

PERKINS + WILL

Memo

To: Thomas Rogers, City of Menlo Park

From: Mark Hoffheimer

Date: March 6, 2012

Subject: Task H: Sustainability Revisions

Purpose

In accordance with the requirement that the Sustainability section of the Specific Plan be updated every two years, the Sustainability section (Chapter E, Section E.3.8, page E46) was reviewed and revised, with recommendations for revisions made to reflect code changes as well as best practices in other jurisdictions.

Other references to sustainability in the Draft Specific Plan (pages C19 and D48) will be revised, and made consistent with Section E.3.8, as part of the update to the Draft Specific Plan.

Key Findings/Recommendations for Revisions

The following revisions address updates to codes and initiatives

- Section 3.8.2, Local Initiatives: delete discussion of early adoption of CALGREEN code, as this is no longer relevant (see State Initiatives below); include information on the City's recent adoption of local amendments to CALGREEN.
- Section 3.8.2, Regional Initiatives: update section on San Mateo County Green Building Ordinance to reflect ordinance language.
- Section 3.8.2, State Initiatives: clarify application of CALGREEN code.

The following revisions were made to reflect best practices in other jurisdictions, or to clarify the intent of the recommendations:

- E3.8.3.03: revise requirements for large parcels to apply to projects with multiple buildings on lots one acre or more in size. Revise recommended LEED-ND certification level to silver so that this requirement aligns with requirements for single buildings. LEED-ND Silver would be in addition to LEED Silver for individual buildings. It recognizes that larger projects, with multiple buildings arranged on larger sites, have the potential to employ additional sustainable practices

beyond those employed in individual buildings, such as stormwater management and renewable energy sources. It also recognizes that such practices can be employed on sites as small as one acre with multiple buildings (more than one).

Methodology and References

The methodology for this update included review of applicable codes and initiatives, and a review of requirements in other jurisdictions, including San Francisco, Palo Alto and San Jose.

Attachments

- Revised Sustainable Practices Text from Specific Plan (Section E.3.8)

cc: Menlo Park El Camino Real/Downtown
Specific Plan – SA #498012.006

E.1 OVERVIEW

E. 3.8 Sustainable Practices

Sustainable practices for new construction support community and environmental well-being by utilizing finite resources in a responsible way, creating healthy environments for building inhabitants and minimizing impacts to both natural systems and existing utilities (i.e. water, wastewater and energy systems). The City of Menlo Park supports sustainable practices through its 2009 Climate Action Plan.

Sustainable practices address: 1) the environmental impacts of site development and building construction; and 2) the long-term environmental impacts of the operation of buildings resulting in the emission of greenhouse gases (GHGs), in particular carbon dioxide (CO₂), which is causing the global climate to change. Currently, there are excellent tools to measure ways to reduce environmental impacts caused by building construction, and new tools are emerging to measure greenhouse gas emissions caused by building operations over the long term.

To address impacts caused by construction, the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system measures specific site development and new building construction methods related to environmental issues, such as energy savings, water efficiency, CO₂ emissions reduction, improved indoor environmental quality and stewardship of resources and sensitivity to their impacts.

To address GHG emissions, the world's leading green building organizations have agreed to adopt a common global language for the measurement of the carbon footprint of buildings. The "common carbon metric" will be piloted by the leading green building rating tools. This should lead to the cost-effective GHG mitigation potential of buildings, which account for around 40% of the world's energy use and 33% of global GHG emissions.¹

3.8.1 Measurement Tools

Development and Construction Tools

US Green Building Council Leadership in Energy and Environmental Design (LEED)

The LEED program has performance levels from "Certified" to "Platinum" and rating systems that address different types of construction and building operation, including LEED for New Construction and LEED for existing buildings, operations and maintenance. In addition, LEED for Neighborhood Development (LEED-ND) promotes best practices in location, design and development at the neighborhood scale.

GreenPoint Rating

Build It Green is a membership supported non-profit organization whose mission is to promote healthy, energy- and resource-efficient homes in California. Build it Green has a GreenPoint rating system specifically designed to address residential construction. Many municipalities in the Bay Area have adopted Green Building Ordinances that require certain levels of LEED certification or a GreenPoint

¹ US Green Building Council

rating for different types of projects. A residential building can be GreenPoint Rated if it achieves the performance requirements of the GreenPoint rating system; there is no sliding scale like there is with LEED (i.e. “Certified” to “Platinum”).

2030 Challenge Greenhouse Gas Reduction Targets

The 2030 Challenge is an initiative by Architecture 2030 asking for the adoption of a series of greenhouse gas reduction targets for new and renovated buildings. Architecture 2030, is a non-profit, non-partisan and independent organization established in 2002 by architect Edward Mazria in response to the global-warming crisis. 2030’s mission is to rapidly transform the US and global Building Sector from the major contributor of greenhouse gas emissions to a central part of the solution to the global-warming crisis.

