AGENDA
LAND USE AND DESIGN REVIEW COMMITTEE

December 10, 2009
9:00 A.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637122

AGENDA DESCRIPTION: The Agenda descriptions are intended to give notice, to members of the public, of a general summary of items of business to be transacted or discussed.

Any person wishing to address the Land Use and Design Review Committee on any matter, whether or not it appears on this agenda, may do so under the appropriate section of the agenda. Whenever possible, lengthy testimony should be presented to the Committee in writing (12 copies) and only pertinent points presented orally. Requests to speak to items on the agenda shall be heard at the appropriate point on the agenda; requests to speak about subjects not on the agenda will be heard during the **Public Comment** section of the meeting.

I. CALL TO ORDER

II. ROLL CALL

III. COMMITTEE BUSINESS

A. Flood Control Regulations

RECOMMENDED ACTION: Discuss proposed modifications to the City's existing floodplain management regulations and consider recommending approval.

B. San Sebastian Condominium Development

RECOMMENDED ACTION: Discuss proposed modifications to the conditions of approval for the San Sebastian condominium project and consider making a recommendation to the City Council.

C. Voluntary Green Building Certification Program

RECOMMENDED ACTION: Discuss and consider recommending approval of a voluntary green building certification program for residential units in the City of Laguna Woods.

IV. PENDING PROJECTS UPDATE

A. Temporary Sign Regulation Modifications
B. Moulton Parkway and El Toro Road Construction

RECOMMENDED ACTION: Staff will provide an update on the above projects; there may be committee discussion and requests for future action, but no action will be taken at this meeting on these items.

V. COMMITTEE MEMBER COMMENTS

VI. PUBLIC COMMENTS

VII. ADJOURN

Next regularly scheduled meeting will be at 9:00 a.m., Thursday, January 14, 2010.

Recap
AGENDA
LAND USE AND DESIGN REVIEW COMMITTEE

November 12, 2009
9:00 A.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637122

I. CALL TO ORDER

Meeting called to order by Chair Miller at 9:00 a.m.

II. ROLL CALL

Present: DeBelles, Heilbronner, Joss, Lindstrom, Miller, Morton, Muennichow, Preli and Sortino

Absent: Vogt

III. COMMITTEE BUSINESS

A. City Centre Park

Assistant City Manager Reilly discussed the concept plan for the park and the funding restrictions. Access, potential uses, future expansion and impact on the neighboring Village property was discussed. Upon a motion, the Committee voted 8-1 to:

1. The conceptual design for City Centre Park; and
2. Negative Declaration 09-02 for City Centre Park.

Member Sortino abstained, noting she was unsure about the park's impact on the Village Clubhouse 7 parking area.

B. Temporary Signs

City Manager Keane discussed the proposed modification to real estate and banner signs. Upon a motion the Committee:

1. Voted 6 to 3 to allow real estate banner signs in lieu of free standing signs for up to one year or until 50% of the units were sold or leased. Two committee members through this was too restrictive and recommended a 60% threshold; one committee member felt the proposal was too permissive and recommended a 30% threshold.
2. Voted 7 to 2 to limit banner color signs to three, with white included as a color.
3. Voted unanimously to approve the balance of the proposal.

C. Water Efficient Landscape Regulations
Special Projects Manager Macon discussed the state law requirements and the staff's proposal. The City must adopt an ordinance at least as restrictive as the model state regulations. The staff proposal is as restrictive, but is less complicated and will be easier to amend as technology changes. Upon a motion, the Committee voted unanimously to approve the staff recommendation.

D. Conditional Use Permit application CUP-580 -Sprint/Nextel wireless expansion at 24141 Moulton Parkway, filed by Sprint/Nextel.
City Planner Drasler discussed the applicant's proposal to add additional equipment to an existing monopine cell tower located at the El Toro Water tank facility at the corner of El Toro Road and Moulton Parkway. Staff proposed conditions include additional screening to make the new equipment blend in with the tree. Upon a motion, the committee voted unanimously to approve the staff recommendation.

