could be met by clubhouse or community centers photovoltaic requirements. | Would be verified by building staff during plan check. |
| 12 | Development Agreements | Any private development which receives funding through the City by the grants, loans, or tax breaks must adhere to LEED/GreenPoint Rated standards. | |
| 13 | Zoning Restrictions-Sensitive Areas | Require green building techniques in sites adjacent to environmentally sensitive areas such as along the American & Sacramento rivers, wetlands and habitat conservation areas, etc | This would result in the creation of a new zoning category or overlay zone. |

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|----|---|--|---|
| 14 | Increase Permit Fees to Fund Green City Services | Fees could be leveraged from increasing planning fees or building fees and could result in a discount for green buildings. | This could be a potential revenue source to fund additional green building or sustainability measures. |
| 15 | Climate Neutral Building Ordinance | Every building energy code contains a performance compliance method. This method of the building energy codes is a tool that can be used by local governments to put The "2030 Challenge" into law: This ordinance would require all new construction projects within the City to be 10% climate neutral starting in 2007, gradually increasing until all new buildings would be 100% climate neutral by 2030. This ordinance would meet the intent of the Architecture2030 resolution that was signed at the US Conference of Mayors meeting in June 2006. The cost increase to make a building climate neutral would increase a projects construction cost by 8 to 10% (NOT including VMT which is handled separately below) if 100% neutrality were required, which is currently untenable. The City would collect a public goods charge (PGC) which would be deposited into the Climate Action Trust Fund (CATF, see Program #109). Climate neutrality estimate would be based on performance relative to Title 24 State energy code (e.g. if building is 10% better than Title 24 in 2007, then PGC to City would be \$0. | This Project would pay for staff time to shepherd the above work through the City approval process. No credit would be provided for buildings that were demolished in order to make space for the new development. This ordinance would need to be coordinated with CEQA. The cost increase to make a building climate neutral would increase a projects construction 8-10% |
| 16 | Pervious Pavement for Alleys | Public infrastructure could move towards using pervious pavement in alleys provided that local soil and proper drainage considerations makes this a feasible option. This could also be incorporated as a requirement for private development that includes alley construction. | Additional research and financial resources are necessary. |
| 17 | Big & Tall Ordinance | The County of Marin requires all new residential buildings larger than 3,500 square feet to meet the energy efficiency requirements of a 3,500 square foot house. Large houses are thus required to be super efficient and/or are required to include solar heating or electricity systems. | This requirement would pay for staff time to shepherd such an ordinance through the City approval process. |
| 18 | City Code 15.76 - Residential Energy Conservation Ordinance (RECO) - Update & | The code requires all residential homes to undergo an energy audit at time-of-sale and to implement up to 1.5% of the sales price in energy efficiency upgrades. This Project | Would require houses to have an energy survey done whenever sold. This requirement would pay for staff time to shepherd the above work through the City approval process. Berkeley, Oakland and |

| | | | |
|----|---|---|---|
| | Enforcement | would include working with community partners to update and enforce the intent of this existing code. | SF are updating their RECO's to include energy efficiency ratings . |
| 19 | Commercial Energy Conservation Ordinance (CECO) | Ordinance to require an energy survey and upgrade at time of sale for all commercial buildings. | Requires Commercial buildings to undergo an Energy Audit each time the building is sold |
| 20 | Water Efficient Landscaping Program | Greater enforcement of City Ordinance 15.92 which requires drought tolerant landscaping measures and closer inspection of landscape plans | Would require additional staff time to implement and would more stringent planning and plan check review. |

Resolution No.

Adopted by the Sacramento City Council

GREEN BUILDING PROGRAM AND GREEN BUILDING GUIDELINES

BACKGROUND

- A. The City of Sacramento's General Plan sets forth goals for preserving and improving the natural and built environment of the City, promoting the health of its residents and visitors, and fostering its economy; and
- B. Green building is a whole system approach to the design, construction and operation of buildings that employs materials and methods that promote natural resource conservation, energy efficiency, and good indoor air quality; and
- C. Green buildings benefit building industry professionals, residents, and communities by improving construction quality; increasing building durability; reducing utility, maintenance, water and energy costs; creating healthier homes; and enhancing comfort and liability; and
- D. On September 21, 2004 the City Council adopted Resolution 2004-751, which directed the City to design and operate facilities to achieve the highest level of Leadership in Energy and Environmental Design (LEED) rating and energy efficiency possible for that type of building and designated for appropriate buildings, 5,000 square feet and larger, a minimum level of LEED Silver as the targeted goal.
- E. Green building is identified as a component of one of the key focus areas of the Sustainability Master Plan presented to the City Council on April 3, 2007.
- F. Organizations such as the United States Green Building Council and Build It Green have developed green building guidelines and rating systems (LEED and GreenPoint Rated) as an education tool for local government, buildings professionals, and the general public to present a range of voluntary measures for builders to choose from when construction green buildings and;
- G. Adoption of GreenPoint Rated and LEED, or equivalent, promotes regional consistency and predictability for building professionals.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

Section 1. To further the goal set forth in the City's General Plan 2030 Vision and Guiding Principles, for Sacramento to become "the most livable city in America", adopted by the City Council in November 2005, by encouraging green building design, construction, and operations,

the City Council approves the establishment of a green building program for private development.

Section 2. The City Council adopts the green building guidelines, as they may be amended time to time, developed by the United States Green Building Council and Build it Green, or equivalent, as City reference documents and directs City staff to explore incentives and requirements to encourage the use of the guidelines by private developers of construction projects within the City.

Section 3. The City Council approves the establishment of a task force or advisory committee to further develop green build incentives, requirements thresholds, and ordinance amendments to encourage private development to use green building design, construction, and operations.

