Buildings, Energy Efficiency, and Transportation (BEET)
Executive Summary

The BEET volunteers welcome the opportunity to report on our progress to the Climate Protection Task Force. Meeting regularly, we have developed some primary recommendations for the Town Council. In addition, we have additional ideas that we believe are worth considering. We understand that this is a work in progress, and we look forward to working with the other members of the Task Force, the ASCC, Planning Commission, and Council as these ideas move forward.

Why should Portola Valley take on this effort? No doubt, there will be some who say that this is a tiny effort with no meaningful impact on a global problem. We hold the opposite view: the residents of Portola Valley cannot demand change on a global level unless we are willing to undertake actions at home to reduce our own greenhouse gas emissions. We believe that the Town has a role to play and the capacity and imagination to make a positive difference on this issue.

We see this effort as a continuation of the decades old tradition of the Town to shape not only how we build but also how we live as a community. Our long-established emphasis on native plants is part of this tradition, as are more recent requirements regarding recycling of construction materials and submission of green building plans. We should recognize these past accomplishments, and then we need to go further. Our recommendations will be a challenge for the Town to accomplish, and the BEET volunteers strongly urge the Town to take on that challenge.

This report is assembled from the work of all the BEET volunteers. Some ideas are more fleshed out than others. We hope that our efforts will allow the Task Force to forward strong recommendations to the Town, and we look forward to continuing our work as the Task Force and/or Council directs us.

New Construction

For new buildings and substantial remodels, whether residential, commercial, or public, we recommend that the Town adopt a system of tracking and crediting new construction based on a system such as the existing LEED for Homes standards (see below). Essentially, the Town would require that a certain level of performance be met, but the Town would not dictate *how* that level would be met, in order to allow for design flexibility. Over time, as new technologies develop and certain practices are adopted more readily, we expect that the performance level required will increase. A similar approach has been adopted by other cities. For example, Boston now requires that certain types of building be LEED certified.

The BEET volunteers recognize, after lengthy discussion, that adoption of such a system may mean that some current Town standards may have to accommodate the new system. Examples might include photovoltaics located within setbacks, or reflective roofs with higher visibility

than might currently be allowed. We believe the climate change issue necessitates this kind of accommodation, but we are confident that the design ethos of Portola Valley will be preserved.

We further recommend that the ASCC and the Planning Commission include the development of this system in their upcoming year's budgets. Given that standards such a LEED and BIG (Build it Green) already exist and have proved workable, we urge the Town committees to move quickly in adopting this new system. Of course, we also want the public to have ample opportunity to review and discuss the system as it is developed.

There are typically 30-40 new homes and substantial remodels permitted by the Town yearly. Thus, this new system will have impact over time, as the Town's housing stock slowly turns over. As a result, the BEET volunteers believe that we must also address our existing construction, although the approach will necessarily be different than for new construction.

Existing Buildings

Decreasing the impact of existing buildings must be done through outreach and education. We are not at this point recommending any new ordinances or other Council actions to require improvements in existing construction.

Approximately 80-100 homes are sold each year in the Town. The BEET volunteers believe that these sales provide an opportunity for outreach to new residents. Thus, we recommend that the Town adopt a practice of approaching new home or business owners with information about how they can reduce their carbon footprint while often saving money and improving their lifestyles. This recommendation is detailed below. Besides new homeowners, we may want to expand this program to outreach to existing residents as well as local businesses, churches, etc. Most likely, it would start small and build as we refine the program.

Transportation

We recognize that transportation may be the most difficult aspect of climate change to address in Town. Essentially, there are three components to this issue: 1) types of fuels used, 2) vehicle efficiency, and 3) our transport behaviors. State and Federal laws will likely have the biggest influence over the first two of these factors, but there are creative opportunities for the Town to have an influence as well. Our educational efforts will likely focus on the third factor.

We recommend that the Town adopt overall goals for reducing carbon emissions related to transportation, and then create program to meet those goals. This idea is detailed below.

Carbon Offsets

The number and variety of carbon offset programs seem to grow exponentially. These programs may be valuable in assisting the Town in meeting its climate change goals. We do not recommend that the Town use carbon offsets to replace the requirements and programs recommended by the BEET volunteers (e.g. the new LEED-type system for new construction).

An important part of the Town's efforts must be to ask all our residents to help us tackle climate change.

That said, the BEET volunteers do understand that carbon offsets can be an important tool to reach our goals. For example, the Town could establish a voluntary program of carbon offsets for airline travel. We recommend that the Town further explore the various options in the field of carbon offsets, conduct outreach to Town residents regarding these programs, and establish Town programs for carbon offsets where appropriate.

Alternative Energy

The Town recently experienced rousing success in adoption of alternative energy sources, with more than 60 families signing up for photovoltaic energy production systems . We recommend that the Town continue the same sorts of outreach that led to this recent successful effort. The Town may be able to help aggregate demand for a variety of energy efficiency and alternative energy efforts. An example of this might be bulk purchases of double-paned windows or convincing a local gas station to sell biodiesel.