IV. PENDING PROJECTS UPDATE

A. Saddleback Golf Cars
B. Moulton Parkway and El Tor Road Construction

The City manager provided a brief update on these projects.

V. COMMITTEE MEMBER COMMENTS

None

VI. PUBLIC COMMENTS

Several members of the public inquired about the status of the San Sebastian project; City manager Keane noted that there was no new information at that time.

VII. ADJOURN

The meeting was adjourned to 9:00 a.m., Thursday, December 10, 2009.

City of Laguna Woods
Agenda Report

FOR: December 10, 2009 Land Use and Design Review Committee Meeting

TO: Chair and Members of the Land Use and Design Review Committee

FROM: Christopher Macon, Special Projects Manager

AGENDA ITEM: Floodplain Management

Recommendation

Discuss proposed modifications to the City's existing floodplain management regulations and consider recommending approval.

Background

In 1968, the United States Congress created the National Flood Insurance Program (NFIP) to provide a means for property owners to financially protect themselves against flood-related losses not covered by standard homeowners insurance. The NFIP offers flood insurance to homeowners, renters, and business owners if their city participates in the NFIP. Participating cities agree to adopt, update and enforce ordinances that meet or exceed Federal Emergency Management Agency (FEMA) requirements to reduce the risk of flooding. The City of Laguna Woods joined the NFIP in 2004. As of September 2009, there were nine active policies in the City.

Discussion

On December 3, 2009, FEMA completed their paper to digital transition for flood insurance rate maps for the City. In response to this change, staff consulted with FEMA and the California Department of Water Resources to review the City's floodplain management ordinance. This review highlighted the need to amend the Municipal Code to ensure continued compliance and enrollment in the NFIP.

Specifically, the following additions and modifications are necessary:

1. Warning and Disclaimer of Liability – This new section addresses liability-related issues regarding the adoption and application of the City's floodplain management ordinance.

2. Duties of the Floodplain Administrator; Notification to Other Agencies – The City's Building Official serves as the City's Floodplain Administrator and is responsible for administering, implementing, and enforcing floodplain management regulations. Modifications to this section add requirements for the Floodplain Administrator to ensure that FEMA is notified when the City's boundaries change and when base flood elevations change due to physical alterations. Modifications are also made for clarity and formatting.

CEQA Compliance

The proposed ordinance is exempt from the California Environmental Quality Act (CEQA) pursuant to State CEQA Regulation 15061(b)(3) (14 Cal. Code Regs., § 15061) in that it will not result in a significant effect on the environment.

Fiscal Impact

None.

Conclusion

In order for City residents to continue to be eligible for flood insurance through the National Flood Insurance Program, the Municipal Code must be amended to add and modify sections related to liability and duties of the Floodplain Administrator.

Attachment: Proposed Ordinance

ORDINANCE NO. 10-XX

AN ORDINANCE OF THE CITY OF LAGUNA WOODS, CALIFORNIA, AMENDING CHAPTER 10.04 OF THE LAGUNA WOODS MUNICIPAL CODE PERTAINING TO FLOODPLAIN MANAGEMENT

THE CITY COUNCIL OF THE CITY OF LAGUNA WOODS DOES HEREBY ORDAIN AS FOLLOWS:

SECTION 1. Chapter 10.04 (Floodplain Management) of the Laguna Woods Municipal Code is hereby amended to add the following section:

Sec. 10.04.075. Warning and Disclaimer of Liability

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Larger floods can and will occur on rare occasions. Flood heights may be increased by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazards or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of City, any officer or employee thereof, the State of California, or the Federal Emergency Management Agency, for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made hereunder.