Table of Contents:

Exhibit A – LEED-NC Checklist

Exhibit B – GreenPoint Rated Checklist

Exhibit C – Green Building Guidelines (Attached as CD)

Sample Checklists



LEED-NC

LEED-NC Version 2.2 Draft Project Checklist - Nov. 16, 2006

Sacramento
Sacramento CA

Yes ? No

| | | | | |
|----------|----------|----------|--------------------------|------------------|
| 3 | 8 | 3 | Sustainable Sites | 14 Points |
|----------|----------|----------|--------------------------|------------------|

| Y | | | | Prereq 1 Construction Activity Pollution Prevention | Required |
|---|---|---|--|--|----------|
| | 1 | | | Credit 1 Site Selection | 1 |
| | | 1 | | Credit 2 Development Density & Community Connectivity | 1 |
| | | 1 | | Credit 3 Brownfield Redevelopment | 1 |
| 1 | | | | Credit 4.1 Alternative Transportation, Public Transportation Access | 1 |
| | | 1 | | Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms | 1 |
| | 1 | | | Credit 4.3 Alternative Transportation, Low-Emitting and Fuel-Efficient Vehicles | 1 |
| 1 | | | | Credit 4.4 Alternative Transportation, Parking Capacity | 1 |
| | 1 | | | Credit 5.1 Site Development, Protect or Restore Habitat | 1 |
| 1 | | | | Credit 5.2 Site Development, Maximize Open Space | 1 |
| | 1 | | | Credit 6.1 Stormwater Design, Quantity Control | 1 |
| | 1 | | | Credit 6.2 Stormwater Design, Quality Control | 1 |
| | 1 | | | Credit 7.1 Heat Island Effect, Non-Roof | 1 |
| | 1 | | | Credit 7.2 Heat Island Effect, Roof | 1 |
| | 1 | | | Credit 8 Light Pollution Reduction | 1 |

Yes ? No

| | | | | |
|----------|----------|----------|-------------------------|-----------------|
| 1 | 3 | 1 | Water Efficiency | 5 Points |
|----------|----------|----------|-------------------------|-----------------|

| | | | | | |
|---|---|---|--|--|---|
| | 1 | | | Credit 1.1 Water Efficient Landscaping, Reduce by 50% | 1 |
| | | 1 | | Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation | 1 |
| | 1 | | | Credit 2 Innovative Wastewater Technologies | 1 |
| 1 | | | | Credit 3.1 Water Use Reduction, 20% Reduction | 1 |
| | 1 | | | Credit 3.2 Water Use Reduction, 30% Reduction | 1 |

Yes ? No

| | | | | |
|----------|----------|----------|--------------------------------|------------------|
| 3 | 8 | 6 | Energy & Atmosphere | 17 Points |
|----------|----------|----------|--------------------------------|------------------|

| Y | | | | Prereq 1 Fundamental Commissioning of the Building Energy Systems | Required |
|---|---|---|--|--|----------|
| Y | | | | Prereq 2 Minimum Energy Performance | Required |
| Y | | | | Prereq 3 Fundamental Refrigerant Management | Required |
| 1 | 3 | 6 | | Credit 1 Optimize Energy Performance | 1 to 10 |
| | 3 | | | Credit 2 On-Site Renewable Energy | 1 to 3 |
| | 1 | | | Credit 3 Enhanced Commissioning | 1 |
| 1 | | | | Credit 4 Enhanced Refrigerant Management | 1 |
| 1 | | | | Credit 5 Measurement & Verification | 1 |
| | 1 | | | Credit 6 Green Power | 1 |

continued...

| Yes ? No | | | | | | |
|--|----|----|---|---|-----------|--|
| 4 | 4 | 5 | Materials & Resources | | 13 Points | |
| Y | | | Prereq 1 | Storage & Collection of Recyclables | Required | |
| | | 1 | Credit 1.1 | Building Reuse , Maintain 75% of Existing Walls, Floors & Roof | 1 | |
| | | 1 | Credit 1.2 | Building Reuse , Maintain 100% of Existing Walls, Floors & Roof | 1 | |
| | | 1 | Credit 1.3 | Building Reuse , Maintain 50% of Interior Non-Structural Elements | 1 | |
| 1 | | | Credit 2.1 | Construction Waste Management , Divert 50% from Disposal | 1 | |
| 1 | | | Credit 2.2 | Construction Waste Management , Divert 75% from Disposal | 1 | |
| | | 1 | Credit 3.1 | Materials Reuse , 5% | 1 | |
| | | 1 | Credit 3.2 | Materials Reuse , 10% | 1 | |
| 1 | | | Credit 4.1 | Recycled Content , 10% (post-consumer + ½ pre-consumer) | 1 | |
| 1 | | | Credit 4.2 | Recycled Content , 20% (post-consumer + ½ pre-consumer) | 1 | |
| | 1 | | Credit 5.1 | Regional Materials , 10% Extracted, Processed & Manufactured Regio | 1 | |
| | 1 | | Credit 5.2 | Regional Materials , 20% Extracted, Processed & Manufactured Regio | 1 | |
| | 1 | | Credit 6 | Rapidly Renewable Materials | 1 | |
| | 1 | | Credit 7 | Certified Wood | 1 | |
| Yes ? No | | | | | | |
| 8 | 5 | 2 | Indoor Environmental Quality | | 15 Points | |
| Y | | | Prereq 1 | Minimum IAQ Performance | Required | |
| Y | | | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | Required | |
| 1 | | | Credit 1 | Outdoor Air Delivery Monitoring | 1 | |
| | | 1 | Credit 2 | Increased Ventilation | 1 | |
| 1 | | | Credit 3.1 | Construction IAQ Management Plan , During Construction | 1 | |
| 1 | | | Credit 3.2 | Construction IAQ Management Plan , Before Occupancy | 1 | |
| 1 | | | Credit 4.1 | Low-Emitting Materials , Adhesives & Sealants | 1 | |
| 1 | | | Credit 4.2 | Low-Emitting Materials , Paints & Coatings | 1 | |
| 1 | | | Credit 4.3 | Low-Emitting Materials , Carpet Systems | 1 | |
| | 1 | | Credit 4.4 | Low-Emitting Materials , Composite Wood & Agrifiber Products | 1 | |
| 1 | | | Credit 5 | Indoor Chemical & Pollutant Source Control | 1 | |
| | 1 | | Credit 6.1 | Controllability of Systems , Lighting | 1 | |
| | | 1 | Credit 6.2 | Controllability of Systems , Thermal Comfort | 1 | |
| 1 | | | Credit 7.1 | Thermal Comfort , Design | 1 | |
| | 1 | | Credit 7.2 | Thermal Comfort , Verification | 1 | |
| | 1 | | Credit 8.1 | Daylight & Views , Daylight 75% of Spaces | 1 | |
| | 1 | | Credit 8.2 | Daylight & Views , Views for 90% of Spaces | 1 | |
| Yes ? No | | | | | | |
| 5 | | | Innovation & Design Process | | 5 Points | |
| 1 | | | Credit 1.1 | Innovation in Design : Provide Specific Title | 1 | |
| 1 | | | Credit 1.2 | Innovation in Design : Provide Specific Title | 1 | |
| 1 | | | Credit 1.3 | Innovation in Design : Provide Specific Title | 1 | |
| 1 | | | Credit 1.4 | Innovation in Design : Provide Specific Title | 1 | |
| 1 | | | Credit 2 | LEED® Accredited Professional | 1 | |
| Yes ? No | | | | | | |
| 24 | 28 | 17 | Project Totals (pre-certification estimates) | | 69 Points | |
| Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-69 points | | | | | | |