Town Events and Green Tours

We recommend that climate change information should be available at chosen Town events. We further recommend that the Town consider creating a new event specifically addressing climate change, our carbon footprint, and what we can do to embrace better practices. This idea is detailed below.

In addition, we recommend that the Town begin a series of Green Tours in Portola Valley. We have many existing homes that display excellent examples of energy efficiency, alternative energy production, and a more holistic relationship to nature. We believe that Town residents would benefit from seeing these practices at work with their neighbors, and that many of these ideas would then be adopted on a larger scale. This idea is also detailed below. Some effort has been expended to consult with the Education volunteers on these ideas. Future work should be coordinated between the two groups.

Communication

We recommend that the Town use the Cool PV website as a central point for outreach to the community. We have some recommendations for current and near future additions to the site, but these will need to be detailed over time and added to. For example, we envision a a model house on the site, where different aspects can be clicked to discover what energy conservationmeasures have been or could be taken, and perhaps then further detailing which local suppliers provide this product or service.

Searching for information related to personal actions to address climate change can be daunting. The Town should strive to use the Cool PV website to unclutter some of this information, providing residents with a reliable source of ideas that will help the community achieve our climate change goals. Links to other sites are welcomed, but they should not be the focus of the

site. The Cool PV website should first provide information customized for Portola Valley residents, and second direct them to other sites for additional information.

Additionally, we recommend that as the Town adopts our policies and programs, and others that come forth, we provide this information to other jurisdictions that are similarly trying to address climate change. Portola Valley can and should be a leader in this area, not only in adopting the policies and programs needed to achieve our goals, but also in sharing our progress with others.

Conclusion

The BEET volunteers hope that our efforts to date will help the Town government as well as Town residents to establish a strong framework for moving forward. We understand that our recommendations will take time to implement. Additionally, some of our recommendations will require a funding source and staff time. The Town will need to address these resource needs as it considers adoption of our recommendations.

As for the BEET volunteers, we have not yet made a recommendation as to whether the group should continue to assist the Town in implementation of these recommendations. We look forward to a future discussion as to what a continuing role might look like.

We thank the Task Force for giving us the opportunity to assist the Town in this important matter.

Cool PV
Sustainable Building and Remodeling
(Draft for discussion)

Objective:

Establish the processes, standards, resources and incentives to enable 100% of new homes, remodels, and landscapes in Portola Valley to be built in a sustainable manner.

Program Description:

Processes:

To support the goal of sustainable building, the BEET volunteers recommend the following processes be reviewed and/or designed to support sustainable building:

- **Design Process:** Provide homeowners with a framework for sustainable building, remodeling and landscaping using the newly released LEED for Home standards as the foundation. Include best practice case studies of how different homeowners approached their green projects and thrived.
    - Process guidelines would include:
        - A Framework and set of "Questions to Consider" around the five key areas of sustainability:
            - Energy (including future transportation)
            - Water
            - Waste
            - Materials
            - Habitat
        - A simple summary of the "From –To" shifts that make the difference between traditional building process and green building processes.
            - Examples:
                - From linear design and multiple handoffs over time to integrated design with all major parties at the table from the start (architect, contractor, interior, landscape, other).
                - From energy usage as an afterthought to energy usage as a design principal including energy modeling and sun studies.
                - From designing aspects of the home for single functionality to designing for multipurpose.
                - From focus on building to focus on lifestyle (for example, ensuring future transportation options built into design).
                - From building for the moment to 100 year design. "Future proofing".

        - An easy to read "project-at-a-glance" calendar that we could provide all new homeowners that helps them think through the process before they even begin to design.

- **Review Process:**
    - Review existing committees and commissions to ensure they facilitate, encourage and govern green building. Ensure integration and coordination among committees.

    - Assess current timing and practices for all committees/departments to determine if we have the correct sequencing and review mechanisms in place to support sustainable building and ensure compliance.

    - Review sequencing to make sure we are doing everything as a town to educate and encourage success before moving to "review". Consider adding a Green Building Team that could become a resource for homeowners to help them get off on the right foot. Adopt an attitude of wellness and preventive maintenance vs. damage control.

    - Review existing aesthetics guidelines to ensure promote green building materials. (solar panels, roofing materials, siding, etc.)

    - Review Homeowner Association guidelines to ensure consistency with town guidelines.

- **Construction Process:**
    - Develop/review construction process guidelines to ensure "greening" of the construction process.

    - Assess process to make sure we haven't built layer upon layer of bureaucracy to avoid the "one bad apple" problem. Consider having integrated team across various disciplines/committees participate in Process Improvement mapping exercise looking at the "as is" and brainstorming opportunities for a "to be" model. Look at other best practices adopted across the country.

    - Create town construction "exchange" to provide opportunity for jobs to share/offload material. Craig's list for construction projects. Leverage synergies across projects where possible.