SECTION 2. Section 10.04.090(3) of Chapter 10.04 (Floodplain Management) of the Laguna Woods Municipal Code is hereby amended in its entirety to read:

(3) *Notification to other agencies.*

a. The Floodplain Administrator shall determine whether the applicant in any case involving alteration or relocation of a watercourse:

1. Has notified adjacent communities, the California Department of Fish and Game, and the California Department of Water Resources prior to alteration or relocation;

2. Has submitted evidence of such notification to the City, Federal Emergency Management Agency, and other agencies as necessary; and

3. Has assured that the flood carrying capacity within the altered or relocated portion of said watercourse is maintained.

b. Base Flood Elevation changes due to physical alterations:

1. Within 6 months of information becoming available or project completion, whichever comes first, the Floodplain Administrator shall submit or assure that the permit applicant submits technical or scientific data to the Federal Emergency Management Agency for a Letter of Map Revision (LOMR).

2. All LOMR's for flood control projects are approved prior to the issuance of building permits. Building Permits must not be issued based on Conditional Letters of Map Revision (CLOMR's). Approved CLOMR's allow construction of the proposed flood control project and land preparation as specified in the "start of construction" definition.

3. Such submissions are necessary so that upon confirmation of those physical changes affecting flooding conditions, risk premium rates and floodplain management requirements are based on current data.

c. Changes in City boundaries:

1. The Floodplain Administrator shall notify the Federal Emergency Management Agency in writing whenever the City boundaries have been modified by annexation or other means and include a copy of a map of the community clearly delineating the new City boundaries.

SECTION 3. Effective Date.

This Ordinance shall take effect and be in full force and operation thirty (30) days after adoption.

SECTION 4. Severability

If any section, subsection, subdivision, paragraph, sentence, clause, or phrase added by this Ordinance, or any part thereof, is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity of effectiveness of the remaining portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause, or phrase thereof irrespective of the fact that any one or more subsections, subdivisions, paragraphs sentences, clauses, or phrases are declared unconstitutional, invalid, or ineffective.

SECTION 5. City Clerk's Certification.

The City Clerk shall certify to the passage of this Ordinance and shall cause this Ordinance to be published or posted as required by law.

PASSED, APPROVED AND ADOPTED this _____ day of _____ 2010.

_____
ROBERT B. RING, Mayor

ATTEST:

_____
YOLIE TRIPPY, Deputy City Clerk

APPROVED AS TO FORM:

_____
STEPHEN A. MCEWEN, City Attorney

STATE OF CALIFORNIA)
COUNTY OF ORANGE) ss.
CITY OF LAGUNA WOODS)

I, YOLIE TRIPPY, Deputy City Clerk of the City of Laguna Woods, do HEREBY CERTIFY that the foregoing **Ordinance No. 10-XX** was duly introduced and placed upon its first reading at a Regular Meeting of the City Council on the 16th of December, 2009, and that thereafter, said Ordinance was duly adopted and passed at a Regular Meeting of the City Council on the _____ day of _____, 2010 by the following vote to wit:

AYES: COUNCILMEMBERS:
NOES: COUNCILMEMBERS:
ABSENT: COUNCILMEMBERS:

_____
YOLIE TRIPPY, Deputy City Clerk

City of Laguna Woods
Agenda Report

FOR: December 10, 2009 Land Use and Design Review Committee Meeting

TO: Chair and Members of the Land Use and Design Review Committee

FROM: Leslie Keane, City Manager

AGENDA ITEM: San Sebastian Condominium Development

Recommendation

Discuss proposed modifications to the conditions of approval for the San Sebastian condominium project and consider making a recommendation to the City Council.

Background

In October 2005, the City Council approved resolutions certifying a negative declaration, amending the City's General Plan, approving a tentative tract map and approving a conditional use permit for a proposed 134 residential condominium project at the western terminus of Playa La Plata, off of Paseo de Valencia. The Council approved a zone change for the project in November of the same year. Although this project was proposed as a senior development, with the exception of 15 low income units, it was not so restricted. In general, the decision to build and maintain housing restricted for senior citizens is reserved to property owners unless the local government agency is an equity partner in the project or the property owner requests a density bonus related to senior housing. The City has no financial interest in this project and the applicant requested and received a density bonus (additional units) based on affordable housing, not senior occupancy.