Single Family GreenPoint Checklist

date: _____



The GreenPoint checklist tracks green features incorporated into the home. The recommended minimum requirements for a green home are: Earn a total of 50 points or more; obtain the following minimum points per category: Energy (11), Indoor Air Quality/Health (5), Resources (6), and Water (3); and meet the prerequisites A 3 a (50% construction waste diversion) and N 1 (Incorporate Green Points checklist in blueprints)

The green building practices listed below are described in the New Home Construction Green Building Guidelines, available at www.builditgreen.org

| | | | | |
|--|--|--|--|--|
| | | | | |
|--|--|--|--|--|

| ENTER PROJECT NAME | Community | Energy | IAQ/Health | Resources | Water |
|---|-----------|--------|------------|-----------|-------|
| A. SITE | | | | | |
| Possible Points | | | | | |
| <input type="checkbox"/> 1. Protect Native Soil and Minimize Disruption of Existing Plants & Trees | | | | | |
| <input type="checkbox"/> a. Protect Native Topsoil from Erosion and Reuse after Construction | 1 | | | | 1 |
| <input type="checkbox"/> b. Limit and Delineate Construction Footprint for Maximum Protection | | | | | 1 |
| <input type="checkbox"/> 2. Deconstruct Instead of Demolishing Existing Buildings On Site | | | | 3 | |
| <input type="checkbox"/> 3. Recycle Job Site Construction Waste (Including Green Waste) | | | | | |
| <input type="checkbox"/> a. Minimum 50% Waste Diversion by Weight (Recycling or Reuse) - Required | | | | R | |
| <input type="checkbox"/> b. Minimum 65% Diversion by Weight (Recycling or Reuse) | | | | 2 | |
| <input type="checkbox"/> c. Minimum 80% Diversion by Weight (Recycling or Reuse) | | | | 2 | |
| <input type="checkbox"/> 4. Use Recycled Content Aggregate (Minimum 25%) | | | | | |
| <input type="checkbox"/> a. Walkway and Driveway | | | | 1 | |
| <input type="checkbox"/> b. Roadway Base | | | | 1 | |
| B. LANDSCAPING | | | | | |
| Possible Points | | | | | |
| <input type="checkbox"/> 1. Construct Resource-Efficient Landscapes | | | | | |
| <input type="checkbox"/> a. No Invasive Species Listed by Cal-IPC Are Planted | | | | | 1 |
| <input type="checkbox"/> b. No Plant Species Will Require Hedging | | | | 1 | |
| <input type="checkbox"/> c. 75% of Plants Are California Natives or Mediterranean Species | | | | | 1 |
| <input type="checkbox"/> 2. Use Fire-Safe Landscaping Techniques | 1 | | | | |
| <input type="checkbox"/> 3. Minimize Turf Areas in Landscape Installed by Builder | | | | | |
| <input type="checkbox"/> a. All Turf Will Have a Water Requirement Less than or Equal to Tall Fescue | | | | | 2 |
| <input type="checkbox"/> b. Turf Shall Not Be Installed on Slopes Exceeding 10% or in Areas Less than 8 Feet Wide | | | | | 2 |
| <input type="checkbox"/> c. Turf is <33% of Landscaped Area | | | | | 2 |
| <input type="checkbox"/> d. Turf is <10% of Landscaped Area | | | | | 2 |
| <input type="checkbox"/> 4. Plant Shade Trees | | 1 | | | 1 |
| <input type="checkbox"/> 5. Implement Hydrozoning: Group Plants by Water Needs | | | | | 1 |
| <input type="checkbox"/> 6. Install High-Efficiency Irrigation Systems | | | | | |
| <input type="checkbox"/> a. System Uses Only Low-Flow Drip, Bubblers, or Low-flow Sprinklers | | | | | 1 |
| <input type="checkbox"/> b. System Has Smart (Weather-Based) Controllers | | | | | 2 |
| <input type="checkbox"/> 7. Apply Two Inches of Compost in the Top 6 to 12 Inches of Soil | | | | | 2 |
| <input type="checkbox"/> 8. Mulch All Planting Beds to the Greater of 2 Inches or Local Water Ordinance Requirement | | | | | 1 |
| <input type="checkbox"/> 9. Use 50% Salvaged or Recycled-Content Materials for 50% of Non-Plant Landscape Elements | | | | 1 | |
| <input type="checkbox"/> 10. Reduce Light Pollution by Shielding Fixtures and/or Directing Light Downward | 1 | | | | |
| C. FOUNDATION | | | | | |
| Possible Points | | | | | |
| <input type="checkbox"/> 1. Incorporate Recycled Flyash in Concrete | | | | | |
| <input type="checkbox"/> a. Minimum 20% Flyash | | | | | 1 |
| <input type="checkbox"/> b. Minimum 25% Flyash | | | | | 1 |
| <input type="checkbox"/> 2. Use Frost-Protected Shallow Foundation in Cold Areas (C.E.C. Climate Zone 16) | | | | | 3 |
| <input type="checkbox"/> 3. Use Radon Resistant Construction (In At-Risk Locations Only) | | | | 1 | |
| D. STRUCTURAL FRAME & BUILDING ENVELOPE | | | | | |
| Possible Points | | | | | |
| <input type="checkbox"/> 1. Apply Optimal Value Engineering | | | | | |
| <input type="checkbox"/> a. 2x4 Studs at 24-Inch On Center Framing | | | | | 1 |
| <input type="checkbox"/> b. Door and Window Headers Sized for Load | | | | | 1 |
| <input type="checkbox"/> c. Use Only Jack and Chripple Studs Required for Load | | | | | 1 |