Standards:

- **New Homes:**
    - Establish LEED for Homes as the standard to which all homes need to be built. Homeowners need not take the extra step to apply but must build to LEED standards.
        - The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ for Homes is a voluntary rating system that promotes the design and construction of high

performance "green" homes. A green home uses less energy, water, and natural resources; creates less waste; and is healthier and more comfortable for the occupants. Benefits of a LEED home include lower energy and water bills; reduced greenhouse gas emissions; and less exposure to mold, mildew and other indoor toxins. The net cost of building and owning a LEED home is comparable to that of building and owning a conventional home.

- The LEED Rating System is the nationally (and now internationally) recognized standard for green building. LEED certification recognizes and rewards builders for meeting the highest performance standards, and gives homeowners confidence that their home is durable, healthy, and environmentally friendly.
- The LEED H system has four levels of certification: certified, silver, gold and platinum.
- USGBC began the pilot test of LEED for Homes in August 2005. The pilot test will conclude in spring 2007 and USGBC will publicly launch the LEED for Homes rating system in summer 2007.

- Using an existing standard will facilitate the process of certification should homeowners want to take that extra step and reap the recognition and market value that LEED certification yields.

- Beyond LEED H. There are a number of areas of sustainable building not covered by LEED H which could be included in a broader - from sustainable to regenerative - "bonus" section of parameters that homeowners may not be aware of but which benefits they might want to consider. Currently such items would qualify for innovation points under LEED. We would consolidate a list with the help of the USGBC of all items that qualify/have qualified for innovation points. Examples might include:
  - Fossil fuel free homes
  - Constructed Wetlands
  - Natural swimming ponds in place of swimming pools
  - Alternative fuel fireplaces
  - Habitat creation
  - Green transportation plan (docking station and solar panels for EVs, bio diesel cars, hydro fuel cell, etc.)

- **Remodels:**
  - LEED H does not have a remodel focused certification process yet however the LEED H standards are applicable and/or easily modifiable for a remodel.

  - Ultimately LEED H will have a remodel component. In the meantime, work with LEED H leaders who have already told us they are willing to help develop a PV-specific adaptation and certification for remodels to fill the gap.

  - Provide checklist and resources for homeowners doing more minor remodels as a service. For example kitchen or bath remodels.

- Integrate with plan for New Homeowner Welcome Kit.

- **Landscape:**
  - LEED H covers landscapes in a variety of sections including Location and Linkages, Sustainable Sites and Water Efficiency.
  - National Wildlife Federation has a Backyard Habitat Certification Program.
  - StopWaste.Org has a Bay Friendly Landscape Guidelines targeted specifically to California's ecosystem.
  - The Town of Portola Valley has the Conservation Committee and ASCC.
  - TRA Environmental Services is helping the town document natives and non-natives and has documented all native birds, reptiles and mammals.
  - USGS and Pacific Aerial Surveys have aerial photos predating Portola Valley development for perspective on PV native landscape.
  - A PV specific landscape guideline could be established leveraging all these resources if desired. Would need to segment from total new landscape to any level of landscaping requiring review.
  - Town should consider identifying and protecting wildlife corridors.
  - Options for and benefits of creating conservation easements per the Lane's recent actions should be outlined for residents.

Incentives

The USGBC and other standards bodies focus primarily on incentives — encouraging and inspiring green building and use mandates/compliance as a back up. Look for opportunities in the process to provide incentives for green building, examples could include:

- Expedite the permit process
- Fee reductions
- Work with local real estate leaders to value and market "green homes"; testimonials to green building, beginning to market Portola Valley as the "greenest community in the Bay Area".
- Assistance with LEED and/or other applications if want to apply (see parameters).
- Recognition by the Town of Portola Valley:
  - Town Certificate (especially for areas of sustainability not covered by LEED), Beyond LEED.
  - PV green building tour
  - Green Home Club with annual banquet

    - Recognition at town event (picnic, Blues and BBQ)
    - Beat Title 24 contest.
- Group buying programs
- Create Town dashboard to which green homes can upload their information to show cumulative effect of sustainable practices/living.
- Give every homeowner about to remodel or build a copy of the Green Spec guide or Rocky Mountain Institute's Primer on Sustainable building for inspiration.
- Make it easy to build green:
    - Centralize resources
    - Easily accessible library of information
    - Town network
    - Goals to shoot for (most people are past the tipping point, they want to build green they just want to be given a template for what to do, they don't have the time, energy or resources to deal with the fragmentation that exists today, make it easy).

Resources

- Create Green Building Team (GBT) to include:
    - one paid Town position
    - 3-4 volunteers
    - consider some dual appointments to ASCC/planning commission and GBT
    - duties to include front-end and project resource to homeowners and potentially back end follow up on compliance and implementation (if ASCC isn't reorganized and/or resequenced to see the final design or review designs further along in the process (if that happens front end guidance will become even more critical to help owner's get it right the first time).
    - document best practices and market them
    - help create and manage the incentives
    - maintain town sustainable building website

- Maintain town website listing green resources and resident ratings of those resources (i.e. for green resources focused on PV residents):
    - Architects
    - Contractors
    - Interior designers
    - Landscape
    - Lighting
    - Structural engineers (Optimum Value Engineering/ Advanced framing etc)
    - Pool/Pond vendors
    - Deconstruction/recycling options
    - Subcontractors
    - Wholesale and Retail sources for green materials
    - Green experts
        - LEED professionals
        - Building Science
        - Energy modelers
        - Title 24 Consultants
        - Permaculture specialists