The subject property is 3.05 acres and was rezoned from professional and administrative office to high density residential. This zoning designation allowed 35 units per acre for a total of 107. State law requires local governments to grant a 20% density bonus for residential projects that restrict 10% of their units to low or very-

low income residents and increases this bonus by 1.5% for every 1% of additional low income units. Providing 15 low income units entitled San Sebastian to a 26% density bonus for a maximum total of 135 units on the site.

The requirement for senior occupancy of the low income units is a condition of the conditional use permit and is related to the Council's discretionary approval of the zone change and general plan amendment. Current project conditions require the 15 low income units to be owner occupied by qualified senior residents for a period of 30 years.

Discussion

Standard Pacific, the owner/developer of the San Sebastian condominium project, has submitted an application for a modification to its conditional use permit and site development plan. The property owner is requesting the flexibility to either sell or lease all units in the project. Since there are currently no restrictions that would prohibit the lease 119 of the units in the development, the proposed change relates only to the 15 low income units which are currently restricted as "low income, senior owner occupied."

The applicant is not proposing a permanent rental product. Instead, they are seeking the ability to lease units for a period of time and then sell them when the housing market improves. They would like to maintain all existing entitlements to avoid going through a condominium conversion process if they decide to sell units in the future. In return for this flexibility, the applicant is proposing to establish CC &R's that restrict the entire project for 30 years for senior occupancy. The City would retain the ability to enforce this condition of the C, C & R's.

Because there is a concern about the process by which the low income units might be sold after they have been occupied by lease tenants, the property owner has agreed to allow low income rental tenants to either: 1) have first right to purchase their units, or 2) to stay on as tenants until they voluntarily terminate their lease arrangement.

Impact of Proposed Modifications on City

There is no difference in the basic requirements for a lease vs. a for-sale condominium project. The property has already been subdivided; and the infrastructure requirements are identical. The project includes 301 onsite parking spaces; the Municipal Code requirement for this type of multifamily residential

development – regardless of whether units are for rental or for sale – is 297 spaces. The requirements for multifamily developments are based on unit sizes and additional requirements for guest parking.

Summary of the Residential Units/Parking

As Built Residential Dwelling Units				
Type	Configuration	Square Footage	No. of Units	Parking Spaces Reqd.
A	1Bedroom / 1 Bath	700	6	6.00
B	1 Bedroom / 1Bath + Den	830	11	14.74
C	2 Bedroom / 2 Bath	1,100	39	65.13
D	2 Bedroom / 2 Bath + Den	1,300	12	24.00
E	2 Bedroom / 2 Bath + Den	1,400	16	34.88
F	2 Bedroom / 2 Bath + Den	1,500	47	109.88
G	3 Bedroom / 2 Bath + Den	1,900	3	7.50
H	Guest Parking			34.00
Total			134	297.00

Traffic and municipal service impacts were analyzed in the initial submission and the temporary or permanent lease of units will not change these impacts. With the exception of the 15 units restricted to low income owner-occupants, units in the development could have always been purchased by individuals who intended to lease them.

Although initially proposed as a residential project for senior residents, it was acknowledged in 2005 that only the fifteen units could be restricted by the City. In consideration for the requested modification to the conditions of approval, the applicant now proposes to specifically restrict the project to senior residents for a 30 year period.

The lease of affordable housing units places the majority of the qualification and re-qualification responsibility on the property owner. The City would be provided qualification documents on all low income tenants on an annual basis. The currently approved sale of units, however, places the ongoing responsibility for

qualification after initial sale solely on the City. The City executes an agreement with the buyer and any subsequent resale of units must be monitored and approved by the City. The proposal to lease units will reduce the City's project administration costs.

Unresolved Issues

As noted above, the property owner has offered several enhancements to the current project conditions in return for the flexibility to lease or sell units. Staff is also suggesting that the following be considered:

1. **Number of affordable units**: Currently, 15 units are reserved for low income residents; staff is suggesting that that this number be increased by two to a total of 17 affordable units. If the project had been processed as a rental project in 2005, staff would have also recommended that very-low income units be included in conformance with Regional Housing Needs Analysis (RHNA) requirements. Staff is suggesting that the six smallest units be designated for very-low income residents and the 11 larger units be designated for low income units. Upon sale, all seventeen units would revert to low income status.