| ENTER PROJECT NAME | | Community | Energy | IAQ/Health | Resources | Water |
|--|---|-----------|--------|------------|-----------|-------|
| 2. Use Engineered Lumber | | | | | | |
| <input type="checkbox"/> | a Beams and Headers | | | | 1 | |
| <input type="checkbox"/> | b Insulated Engineered Headers | | 1 | | | |
| <input type="checkbox"/> | c Wood I-Joists or Web Trusses for Floors | | | | 1 | |
| <input type="checkbox"/> | d Wood I-Joists or Rafters | | | | 1 | |
| <input type="checkbox"/> | e Engineered or Finger-Jointed Studs for Vertical Applications | | | | 1 | |
| 3. Use FSC-Certified Wood | | | | | | |
| <input type="checkbox"/> | a Dimensional Studs: Minimum 40% | | | | 2 | |
| <input type="checkbox"/> | b Dimensional Studs: Minimum 70% | | | | 2 | |
| <input type="checkbox"/> | c Panel Products: Minimum 40% | | | | 1 | |
| <input type="checkbox"/> | d Panel Products: Minimum 70% | | | | 1 | |
| <input type="checkbox"/> | 4. Design Energy Heels on Trusses (75% of Attic Insulation Height at Outside Edge of Exterior Wall) | | | | | |
| | | | 1 | | | |
| <input type="checkbox"/> | 5. Design Trusses to Accommodate Ductwork | | | | | |
| | | | 1 | | | |
| 6. Use Oriented Strand Board (OSB) | | | | | | |
| <input type="checkbox"/> | a Subfloor | | | | 1 | |
| <input type="checkbox"/> | b Sheathing | | | | 1 | |
| <input type="checkbox"/> | 7. Use Recycled-Content Steel Studs for 90% of Interior Wall Framing | | | | | |
| | | | | | 1 | |
| 8. Use Solid Wall Systems (Includes SIPs, ICFs, & Any Non-Stick Frame Assembly) | | | | | | |
| <input type="checkbox"/> | a Floors | | 2 | | 2 | |
| <input type="checkbox"/> | b Walls | | 2 | | 2 | |
| <input type="checkbox"/> | c Roofs | | 2 | | 2 | |
| <input type="checkbox"/> | 9. Thermal Mass Walls: 5/8-Inch Drywall on All Interior Walls or Walls Weigh more than 40 lb/cu.ft. | | | | | |
| | | | 1 | | | |
| 10. Design and Build Structural Pest Controls | | | | | | |
| <input type="checkbox"/> | a Install Termite Shields & Separate All Exterior Wood-to-Concrete Connections by Metal or Plastic Fasteners/Dividers | | | | | 1 |
| <input type="checkbox"/> | b All New Plants Have Trunk, Base, or Stem Located At Least 36 Inches from Foundation | | | | | 1 |
| 11. Reduce Pollution Entering the Home from the Garage | | | | | | |
| <input type="checkbox"/> | a Tightly Seal the Air Barrier between Garage and Living Area | | | 1 | | |
| <input type="checkbox"/> | b Install Separate Garage Exhaust Fan | | | 1 | | |
| 12. Install Overhangs and Gutters | | | | | | |
| <input type="checkbox"/> | a Minimum 16-Inch Overhangs and Gutters | | | | 1 | |
| <input type="checkbox"/> | b Minimum 24-Inch Overhangs and Gutters | | | | 1 | |

| E. EXTERIOR FINISH | | Possible Points |
|--------------------------|---|-----------------|
| <input type="checkbox"/> | 1. Use Recycled-Content (No Virgin Plastic) or FSC-Certified Wood Decking | 2 |
| <input type="checkbox"/> | 2. Install a Drainage Plane (Rain Screen Wall System) | 2 |
| <input type="checkbox"/> | 3. Use Durable and Non-Combustible Siding Materials | 1 |
| <input type="checkbox"/> | 4. Select Durable and Non-Combustible Roofing Materials | 2 |

| F. PLUMBING | | Possible Points |
|---|--|-----------------|
| 1. Distribute Domestic Hot Water Efficiently | | |
| <input type="checkbox"/> | a Insulate Hot Water Pipes from Water Heater to Kitchen | 1 |
| <input type="checkbox"/> | b Insulate All Hot Water Pipes OR Install On-Demand Hot Water Circulation System in conjunction with F. 1. a Insulate Hot Water Pipes from Water Heater to Kitchen | 1 |
| <input type="checkbox"/> | c Locate the Water Heater within 25 feet of All Hot Water Fixtures and Appliances | 1 |
| <input type="checkbox"/> | d Use Engineered Parallel Piping | 1 |
| <input type="checkbox"/> | 2. Install Only High Efficiency Toilets (Dual-Flush or <=1.3 gpf) | 3 |

| G. APPLIANCES | | Possible Points |
|--|---|-----------------|
| 1. Install ENERGY STAR Dishwasher | | |
| <input type="checkbox"/> | a ENERGY STAR | 1 |
| <input type="checkbox"/> | b Dishwasher Uses No More than 6.5 Gallons/Cycle | 1 |
| <input type="checkbox"/> | 2. Install ENERGY STAR Clothes Washing Machine with Water Factor of 6 or Less | 3 |
| 3. Install ENERGY STAR Refrigerator | | |
| <input type="checkbox"/> | a ENERGY STAR 15% above Federal Minimum | 1 |
| <input type="checkbox"/> | b Super-Efficient Home Appliance Tier 2: 25% above Federal Minimum | 1 |
| <input type="checkbox"/> | 4. Install Built-In Recycling Center | 2 |