        - Organic gardening design/maintenance
        - Dashboard vendors
        - Constructed Wetlands
        - Wildlife/Habitat specialists/Field biologists

- Provide list of Free services:
    - PGE Energy Center (includes PGE Heliodon for sun studies)
    - PGE Food Service Technology Center

- Maintain list of current independent rating bodies for specific products and easy access to their lists: Examples:
    - ACEEE- American Council for an Energy Efficient Economy
    - CEE – Consortium for Energy Efficiency (listing of products beyond Energy Star)
    - Building Green and their GreenSpec guide
    - PGE Food Service Techonology Center
    - FSC – Forest Stewardship Council
    - Rugmark

- Devote section of the new library to sustainable living with a series of sub-sections including green building, remodeling, landscaping, transportation, alternative energy, green financing and many more. Subscribe to range of newly emerging green newsletters, e-lettters, magazines and journals.

- Maintain continuously updated set of best practice case studies to share knowledge and experiences including ongoing surveys of cost benefit analyses and overall results as projects mature and these become better understood.

- Provide central resource identifying financial incentives/ways to reduce construction costs:
    - Updated list of rebates available
    - Green building funding alternatives
    - Help identifying green subs with green building experience (those are the ones who don't tack on 20% because they don't understand it).
    - Network of folks willing to share cost comparisons (help break the myth that green is twice as expensive).

- Develop network of town residents willing to help others through the process.

- Work across the community to integrate and communicate all community efforts including the schools, town, residents, services.

- Identify Communication/Media/Events of interest:
    - BuildingGreenTV
    - Building Green Home Tours
    - Workshops
    - Magazines devoted to Green Building

Costs and Additional Resources

- One FTE town employee
- Additional funds for development of additional areas of Town website and construction "exchange"
- Other funds anticipated to be part of normal town activity
- Grants or private donations may be available to seed fund additional costs
- Green Building Team Volunteers

TRANSPORTATION

The following outline describes local transportation related goals that can be integrated into the community at large.

Have the Town vehicle(s) become alternative fuel vehicles.

Encourage current alternative fuel vehicle types (ie. – electric and biofuel) to be used in town by developing place(s) to "fill up".

Promote other emerging alternative fuel vehicle types.

Attract additional service businesses in town in order to reduce vehicle trips leaving town.

Have these new businesses learn and promote our strategies. Include existing businesses.

Develop a group buy program for alternative fuel vehicles. This could include a try and buy system.

Consider a free or private shuttle service. Locate bench stop near Alpine x Portola for trips to Town Center or Ladera and include return.

Continue promoting the schools efforts to encourage students to walk, bicycle, and carpool to class.

For existing student car drop off establish a no idle lane.

Consider an alternative fuel vehicle bus / shuttle service for students.

Charge a carbon fee for vehicles in and out of Town.

** Encourage more locally produced food to be sold in town. Consider a "small" farmer's market. (this can move to catch all summary)

Home Assessment Program
(Draft for discussion)

Objective:

Educate and positively influence the actions, behaviors and purchasing decisions of homeowners in Portola Valley in order to reduce their contribution to climate change.

Program Description:

Existing Homeowners: The BEET subcommittee recommends that Portola Valley team up with Acterra to implement the Green@Home program. Acterra will train a team of volunteers who will visit local residents in their homes, talk briefly about climate change and perform a few simple energy saving measures. The teams will:

- Provide and install a compact fluorescent light (CFL)
- Help set or adjust programmable thermostats (note: Green@Home recommends providing new ones; eliminated in this recommendation due to cost considerations)
- Adjust water heater and refrigerator temperatures
- Install flow restrictors in faucets and showerheads
- Provide a tire guage and teach residents to measure pressure and inflate their tires

Note: this list has been and may need to be further adjusted based on funding & local attributes. The current Green@Home program provides 3 free CFLs and a programmable thermostat in their "standard" program.

Volunteers will also perform an "energy assessment", going over a checklist of other steps to reduce the resident's energy bill and consequently, carbon dioxide emissions. The volunteers will ask residents to commit to completing at least 5 activities on the checklist and to join a neighborhood support group to help others complete their checklists. Volunteers will also have access to a list of resources, including people who are willing to talk to residents about solar, heat pumps, tankless water heaters, rebates on energy-saving appliances, solar companies, green architects, etc. Residents who complete all of the activities on the checklist will be provided with a lawn sign so they can proudly show their commitment to climate protection.

The program will be promoted at the town hall, town events, via flyers in the Woodside Almanac, etc.

New Homeowners: When an existing house is sold, new homeowners will be mailed a "New Homeowner Welcome Kit". The kit will include tangible and action-oriented information on what a homeowner can do to decrease their contribution to climate change, as well as an offer to have a Green@Home volunteer visit their home to perform simple energy-saving actions and go over a household energy conservation checklist.