2. **Length of time units are restricted as affordable**: Current conditions restrict the low income units for 30 years. Following approval of this project, the City adopted its inclusionary housing regulations, which contain a 45 year requirement. Staff suggests that the City Council should consider revising the restriction timeframe to be consistent with current inclusionary housing requirements.

3. **Percentage of income allocated to housing costs**: The for-sale requirements for the low income units in this project specify that housing costs may not exceed 35% of the purchaser's household income. Housing cost is defined as mortgage payment, insurance, taxes and any homeowners association dues. The City's General Plan – adopted after this agreement – specifies a 30% figure for affordable housing, which is a more tradition al number and consistent with statewide housing goals. Staff is suggesting that the income limits be set at 30% for rental units and remain at 35% if and when the units are actually sold.

Conclusion

Approval of the applicant's request would allow the property owner the flexibility to sell or lease units in the san Sebastian development. This matter is discretionary

and can be approved as requested, approved with modified conditions or denied by the City Council. This matter has been agendized for a public hearing and Council action on December 16, 2009.

City of Laguna Woods
Agenda Report

FOR: December 10, 2009 Land Use and Design Review Committee Meeting

TO: Chair and Members of the Land Use and Design Review Committee

FROM: Leslie Keane, City Manager

AGENDA ITEM: Voluntary Green Building Certification Program

Recommendation

Discuss and consider recommending approval of a voluntary green building certification program for residential units in the City of Laguna Woods.

Background

In March 2007, the City Council executed the U. S. Mayors' Climate Protection Agreement and pledged to try and reduce City greenhouse gas emissions. The City formed a blue ribbon Greening the Woods Committee, that after a year of intense discussion provided the Council with a list of recommendations in five subject areas – renewable energy, water conservation, recycling, alternative transportation and green building.

In February 2009, the City Council considered the recommendations of the Greening the Woods Committee and identified programs that staff should pursue. Among these was a voluntary certification for "green" retrofitted residences within the City. With the assistance of an intern from the University of California, staff has identified a checklist and point system for the proposed program. This matter is scheduled to be reviewed by the City Council at their December 16, 2009 meeting.

Discussion

In today's economy, the real estate community tell us that "green certified" homes are doing better in the market. Not only are they viewed as environmentally friendly; but, they also save occupants money on their utilities. The attached report was prepared by an intern from UCI's Department of Planning, Policy and Design. Although it is modeled after successful programs in other cities, it is designed specifically for the unique housing product in the City of Laguna Woods. Traditional green certification programs include a variety of exterior building and landscape requirements and few – if any – existing residential units in Laguna Woods would be able to qualify.

The proposed certification point system relates to the remodel/retrofit of multifamily and condominium units. Property owners can choose from a number of practices in three areas – kitchen and dining, overall household, and bathroom. Each practice has a point allocation and the maximum points possible in the program is 175; the minimum for level 1 (Green) certification is 55. For certification, at least two practices in each category must be met.

The program includes three levels of certification:

- Green
- Star Green
- Star Green Plus

Accomplishing the initial level is possible if a unit contains energy star appliances, high efficiency lighting and some minor retrofits to save energy and water are completed. Since many of these improvements are not fixed, a certificate of accomplishment would be awarded to the current resident.

The Green Star and Green Star Plus level require fixed improvements, such as double-pane windows, attic insulation and heater/air conditioner improvements. It is envisioned that a plaque or other feature that could be attached to the home would be awarded. Given the differing housing styles and governance models, not all homes would be able to attain the Star Plus level. But, for the program to have meaning in the marketplace, this level is required.

The award of certificates or plaques would require City staff to inspect and certify improvements. It would be possible to develop a self-certification program for the certificate level, but permanent improvements at the two higher levels would need

actual visual documentation and would result in a cost to the City. It is suggested that a $25 application fee would cover the majority of the cost for inspection at the top levels. The cost of the plaque would be in addition and would be optional.