| ENTER PROJECT NAME | | Community | Energy | IAC/Health | Resources | Water |
|---|--|-----------------|--------|------------|-----------|-------|
| H. INSULATION | | Possible Points | | | | |
| <input type="checkbox"/> | 1. Install Insulation with 75% Recycled Content | | | | | |
| <input type="checkbox"/> | a. Walls and/or Floors | | | | | 1 |
| <input type="checkbox"/> | b. Ceilings | | | | | 1 |
| <input type="checkbox"/> | 2. Install Insulation that is Low-Emitting (Certified Section 01350) | | | | | |
| <input type="checkbox"/> | a. Walls and/or Floors | | | 1 | | |
| <input type="checkbox"/> | b. Ceilings | | | 1 | | |
| <input type="checkbox"/> | 3. Pre-Drywall Inspection Shows Quality Installation of Insulation | | 1 | | | |
| I. HEATING, VENTILATION & AIR CONDITIONING | | Possible Points | | | | |
| <input type="checkbox"/> | 1. Design and Install HVAC System to ACCA Manual J, D, and S Recommendations | | 4 | | | |
| <input type="checkbox"/> | 2. Install Sealed Combustion Units | | | | | |
| <input type="checkbox"/> | a. Furnaces | | | 2 | | |
| <input type="checkbox"/> | b. Water Heaters | | | 2 | | |
| <input type="checkbox"/> | 3. No Fireplace or Sealed Gas Fireplace with Efficiency Rating Not Less Than 60% | | | 1 | | |
| <input type="checkbox"/> | 4. Install ENERGY STAR Ceiling Fans with CFLs in Living Areas and Bedrooms | | 1 | | | |
| <input type="checkbox"/> | 5. Install Mechanical Ventilation System for Nighttime Cooling (Points are Cumulative up to 3) | | | | | |
| <input type="checkbox"/> | a. Whole House Fan | | 1 | | | |
| <input type="checkbox"/> | b. Automatically Controlled Integrated System | | 2 | | | |
| <input type="checkbox"/> | c. Integrated System with Variable Speed Control | | 3 | | | |
| <input type="checkbox"/> | 6. Install Air Conditioning with Non-HCFC Refrigerants | | 1 | | | |
| <input type="checkbox"/> | 7. Design and Install Effective Ductwork | | | | | |
| <input type="checkbox"/> | a. Install HVAC Unit and Ductwork within Conditioned Space | | 3 | | | |
| <input type="checkbox"/> | b. Use Duct Mastic on All Duct Joints and Seams | | 1 | | | |
| <input type="checkbox"/> | c. Install Ductwork under Attic Insulation (Buried Ducts) | | 1 | | | |
| <input type="checkbox"/> | d. Pressure Balance the Ductwork System for Master Bedroom | | 1 | | | |
| <input type="checkbox"/> | e. Protect Ducts during Construction and Clean All Ducts before Occupancy | | | | 1 | |
| <input type="checkbox"/> | 8. Install High Efficiency HVAC Filter (MERV 6+) | | | 1 | | |
| <input type="checkbox"/> | 9. Install Zoned, Hydronic Radiant Heating with Slab Edge Insulation | | 1 | 1 | | |
| <input type="checkbox"/> | 10. Install Mechanical Ventilation System | | | | | |
| <input type="checkbox"/> | a. Any Whole House Ventilation System That Meets ASHRAE 62.2 | | 1 | 2 | | |
| <input type="checkbox"/> | b. Install ENERGY STAR Bathroom Fan | | | 1 | | |
| <input type="checkbox"/> | c. All Bathroom Fans Are on Timer or Humidistat | | | 1 | | |
| <input type="checkbox"/> | 11. Use Low-Sone Range Hood Vented to the Outside | | | 1 | | |
| <input type="checkbox"/> | 12. Install Carbon Monoxide Alarm(s) | | | 1 | | |
| J. BUILDING PERFORMANCE | | Possible Points | | | | |
| 0% | 1. Design and Build High Performance Homes (2 points for each 1% above T-24, up to 30 pts) <i>Enter the percent above Title 24 in the call at left. Any value over 15% will automatically earn 30 points.</i> | | 30 | | | |
| <input type="checkbox"/> | 2. House Obtains ENERGY STAR with Indoor Air Package Certification | | | 5 | 2 | |
| <input type="checkbox"/> | 3. Inspection and Diagnostic Evaluations | | | | | |
| <input type="checkbox"/> | a. Third Party Energy and Green Building Review of Home Plans | | 1 | 1 | 1 | |
| <input type="checkbox"/> | b. Blower Door Test Performed | | 1 | | | |
| <input type="checkbox"/> | c. House Passes Combustion Safety Backdraft Test | | | 1 | | |
| K. RENEWABLE ENERGY | | Possible Points | | | | |
| <input type="checkbox"/> | 1. Pre-Plumb for Solar Hot Water Heating | | 4 | | | |
| <input type="checkbox"/> | 2. Install Solar Water Heating System | | 10 | | | |
| <input type="checkbox"/> | 3. Install Wiring Conduit for Future Photovoltaic Installation & Provide 200 ft ² of South-Facing Roof | | 2 | | | |
| <input type="checkbox"/> | 4. Install Photovoltaic (PV) Panels | | | | | |
| <input type="checkbox"/> | a. 1.2 kW System | | 6 | | | |
| <input type="checkbox"/> | b. 2.4 kW System | | 6 | | | |
| <input type="checkbox"/> | c. 3.6 kW or more | | 6 | | | |