Welcome Kit components may include:

- Educational information on how your home (& household practices) contribute to global warming
- Offer for Green@Home visit (see "existing homeowner" section for more detail)
- Coupons for compact fluorescents, water heater blankets, weatherstripping, etc.
- Checklist of actions they can take to reduce the use of fossil fuels
- Information on town events and/or energy efficiency open houses
- List of resources
    - Websites for more info
    - Eco-friendly home products

- URL for CoolPV website
- Rebate information

Resource Requirements:

- Town: none
- Volunteers: The program will require an annual volunteer to manage the new homeowner program and serve as a coordinator for the Green@Home volunteers. If there is sufficient interest in Portola Valley, Acterra will seek grant funding to staff a part-time volunteer coordinator position for a given period of time.

Estimated Annual Funding Requirement:

	New Homeowners (assume 90/year*)	Existing Homeowners (assume 480/year)
Compact Fluorescents ($2 ea)	180	960
Flow Restrictors ($2 ea)	180	960
Tire Pressure Guage ($2 ea)	180	960
Green@Home Volunteer Toolkit (3 @ $300)***	300	600
Misc Printing Costs	100	100
Total	940	3,580
Grand Total	**$4,520**	

* assumes 100% of high end estimate
** assumes 20% of existing housing stock
*** tools such as car tire pumps, watt meters, thermometers, wrenches, screwdrivers etc.)

- We could consider getting local businesses to fund the program in exchange for advertising or exposure. Alternatively, individuals could pay for their own equipment, or a fund could be created by the town into which people could make contributions (the CoolPV Fund?) and donors would be recognized for their community spirit.

Outstanding questions/issues:

- Need to gain access to a list of new PV homeowners. Want to make contact with homeowner as soon after purchase as possible in order to influence purchasing decisions. Note: an email has been sent to Gene Lentz, head of the Realtors Association for Menlo/Atherton/Woodside/Portola Valley, with no response to date.
- Need to decide whether to include information on:
  - PG&E's Climate Smart program
  - Carbon offsets or credits (possibly Acterra's Cool It! carbon calculator)

BEET Recommendations for Annual Town Event: 4-24-07

We recommend that climate change information should be available at chosen Town events. We further recommend that the Town consider creating a new event specifically addressing climate change, our carbon footprint, and what we can do to embrace better practices. This idea is detailed below.

Objective: To create a single annual 'Event', provided by the Town for the Town, that provides information and resources to community members on better building practices, lifestyle choices, and transporation alternatives that will reduce PV's carbon footprint.

Event Components:

1. Integration of PV school students through active demonstrations of basic green building concepts and practices. (The education committee has discussed various projects, existing and new, to be implemented into the student's curriculum that could be part of demonstrations/ discussions at the event. Competition ideas?)
2. Participation of PV residents who have developed their homes/ properties using energy efficient building design or systems. (Homeowners can showcase what they have done and talk with other community members on their experiences.)
3. Local businesses that provide products or services specific to the Event's objective will be able to set up booths and provide literature and information to community members.
4. Dedicated PV staff member to provide tour through the new town center and talk about the various systems/ products used in its design and construction.
5. 'Green Tours' to be held the following day. Information on this will be provided and carpooling sign up and schedule organization can take place.
6. New technologies throughout our regional area to be showcased and demonstrated.
7. Transportation technologies and local metrics to be included. Visual props/ boards to be created showing our town's input and output of vehicular traffic and how that translates to our carbon footprint. Metric committee to provide results and recommendations. Hybrids, electric, natural gas, and biodiesel vehicles to be showcased at the event by community members who have such vehicles.
8. Getting to the event should be it's own event. Person to arrive with the most creative bike wins something. Planned race like the old Zots to Tots (do they even do that anymore at the town picnic?)
9. Games, bands, beers and fun! No party is complete without good music, good spirits, and plenty to do for all ages. Afternoon BBQ and music is a must with good bluegrass or folk bands (ideally that send a message consistent with the Event's objective.) Local micro-brewery to provide kegs (Devils Canyon Brewery, Half Moon Bay Brewery).
10. Dollar Booths to be set up to identify and educate value based changes someone can make based on their budget. ($50,$100,$1000,$10,000).
11. LEED representative to be available to answer questions and provide information on LEED H certification.

Game Ideas:

1. Max Output: Stationary bike hooked up to a wattage output meter. Best result in 10-minute sprint wins a bike (age group categories).
2. Clothes Line Race: Who can hang the most pairs of wet jeans on a clothesline in less than 2 minutes. Winner gets the jeans.
3. Best bike award from morning ride to event. Winner gets new tires and LED's for night riding.
4. Student project competition and voting to be held at Event.