The proposed program was reviewed by a green architect who has done work in Laguna Woods Village and by staff from Professional Community management (PCM). The attached memo from PCM discusses some of the issues associated with attaining certification in the Village. It should be noted, however, that this program is not designed to certify all homes in the City at the highest level, nor does it require or assume that homeowner associations will fund practices/improvements suggested in the program. Rather, the certification program is voluntary and requires the property owner to make improvements that they fell are in their – or the environment's – best interest.

Greening of the Woods Committee members testes to program in their own residences and discussed the point system and practices at several meetings; they ultimately unanimously recommended adoption of the program. The Council's recent adoption of a environmental fund to write down permit fees for certain types of building improvements is viewed as complimentary to the proposed certification program.

The attached program explanation and point system is part of the larger report that was prepared by the intern. The full report is lengthy and contains a variety of appendixes; it is available for review at city hall or by email.

Conclusion

Approval of the green residential certification program does not require any property owner or resident to comply with its conditions; it simply offers recognition to those who do so on a voluntary basis.

Attachment: Letter from Professional Community Management
Green Certification practices and Point Schedule

PCM PROFESSIONAL COMMUNITY MANAGEMENT
Inc. Agent, Laguna Woods Village

MEMORANDUM

TO: File

DATE: September 9, 2009

FROM: Staff

SUBJECT: Voluntary Green Building Certification Program

This report addresses various issues regarding the City of Laguna Woods' Voluntary Green Building Program. The City's program deals principally with family residences and what procedures/components can aid in qualifying individual residences as "green." The program deals with existing, new or retrofit procedures that can lead to certification of residences as green by, and obtaining specific points within, their program outline.

This report identifies approaches that can be accomplished by the Mutuals that may help the Community and residences to qualify for these points within the scope outline. United Mutual as a co-op has more control over these issues since they budget and maintain interior components. Third Mutual will be more difficult as interior components are resident owned; and these program specifics will be dependent on the owner.

The following are the areas identified in the City's proposed program:

Kitchen and Dining Areas

Reducing Energy Use

Practice 1-1 Replace dishwasher with Energy Star model.
The dishwasher currently used is GE Brand model GSD3300N "Energy Star Compliant."

Practice 1-2 Replace refrigerator/freezer with Energy Star model.
The refrigerator currently used is GE Brand model GTH18KBXCC "Energy Star Compliant."

Practice 1-3 Use high efficiency appliances in kitchen.
This category deals with items such as microwaves, toasters, etc. These are not supplied by the Mutuals and are resident purchases. The supplied ovens, ranges and cook tops are not energy star rated as they cannot be manufactured to meet the energy star requirements. This is basically due to the fact they are not highly insulated, don't have motors, and are feature driven and accordingly can use higher amounts of energy for specific cooking and cleaning processes.

Reducing Water Use

Practice 2-1 Have water-efficient faucets installed (kitchen only).
Standard kitchen faucets supplied to United Mutual, and as a chargeable service to Third Mutual, are Delta single handle faucets with aerators, models 100-WF (no spray attachment) and 300-WF (with spray attachment). These present standard models are not low-flow models. However, Delta does provide similar models that meet the 1.5 gallon requirements at a higher cost per unit.

Practice 2-2 Insulate hot water pipes going to the kitchen.

Present practice is to insulate the exposed hot water line from the water heater to the wall. This practice happens in United Mutual and in Third Mutual when PCM installs the water heater.

Practice 2-5 Install a recirculating water pump under the sink.

This particular item is presently being evaluated by both Mutuals under a separate "Water Conservation Report." The hot water demand system cost can be significant, with a very long payback period.

Improving Air Quality

Practice 3-1 Install an efficient ventilation system in kitchen.

All installed range hoods are ventilated with 2-speed motors. These hoods are ordered at the time of a range changeout. Standard hoods are filtered and efficiently remove odors. These hoods are not Energy Star rated and would require alterations to replace existing hood configurations to accommodate the Energy Star models.