| ENTER PROJECT NAME | | Community | Energy | IAQ/Health | Resources | Water |
|---|--|-----------------|--------|------------|-----------|----------|
| L. FINISHES | | Possible Points | | | | |
| <input type="checkbox"/> | 1. Provide Permanent Walk-Off Mats and Shoe Storage at Home Entrances | | | 1 | | |
| 2. Use Low/No-VOC Paint | | | | | | |
| <input type="checkbox"/> | a. Low-VOC Interior Wall/Ceiling Paints (<50 gpl VOCs (Flat) and <150 gpl VOCs (Non-Flat)) | | | 1 | | |
| <input type="checkbox"/> | b. Zero-VOC: Interior Wall/Ceiling Paints (<5 gpl VOCs (Flat)) | | | 3 | | |
| <input type="checkbox"/> | 3. Use Low VOC, Water-Based Wood Finishes (<150 gpl VOCs) | | | 2 | | |
| <input type="checkbox"/> | 4. Use Low-VOC Construction Adhesives (<70 gpl VOCs) for All Adhesives | | | 2 | | |
| <input type="checkbox"/> | 5. Use Recycled-Content Paint | | | | 1 | |
| 6. Use Environmentally Preferable Materials for Interior Finish: A) FSC-Certified Wood, B) Reclaimed Lumber, C) Rapidly Renewable D) Recycled-Content or E) Finger-Jointed At Least 50% of Each Material (1 pt each): | | | | | | |
| <input type="checkbox"/> | a. Cabinets | | | | 1 | |
| <input type="checkbox"/> | b. Interior Trim | | | | 1 | |
| <input type="checkbox"/> | c. Shelving | | | | 1 | |
| <input type="checkbox"/> | d. Doors | | | | 1 | |
| <input type="checkbox"/> | e. Countertops | | | | 1 | |
| 7. Reduce Formaldehyde in Interior Finish (Section 01350) for At Least 50% of Each Material Below: | | | | | | |
| <input type="checkbox"/> | a. Cabinets | | | 1 | | |
| <input type="checkbox"/> | b. Interior Trim | | | 1 | | |
| <input type="checkbox"/> | c. Shelving | | | 1 | | |
| <input type="checkbox"/> | d. Subfloor | | | 1 | | |
| <input type="checkbox"/> | 8. After Installation of Finishes, Test of Indoor Air Shows Formaldehyde Level <27ppb | | | | 3 | |
| M. FLOORING | | Possible Points | | | | |
| 1. Use Environmentally Preferable Flooring: A) FSC-Certified or Reclaimed Wood, B) Rapidly Renewable Flooring Materials, C) Recycled-Content Ceramic Tiles, D) Exposed Concrete as Finished Floor or E) Recycled-Content Carpet. <i>Note: Flooring Adhesives Must Have <50 gpl VOCs.</i> | | | | | | |
| <input type="checkbox"/> | a. Minimum 15% of Floor Area | | | | 1 | |
| <input type="checkbox"/> | b. Minimum 30% of Floor Area | | | | 1 | |
| <input type="checkbox"/> | c. Minimum 50% of Floor Area | | | | 1 | |
| <input type="checkbox"/> | d. Minimum 75% of Floor Area | | | | 1 | |
| <input type="checkbox"/> | 2. Thermal Mass Floors: Floor Covering Other than Carpet on 50% or More of Concrete Floors | | 1 | | | |
| <input type="checkbox"/> | 3. Flooring Meets Section 01350 or CRI Green Label Plus Requirements (50% Minimum) | | | | 2 | |
| N. OTHER | | Possible Points | | | | |
| <input type="checkbox"/> | 1. Incorporate Green Points Checklist in Blueprints - <i>Required</i> | | | | | R |
| <input type="checkbox"/> | 2. Develop Homeowner Manual of Green Features/Benefits | | 1 | 1 | | 1 |
| 3. Community Design Measures & Local Priorities: See the Community Planning & Design section in Chapter 4 of the New Home Guidelines for measures. Maximum of 20 points for suggested measures. Local requirements may also be listed here. | | | | | | |
| 0 | Enter description here | | | | | |
| 0 | Enter description here | | | | | |
| 0 | Enter description here | | | | | |
| 0 | Enter description here | | | | | |
| 4. Innovation: List innovative measures that meet the green building objectives of the Guidelines. Enter up to a maximum combined total of 20 pts. See Innovation Checklist for suggested measures. | | | | | | |
| 0 | Innovation in Community: Enter description here | | | | | |
| 0 | Innovation in Energy: Enter description here | | | | | |
| 0 | Innovation in IAQ/Health: Enter description here | | | | | |
| 0 | Innovation in Resources: Enter description here | | | | | |
| 0 | Innovation in Water: Enter description here | | | | | |
| Summary | | | | | | |
| Points Achieved from Specific Categories | | 0 | 0 | 0 | 0 | 0 |
| Total Points Achieved | | 0 | | | | |
| Project has not yet met the recommended minimum requirements | | | | | | |
| - Total Project Score of At Least 50 Points | | | | | | |
| - Minimum points in specific categories: Energy (11), IAQ/Health (5), Resources (6), Water (3) | | | | | | |
| - Required measures A.3.a and/or N.1 | | | | | | |



City of Sacramento
Development Services
We Help Build A Great City

Green Building Program

Presentation to the
City Council
December 18, 2007

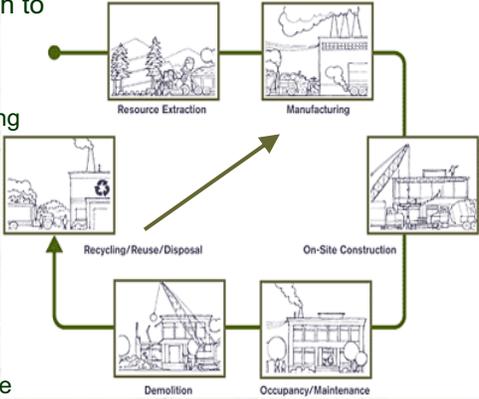


What is Green Building?

A “Whole-Systems” approach to designing & constructing buildings that:

- Are integrated into the building site
- Consume less energy and water
- Are durable and easier to maintain
- Use resources and materials efficiently
- Are healthier, safer, and more comfortable

LIFE CYCLE OF BUILDING PRODUCTS



Whole Building Design Guide,
www.wbdg.com

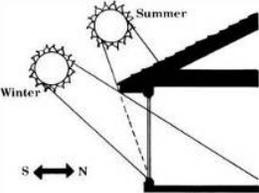


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Principles of Green Building



- Site Design
- Water Efficiency
- Energy & Atmosphere Efficiency
- Material & Resource Conservation
- Indoor Environmental Quality

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Designing a Green Building Program

- Research existing programs
- Identify building incentives & rebates
- Identify appropriate zoning or building ordinance changes
- Adopt green building guidelines & checklists
- Education & public outreach
- Return to City Council in December 2007



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Sample Rating Systems, Guidelines & Checklists