3.8.2 Initiatives

A variety of state, regional and local initiatives address sustainable development and reduction of greenhouse gases.

State Initiatives

The State of California has adopted a green building code (CALGREEN) which took effect on January 1, 2011. The CALGREEN Code is a comprehensive and uniform regulatory code for certain categories of residential buildings and for commercial, hospital and school buildings. It is intended to ensure that most new buildings in California are built using environmentally advanced construction practices. Among the requirements of the code are the following:

- 20 percent mandatory reduction in indoor water use, with voluntary goal standards for 30, 35 and 40 percent reductions;
- Separate water meters for nonresidential buildings’ indoor and outdoor water use, with a requirement for moisture-sensing irrigation systems for larger landscape projects;
- Requiring diversion of 50 percent of construction waste from landfills, increasing voluntarily to 65 and 75 percent for new homes and 80 percent for commercial projects (Menlo Park currently implements a Construction and Demolition ordinance that requires construction projects to divert 60 percent of materials from the landfill);
- Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet to ensure that all are working at their maximum capacity according to their design efficiencies; and
- Requiring low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particle board.

While the CALGREEN Code clearly advances “green” practices in building construction, the code complements, and does not replace, the LEED program, which takes a more comprehensive approach to sustainable design.

Regional Initiatives

San Mateo County has adopted a Green Building Ordinance that applies to buildings requiring permits issued by the County. San Mateo County's Green Building Ordinance requires new and 50 percent remodels of single family, two family and low rise multi-family residential buildings to receive either a GreenPoint rating or LEED certification and new commercial and industrial buildings greater than 3,000 square feet to receive LEED certification. .

Local Initiatives

Menlo Park published a Climate Action Plan (CAP) in 2009 that included measures to reduce greenhouse gas emissions. In 2011, the City Council adopted a supplemental report to the CAP, which updated Menlo Park's community greenhouse gas inventories between 2005 and 2009, and also provided a five year strategy of climate action initiatives. One of the initiatives includes the phased development of a sustainable building ordinance that would enhance energy efficiency in newly constructed buildings beyond that provided by CALGREEN. The first phase of work resulted in the City adoption of three local amendments to CALGREEN. The local amendments have been effective since January 1, 2012. The local amendments include the following new requirements for buildings currently subject to CALGREEN:

- All newly constructed buildings are required to exceed the minimum energy efficiency standards established in the 2010 California Energy Code by 15 percent.
- All newly constructed buildings are required to test heating and cooling ducts for leakage.
- All newly constructed residential buildings are required to install cool roofs or use alternative methods and materials to achieve equivalent energy savings.

The second phase of work is expected to begin in fiscal year 2012-2013 and will focus on the exploration of additional sustainability building measures, including the use of various rating systems.

All city-wide programs are applicable to the Specific Plan area.

3.8.3 Recommendations

The Specific Plan recommends that the City adopt the following policies regarding sustainable practices for the plan area. The policies reflect best practices as adopted by other cities. The costs relating to sustainable practices are absorbed by developers, which has become standard practice for developers. However, the policies reflect the potential of financial hardship for smaller buildings by establishing two sets of requirements -- one for larger buildings/developments and one for smaller buildings as noted below both in text and table format.

E.3.8.3.01 LEED certification, at a silver level or higher, shall be required for the types of projects listed below. The applicable LEED® versions of performance standards are: LEED®- v3 (2009) New Construction; LEED®- v3 (2009) Core and Shell; LEED®- v3 (2009) New Homes; LEED®- v3 (2009) Schools; and LEED®- v3 (2009) Commercial Interiors. LEED certification, at a silver level or higher, should be required for:

- Newly constructed residential buildings of Group R (single-family, duplex and multi-family);

- Newly constructed commercial buildings of Group B (occupancies including among others office, professional and service type transactions) and Group M (occupancies including among others display or sale of merchandise such as department stores, retail stores, wholesale stores, markets and sales rooms) that are 5,000 gross square feet or more;
- New first-time build-outs of commercial interiors that are 20,000 gross square feet or more in buildings of Group B and M occupancies; and
- Major alterations that are 20,000 gross square feet or more in existing buildings of Group B, M and R occupancies, where interior finishes are removed and significant upgrades to structural and mechanical, electrical and/or plumbing systems are proposed.

E.3.8.3.02 The development of larger projects allows for more comprehensive sustainability planning and design, such as efficiency in water use, stormwater management, renewable energy sources and carbon reduction features. A larger development project is defined as one with two buildings or more on a lot 1 acre or larger in size. Such development projects should have sustainability requirements and GHG reduction targets that address neighborhood planning, in addition to the sustainability requirements for individual buildings (see E.3.8.3.01 above). These should include being certified at a LEED-ND (neighborhood development), at a silver level or higher, and could include mandating a phased reduction of GHG emissions over a period of time as prescribed in the 2030 Challenge.