Booth Ideas:

1. Solar
    a. Remodel Options
    b. New House options
    c. Swimming Pool DC (No inverter) Options
    d. Ground Mount vs. Roof Mount Options
    e. Load Calculations and Energy Analysis Guide and References
    f. Cost, Rebates and Pay-Off
    g. New technologies
2. Education/ Student
    a. Project displays
    b. Competition layout
3. Geo Thermal
    a. Vertical System vs. Horizontal Lines
    b. Cost and Installation
4. Lighting, Plumbing and Mechanical Systems
    a. Lighting
    b. Irrigation
    c. Ducting and Insulation
    d. Furnaces
    e. Water heaters, Dryers, Dishwashers
5. Passive Solar Design
    a. Solar/ building orientation
    b. Overhangs
    c. Windows
6. Water Conservation
    a. Rainwater irrigation techniques
    b. Drought tolerant native planting
    c. Drip Irrigation
    d. Grey water?
    e. Low use toilets
7. Transportation
    a. Metrics committee reports/ graphs on PV vehicular use
    b. Hybrid technologies

8. Lifestyle
9. LEED H Representative

PV Green Tour

The BEET volunteers recommend that the Town begin an annual green tour of Portola Valley. The idea is to showcase homes, yards, etc. that display some of the green features we wish to encourage throughout Town. Most likely, the tour would be held on the same day as the climate change event—perhaps around Earthday each year. The following is a prototype for what a tour might look like. It appears that many residents are willing to participate and show their homes.

Earthday 2008: residents of the valley wake with the promise of an exciting day ahead. The day begins with a "carbon parade" of green vehicles through the Town. Following the parade, residents gather at the Town Center to carpool for the PV Green Tour. For the next two hours they will visit eight homes in Town to admire and learn about different aspects of sustainable buildings and landscapes. The tour is designed to travel as a group, so that residents can inform one, large group at a time, rather than having their homes open all day.

11:15 Arrive at Wayside Drive, where a newly remodeled home shows off the following features and technologies:

- LED lighting
- Recycled glass kitchen countertops
- 3 form ecoresin counter in the master bedroom
- Rhyolite "paper concrete" counter in the laundry room
- Sustainably grown bamboo flooring throughout
- Plyboo/recycled bamboo plywood for shelving and baseboards
- Sub floor heating
- FSC certified siding

11:45 Arrive at Golden Hills Drive to learn about sod/green roofs and how to design them.

12:15 Arrive at Creek Park Drive to see one of the many solar installations completed by Solar City. Ideally, one or more solar company representatives will be in attendance. This home has also converted all their lawns into California native gardens.

12:45 Arrive at Cervantes to see HVFA concrete for foundations and brown cellulose insulation.

1:15 Arrive at Alamos to see geothermal technologies, hydronic radiant slab heater conversion of refrigerator waste into domestic hot water.

Final stop is the Yates house in construction, where the group learns about electronic lighting ballasts, displacement ventilation, zonal heating and smart occupancy sensors (cool the people, not the house), exterior and interior light shelves to harvest natural light, groundwater coupling and a night sky system, and cisterns. By visiting the Yates home residents experience the home as a whole system.

Project Checklist

LEED for Homes

Builder Name:	
Home Address (Street/City/State):	

Input Values:				***Minimum No. of Points Required:***					
No of Bedrooms:	4	Floor Area (SF):	2400	Certified:	45	Silver:	60	Gold: 75	Platinum: 90

Detailed information on the measures below are provided in the companion document "LEED for Homes Rating System"

Y / Pts	No	N/A						Max Points Available
Innovation and Design Process (ID)					(Minimum of 0 ID Points Required)			**9**
			1.1	**Integrated Project Planning**	Preliminary Rating			Prerequisite
			1.2		Integrated Project Team			1
			1.3		Design Charrette			1
			2.1	**Quality Management for**	Durability Planning; (Pre-Construction)			Prerequisite
			2.2	**Durability**	Wet Room Measures			Prerequisite
			2.3		Quality Management			Prerequisite
			2.4		Third-Party Durability Inspection			3
			3.1	**Innovative / Regional Design**	Provide Description and Justification for Specific Measure			1
			3.2		Provide Description and Justification for Specific Measure			1
			3.3		Provide Description and Justification for Specific Measure			1
			3.4		Provide Description and Justification for Specific Measure			1
0			Sub-Total					
Y / Pts	No	N/A						
Location and Linkages (LL)					(Minimum of 0 LL Points Required)		OR	**10**
HOLD			1	**LEED-ND Neighborhood**			LL2-5	10
			2	**Site Selection**	Avoid Environmentally Sensitive Sites and Farmland		LL1	2
			3.1	***Preferred Locations***	Select an Edge Development Site		LL1	1
			3.2		***OR*** Select an Infill Site		LL1	2
			3.3		Select a Previously Developed Site		LL1	1
			4	**Infrastructure**	Site within 1/2 Mile of Existing Water and Sewer		LL1	1
			5.1	**Community Resources**	Basic Community Resources / Public Transportation		LL1	1
			5.2	**& Public Transit**	***OR*** Extensive Community Resources / Public Transportation		LL1	2
			5.3		***OR*** Outstanding Community Resources / Public Transportation		LL1	3
			6	***Access to Open Space***	Publicly Accessible Green Spaces		LL1	1
0			Sub-Total					
Y / Pts	No	N/A						
Sustainable Sites (SS)					(Minimum of 5 SS Points Required)		OR	**21**
			1.1	**Site Stewardship**	Erosion Controls (During Construction)			Prerequisite
			1.2		Minimize Disturbed Area of Site			1
			2.1	**Landscaping**	No Invasive Plants			Prerequisite
			2.2		Basic Landscaping Design			2
			2.3		Limit Turf			3
			2.4		Drought Tolerant Plants			2
			3	**Shading of Hardscapes**	Locate and Plant Trees to Shade Hardscapes			1
			4.1	**Surface Water Management**	Design Permeable Site			4
			4.2		Design and Install Permanent Erosion Controls			2
			5	**Non-Toxic Pest Control**	Select Insect and Pest Control Alternatives from List			2
			6.1	**Compact Development**	Average Housing Density ≥ Units / Acre		LL1	2
			6.1		***OR*** Average Housing Density ≥ 10 Units / Acre		LL1	3
			6.3		***OR*** Average Housing Density ≥ 20 Units / Acre		LL1	4
0			Sub-Total					
Y / Pts	No	N/A						
Water Efficiency (WE)					(Minimum of 3 WE Points Required)		OR	**15**
			1.1	**Water Reuse**	Rainwater Harvesting System			4
			1.2		Grey Water Re-Use System			1
			2.1	**Irrigation System**	Select High Efficiency Measures from List			3
			2.2		Third Party Verification			1
			2.3		***OR*** Install Landscape Designed by Licensed or Certified Professional		WE 2.2	4
			3.1	**Indoor Water Use**	High Efficiency Fixtures (Toilets, Showers, and Faucets)			3
			3.2		**OR** Very High Efficiency Fixtures (Toilets, Showers, and Faucets)		WE 3.1	6
0			Sub-Total					