U.S. Green Building Council, Leadership in Energy & Environmental Design (LEED)

LEED
LEED-NC Version 2.1 Registered Project Checklist

| Prerequisite | Requirement | Points |
|--|--|----------|
| Sustainable Sites 14 Points | | |
| Prereq 1 | Erosion & Sedimentation Control | Required |
| Crack 1 | Site Selection | 1 |
| Crack 2 | Development Density | 1 |
| Crack 3 | Brownfield Redevelopment | 1 |
| Crack 4.1 | Alternative Transportation, Public Transportation Access | 1 |
| Crack 4.2 | Alternative Transportation, Bicycle Storage & Changing Rooms | 1 |
| Crack 4.3 | Alternative Transportation, Alternative Fuel Vehicles | 1 |
| Crack 4.4 | Alternative Transportation, Parking Capacity and Carpooling | 1 |
| Crack 5.1 | Reduced Site Disturbance, Protect or Restore Open Space | 1 |
| Crack 5.2 | Reduced Site Disturbance, Development Footprint | 1 |
| Crack 6.1 | Stormwater Management, Rate and Quantity | 1 |
| Crack 6.2 | Stormwater Management, Treatment | 1 |
| Crack 7.1 | Landscape & Exterior Design to Reduce Heat Islands, Non-Roof | 1 |
| Crack 7.2 | Landscape & Exterior Design to Reduce Heat Islands, Roof | 1 |
| Crack 8 | Light Pollution Reduction | 1 |
| Water Efficiency 5 Points | | |
| Crack 1.1 | Water Efficient Landscaping, Reduce by 50% | 1 |
| Crack 1.2 | Water Efficient Landscaping, No Potable Use or No Irrigation | 1 |
| Crack 2 | Innovative Wastewater Technologies | 1 |
| Crack 3.1 | Water Use Reduction, 20% Reduction | 1 |
| Crack 3.2 | Water Use Reduction, 30% Reduction | 1 |
| Energy & Atmosphere 12 Points | | |
| Prereq 1 | Fundamental Building Systems Commissioning | Required |
| Prereq 2 | Minimum Energy Performance | Required |
| Prereq 3 | CFC Reduction in HVAC/R Equipment | Required |
| Crack 1 | Optimize Energy Performance | 1 to 10 |
| Crack 2.1 | Renewable Energy, 5% | 1 |
| Crack 2.2 | Renewable Energy, 10% | 1 |
| Crack 2.3 | Renewable Energy, 20% | 1 |
| Crack 3 | Additional Commissioning | 1 |
| Crack 4 | Climate Declaration | 1 |
| Crack 5 | Measurement & Verification | 1 |
| Crack 6 | Green Power | 1 |

U.S. Green Building Council,
www.usgbc.org

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Leadership in Energy & Environmental Design (LEED)

| Certification Level | Points Required |
|---------------------|-----------------|
| CERTIFIED | 26-32 |
| SILVER | 33-38 |
| GOLD | 39-51 |
| PLATINUM | 52-69 |

PROGRAM AREAS:

- New Construction
- Existing Building
- Commercial Interiors
- Core and Shell
- Home (*Pilot Program*)
- Neighborhood (*Pilot Program*)
- Retail (*Pilot Program*)
- Schools
- Lodging
- Healthcare

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Build It Green, GreenPoint Rated

Single Family GreenPoint Checklist

The GreenPoint checklist tracks green features incorporated into the home. The recommended checklist requirements for a green home are 24 or more of 25 points or more, obtain the following minimum points per category: Energy (7), Water (4), QualityHealth (3), Materials (2), and Waste (3), and meet the prerequisite 4.2 or 20% construction waste diversion and 7% construction Green Points checklist in categories:

Prerequisite checklist must have all checked in the New Home Construction Green Building Checklist available at www.builditgreen.org

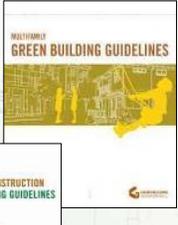
ENTER PROJECT NAME

| Item | Possible Points |
|---|-----------------|
| A. NEEDS | |
| 1. Protect Nature and Minimize Disturbance of Existing Plants & Trees | |
| 2. Properly Dispose Hazard Waste and Appliances | |
| 3. Lead and Copper Certified Paint for Interior Protection | |
| 4. Environmental Control of Hazardous Existing Building On Site | |
| 5. Recycle and Reuse Construction Waste (Including Green Waste) | |
| 6. Minimum 50% Water Conservation by High-Flowing or Fixed | |
| 7. Minimum 20% Conservation by High-Flowing or Fixed | |
| 8. Minimum 40% Conservation by High-Flowing or Fixed | |
| 9. Use Recycled Content Aggregate (Minimum 20%) | |
| 10. Windows and Glazing | |
| 11. Windows and Glazing | |
| B. PLANNING | |
| 12. Conduct Resource Efficient Landscaping | |
| 13. No Invasive Species (and/or CA-RT and Rabbits) | |
| 14. No Invasive Species (or Rabbits) on Property | |
| 15. 10% of Plants are California Native or Mediterranean Species | |
| 16. Use Fast-Growing Landscaping Techniques | |
| 17. Minimum 10% Native in Landscaping Installed by Builder | |
| 18. All 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 19. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 20. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 21. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 22. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 23. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 24. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| 25. 10% of Native in Landscaping Installed by Builder is 10% of Native | |
| C. FINISHES | |
| 26. Minimum Recycled Content in Concrete | |
| 27. Minimum 20% Paint | |
| 28. Minimum 20% Paint | |
| 29. Use Paint-Preventer Surface Preparation in Cook Area (2 & 3: Cleanly Zone 16) | |
| 30. Make Recycled Contribution to Airborne Landfill (and) | |
| D. STRUCTURAL FRAME & BUILDING ENVELOPE | |
| 31. Apply Optimal Value Engineering | |
| 32. All Sides of House to be Insulated | |
| 33. Seal and Weather Windows (and) for Load | |
| 34. Seal and Weather Windows (and) for Load | |