E.3.8.3.03 Because green building standards are constantly evolving, the requirements in this section should be reviewed and updated on a regular basis of at least every two years.

Summary of Green Building Requirements

Building Type	Building Size	Recommended Minimal Standard
New Construction		
New Large Commercial	5,000 GSF (1) or larger	LEED Silver
New Residential	Single and duplex	LEED Silver
New Residential	Multi-Family 3 units or more	LEED Silver
New Multi-Building	More than one building on one acre or more	LEED-ND Silver
Interiors and Alterations		
Large First-Time Build Outs of Commercial Interiors	20,000 GSF or larger	LEED Silver
Major Alterations to Commercial and Residential Interiors	20,000 GSF or larger	LEED Silver
(1) GSF = Gross Square Feet		

3.8.4 Guidelines

The sustainable guidelines listed below are also relevant to the project area. They relate to but do not replace LEED certification rating requirements.

Building Design Guidelines

E.3.8.4.01 Buildings should incorporate narrow floor plates to allow natural light deeper into the interior.

E.3.8.4.02 Buildings should reduce use of daytime artificial lighting through design elements, such as bigger wall openings, light shelves, clerestory lighting, skylights, and translucent wall materials.

E.3.8.4.03 Buildings should allow for flexibility to regulate the amount of direct sunlight into the interiors. Louvered wall openings or shading devices like *bris soleils* help control solar gain and check overheating. *Bris soleils*, which are permanent sun-shading elements, extend from the sun-facing facade of a building, in the form of horizontal or vertical projections depending on sun orientation, to cut out the sun's direct rays, help protect windows from excessive solar light and heat and reduce glare within.

E.3.8.4.04 Where appropriate, buildings should incorporate arcades, trellis and appropriate tree planting to screen and mitigate south and west sun exposure during summer. This guideline would not apply to downtown, the station area and the west side of El Camino Real where buildings have a narrower setback and street trees provide shade.

E.3.8.4.05 Operable windows are encouraged in new buildings for natural ventilation.

E.3.8.4.06 To maximize use of solar energy, buildings should consider integrating photovoltaic panels on roofs.

E.3.8.4.07 Inclusion of recycling centers in kitchen facilities of commercial and residential buildings shall be encouraged. The minimum size of recycling centers in commercial buildings should be 20 cubic feet (48 inches wide x 30 inches deep x 24 inches high) to provide for garbage and recyclable materials.

Stormwater and Wastewater Management Guidelines

E.3.8.4.08 Effective stormwater management techniques are recommended. Such techniques could include bioswales on surface parking lots, rain gardens in landscaped areas, green roofs and porous materials on driveways and parking lots.

E.3.8.4.09 Buildings should incorporate intensive or extensive green roofs in their design. Green roofs harvest rain water that can be recycled for plant irrigation or for some domestic uses. Green roofs are also effective in cutting-back on the cooling load of the air-conditioning system of the building and reducing the heat island effect from the roof surface.

E.3.8.4.010 Projects should use porous material on driveways and parking lots to minimize stormwater run-off from paved surfaces.

Landscaping Guidelines

E.3.8.4.11 Planting plans should support passive heating and cooling of buildings and outdoor spaces.

E.3.8.4.12 Regional native and drought resistant plant species are encouraged as planting material.

E.3.8.4.13 Provision of efficient irrigation system is recommended, consistent with the City's Municipal Code Chapter 12.44 "Water-Efficient Landscaping".

Lighting Guidelines

E.3.8.4.14 Energy-efficient and color-balanced outdoor lighting, at the lowest lighting levels possible, are encouraged to provide for safe pedestrian and auto circulation.

E.3.8.4.15 Glare into dwelling units and light pollution into the night sky should be minimized by use of fixtures with low cut-off angles.

E.3.8.4.16 Improvements should use ENERGY STAR-qualified fixtures to reduce a building's energy consumption.

E.3.8.4.17 Installation of high-efficiency lighting systems with advanced lighting control, including motion sensors tied to dimmable lighting controls, are recommended.

Green Building Material Guidelines

E.3.8.4.18 The reuse and recycle of construction and demolition materials is recommended. The use of demolition materials as a base course for a parking lot keeps materials out of landfills and reduces costs.

E.3.8.4.19 The use of products with identifiable recycled content, including post-industrial content with a preference for post-consumer content, are encouraged.

E.3.8.4.20 Building materials, components, and systems found locally or regionally should be used, thereby saving energy and resources in transportation.

E.3.8.4.21 A design with adequate space to facilitate recycling collection and to incorporate a solid waste management program, preventing waste generation, is recommended.

E.3.8.4.22 The use of material from renewable sources is encouraged.