Project Checklist (cont'd)

HERS Index Value Achieved: 86
IECC Climate Zone: 1

EA 1.2 Pts Achieved: 0.0

Y / Pts	No	N/A						
Energy and Atmosphere (EA)					(Minimum of 0 EA Points Required)		OR	38
			1.1	**ENERGY STAR Home**	Meets ENERGY STAR for Homes with Third-Party Testing			Prerequisite
			1.2		Exceeds ENERGY STAR for Homes		EA 2-10	34
			7.1	**Water Heating**	Improved Hot Water Distribution System			2
			7.2		Pipe Insulation			1
			11	**Refrigerant Management**	Minimize Ozone Depletion and Global Warming Contributions			1
0			Sub-Total (or Sub-Total from Adendum A - Prescriptive EA Credits)					
Y / Pts	No	N/A						
Materials and Resources (MR)					(Minimum of 2 MR Points Required)			14
			1.1	**Material Efficient Framing**	Overall Waste Factor for Framing Order Shall be No More than 10%.			Prerequisite
			1.2		Advanced Framing Techniques			3
			1.3		*OR* Structurally Insulated Panels		MR 1.2	2
			2.1	**Environmentally Preferable**	Tropical Woods, if Used, Must be FSC			Prerequisite
			2.2	**Products**	Select Environmentally Preferable Products from List			8
			3.1	**Waste Management**	Document Overall Rate of Diversion			Prerequisite
			3.2		Reduce Waste Sent to Landfill by 25% to 100%			3
0			Sub-Total					
Y / Pts	No	N/A						
Indoor Environmental Quality (IEQ)					(Minimum of 6 IEQ Points Required)		OR	20
			1	**ENERGY STAR with IAP**	Meets ENERGY STAR w/ Indoor Air Package (IAP)		IEQ2-10	11
			2.1	**Combustion Venting**	Space Heating & DHW Equip w/ Closed/Power-Exhaust		IEQ 1	Prerequisite
			2.2		Install High Performance Fireplace		IEQ 1	2
			3	**Moisture Control**	Analyze Moisture Loads AND Install Central System (if Needed)		IEQ 1	1
			4.1	**Outdoor Air Ventilation**	Meets ASHRAE Std 62.2		IEQ 1	Prerequisite
			4.2		Dedicated Outdoor Air System (w/ Heat Recovery)		IEQ 1	2
			4.3		Third-Party Testing of Outdoor Air Flow Rate into Home			1
			5.1	**Local Exhaust**	Meets ASHRAE Std 62.2		IEQ 1	Prerequisite
			5.2		Timer / Automatic Controls for Bathroom Exhaust Fans		IEQ 1	1
			5.3		Third-Party Testing of Exhaust Air Flow Rate Out of Home			1
			6.1	**Supply Air Distribution**	Meets ACCA Manual D		IEQ 1	Prerequisite
			6.2		Third-Party Testing of Supply Air Flow into Each Room in Home			2
			7.1	**Supply Air Filtering**	≥ 8 MERV Filters, w/ Adequate System Air Flow		IEQ 1	Prerequisite
			7.2		*OR* ≥ 10 MERV Filters, w/ Adequate System Air Flow			1
			7.3		*OR* ≥ 13 MERV Filters, w/ Adequate System Air Flow			2
			8.1	**Contaminant Control**	Seal-Off Ducts During Construction		IEQ 1	1
			8.2		Permanent Walk-Off Mats *OR* Shoe Storage *OR* Central Vacuum			2
			8.3		Flush Home Continuously for 1 Week with Windows Open			1
			9.1	**Radon Protection**	Install Radon Resistant Construction if Home is in EPA Zone 1		IEQ 1	Prerequisite
			9.2		Install Radon Resistant Construction if Home is not in EPA Zone 1		IEQ 1	1
			10.1	**Garage Pollutant Protection**	No Air Handling Equipment OR Return Ducts in Garage		IEQ 1	Prerequisite
			10.2		Tightly Seal Shared Surfaces between Garage and Home		IEQ 1	2
			10.3		Exhaust Fan in Garage			1
			10.4		*OR* Detached Garage or No Garage		IEQ 1	3
0			Sub-Total					
Y / Pts	No	N/A						
Awareness and Education (AE)					(Minimum of 0 AE Points Required)			3
			1.1	**Education for Homeowner**	Basic Occupant's Manual and Walkthrough of LEED Home			Prerequisite
			1.2	**and/or Tenants**	Comprehensive Occupant's Manual and Multiple Walkthroughs / Trainings			1
			1.3		Public Awareness of LEED Home			1
			2.1	**Education for Building Mgrs**	Basic Building Manager's Manual and Walkthrough of LEED Home			1
0			Sub-Total					
0			**Project Totals (pre-certification estimates)**					130