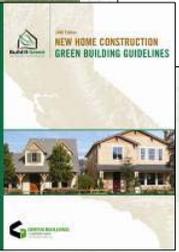
Residential



HOME REMODELING GREEN BUILDING GUIDELINES



MULTIFAMILY GREEN BUILDING GUIDELINES



NEW HOME CONSTRUCTION GREEN BUILDING GUIDELINES

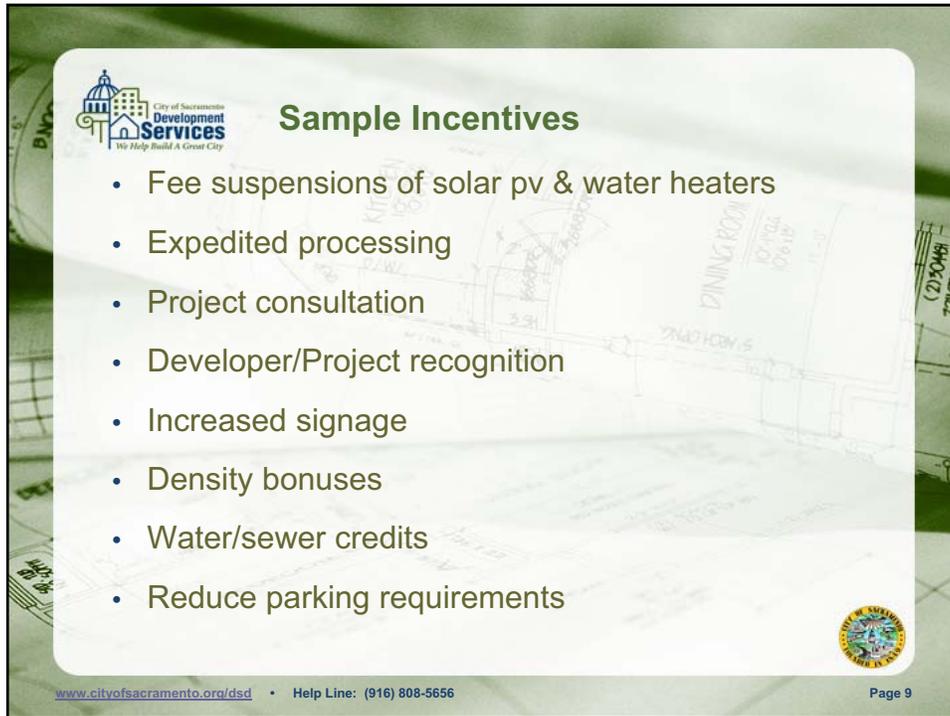
www.BuildItGreen.org
www.stopwaste.org



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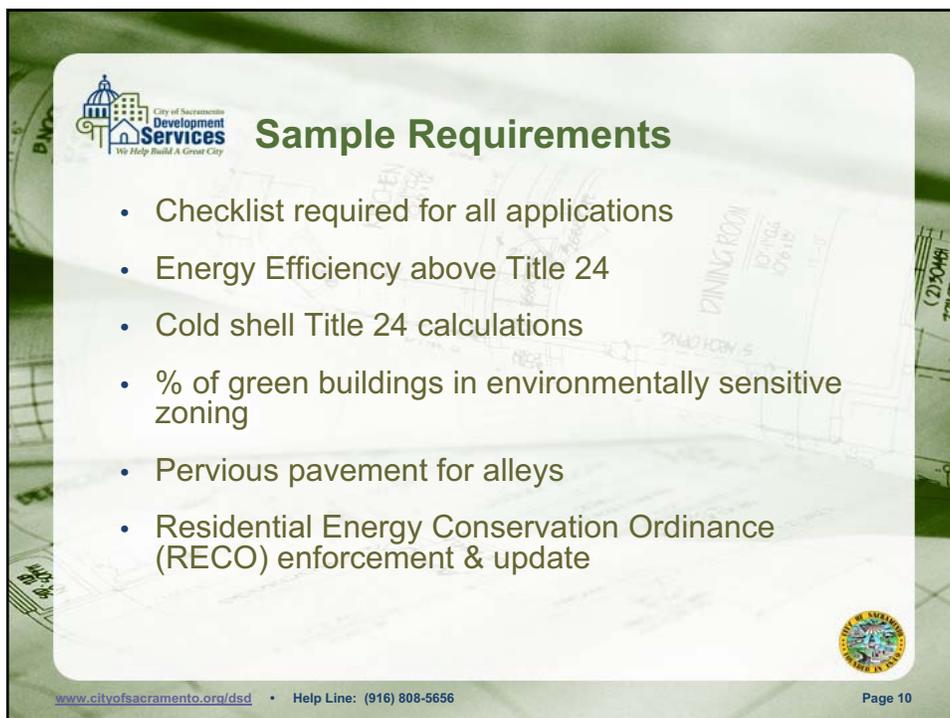
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 **Sample Incentives**

- Fee suspensions of solar pv & water heaters
- Expedited processing
- Project consultation
- Developer/Project recognition
- Increased signage
- Density bonuses
- Water/sewer credits
- Reduce parking requirements

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 **Sample Requirements**

- Checklist required for all applications
- Energy Efficiency above Title 24
- Cold shell Title 24 calculations
- % of green buildings in environmentally sensitive zoning
- Pervious pavement for alleys
- Residential Energy Conservation Ordinance (RECO) enforcement & update

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Education & Public Outreach

- Staff Trainings & Peer Networking**
 - LEED Accredited Staff
 - Green Building Professionals
 - Build It Green Public Agency Council
- Information & Resource Development**
 - Website
 - Brochures & Public Counter Kiosk
 - Lectures/Workshops
 - Events
- Stakeholder Meetings**
 - American Institute of Architects
 - Associated General Contractors
 - Building Industry Association
 - Sacramento Area Realtors
 - City Management Academy
 - Capital Area Development Authority
 - Environmental Council of Sacramento



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Staff Contact

**Jamie Cutlip, Assistant Planner,
Certified Green Building Professional (CGBP)**

Ph: (916) 808-8684
Email: jcutlip@cityofsacramento.org

**Bob Chase, Chief Building Official
LEED Accredited Professional,
Certified Green Building Professional (CGBP)**

Ph: 916-808-8024
Email: bchase@cityofsacramento.org



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