for Homes

Project Checklist, Addendum A

Prescriptive Approach for Energy and Atmosphere (EA) Credits

Detailed information on the measures below are provided in the companion document "LEED for Homes Rating System"

Y / Pts	No	N/A		Energy and Atmosphere (EA)	(Minimum of 0 EA Points Required)	OR	Max Points Available 38
			2.1	**Insulation**	Third-Party Inspection of Insulation, At Least HERS Grade II	**EA 1**	Prerequisite
			2.2		Third-Party Inspection of Insulation, Grade I AND 5% above code	**EA 1**	2
			3.1	**Air Infiltration**	Third-Party Envelope Air Leakage Tested </= 7.0 ACH50 (CZ 1-2)	**EA 1**	Prerequisite
			3.2		Third-Party Envelope Air Leakage Tested </= 5.0 ACH50 (CZ 1-2)	**EA 1**	2
			3.3		***OR*** Third-Party Envelope Air Leakage Tested </= 3.0 ACH50	**EA 1**	3
			4.1	**Windows**	Windows Meet ENERGY STAR for Windows (See Table)	**EA 1**	Prerequisite
			4.2		Windows Exceed ENERGY STAR for Windows (See Table)	**EA 1**	2
			4.3		***OR*** Windows Exceed ENERGY STAR for Windows (See Table)	**EA 1**	3
			5.1	**Duct Tightness**	Third-Party Duct Leakage Tested </= 4.0 CFM25 / 100 SF to Outside	**EA 1**	Prerequisite
			5.2		Third-Party Duct Leakage Tested </= 3.0 CFM25 / 100 SF to Outside	**EA 1**	2
			5.3		***OR*** Third-Party Duct Leakage Tested </= 1.0 CFM25 / 100 SF to Outside	**EA 1**	3
			6.1	**Space Heating and Cooling**	Meets ENERGY STAR for HVAC w/ Manual J & refrigerant charge test	**EA 1**	Prerequisite
			6.2		HVAC is Better than ENERGY STAR	**EA 1**	2
			6.3		***OR*** HVAC Substantially Exceeds ENERGY STAR	**EA 1**	4
			7.1	**Water Heating**	Improved Hot Water Distribution System		2
			7.2		Pipe Insulation		1
			7.3	**Water Heating**	Improved Water Heating Equipment	**EA 1**	3
			8.1	**Lighting**	Install at Least Three ENERGY STAR labeled Light Fixtures (or CFLS)	**EA 1**	Prerequisite
			8.2		Energy Efficient Fixtures and Controls	**EA 1**	2
			8.3		***OR*** ENERGY STAR Advanced Lighting Package	**EA 1**	3
			9.1	**Appliances**	Select Appliances from List	**EA 1**	2
			9.2		Very Efficient Clothes Washer (MEF > 1.8, *AND* WF< 5.5)	**EA 1**	1
			10	**Renewable Energy**	Renewable Electric Generation System (1 Point / 5% Reduction)	**EA 1**	10
			11	**Refrigerant Management**	Minimize Ozone Depletion and Global Warming Contributions		1
0				Sub-Total			

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been met for the indicated credits and will, if audited, provide the necessary supporting documents.

Builder's Name _____ Company _____

Signature _____ Date _____

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

Rater's Name _____ Company _____

Signature _____ Date _____

By affixing my signature below, the undersigned does hereby declare and affirm to the USGBC that the required inspections and performance testing for the LEED for Homes requirements, as specified in the LEED for Homes Rating System, have been completed, and will provide the project documentation file, if requested.

Provider's Name _____ Company _____

Signature _____ Date _____