Reducing Waste

Practice 4-1 If replacing cabinetry, counters, or furniture, use recycled-content, environmentally friendly materials (certified by Forest Stewardship Council). Use low-VOC paints, finishes, and adhesives when possible and try to find products that are locally produced.

When necessary to replace cabinets due to damage or very infrequent failure, cabinets are replaced with like kind and quality materials, which typically consist of particle board boxes and real wood face frame. Replacement with plywood boxes would increase cost to the Mutual. Currently, United uses plastic laminate on particle board countertops in bathrooms and kitchens. United is looking into optional countertop materials and recycled materials could be considered.

All coatings used by the Mutuals comply with AQMD VOC requirements.

Practice 4-2 If replacing thermal insulation, use environmentally-friendly insulation.

The Mutuals replace wall and ceiling insulation on an as-needed basis using code compliant material. Staff could evaluate using Green Guard Label (if not already doing so) insulation for the small amounts that are replaced annually. Wholesale replacement of wall and ceiling or addition of insulation in the Mutuals' manors would be cost prohibitive.

Practice 4-4 Install a built-in recycling center.

Recycling measures are already in place Community-wide.

Practice 4-5 Compost food waste.

Having a compost receptacle in the house would be at the discretion of the manor owner. Having a location in one of the community gardens where composted food waste could be received would be an issue that would need approval by GRF.

Overall Household Practices

Reducing Energy Use

Lighting and Electronics

Practice 1-4 Replace light bulbs with high-efficiency light bulbs.

Light bulb replacements in manors (non-fluorescent tube types) are the responsibility of the mutual member and would require that the member change incandescent type bulbs with CFLs. Many residents have been doing this and continued information via TV, printed documentation, newspaper and board meetings are good venues to deliver these messages.

Practice 1-5 Replace fluorescent light bulbs with low-mercury fluorescent bulbs.

Present fluorescent bulbs supplied to manors are efficient and low wattage. Bulbs are Sylvania F34T12.

Practice 1-6 Install lighting controls.

These devices are designed for the individual homeowner and their particular needs. The Mutuals will install motion sensors supplied by the resident as a chargeable service and will supply and install dimmer switches as a chargeable service.

Practice 1-7 Replace entertainment appliances with Energy Star appliances.

This would be at the discretion of the resident.

Insulation

Practice 1-8 Install insulation in attic.

Attics for the Mutuals' manors are already insulated. Increasing the insulation on a wholesale basis could be investigated, but may be cost prohibitive.

Practice 1-9 Upgrade ceiling and wall insulation to meet Title 24 requirements.

The Mutuals replace wall and ceiling insulation on an as-needed basis using code compliant material. Staff could evaluate using Green Guard Label (if not already doing so) insulation for the small amounts that are replaced annually. Wholesale replacement of wall and ceiling or addition of insulation in the Mutuals' manors would be cost prohibitive.

Heating, Cooling and Ventilation

Practice 1-10 Use passive solar for heating and cooling to reduce the need for heating, ventilation, and air conditioning.

Passive solar is the use of the suns rays during the day for heat. Manors that have south-facing windows can benefit from this effect. Alternatives would be to construct ventilation grills within a wall between an exterior wall and a built solar room. This would effectively use the solar rays to allow heat to enter the room during the daytime. This would require an alteration from the homeowner where applicable. Presently, the Mutuals do not provide this type of work, but would possibly consider allowing the homeowner to construct with proper permits and policy compliance.

Practice 1-11 Install awnings over south-facing windows to provide shade.

This would be an alteration and would be the responsibility of the member.

Practice 1-12 Install a high efficiency ceiling fan.

The uses of ceiling fans are considered an alteration. The Mutuals could provide this service and fixture as part of their standard fixture replacements or as a chargeable service. However, these fans are subject to user preference and will involve electrical and ceiling heat modifications. This would require an evaluation by Staff for costs and feasibility of the fan to be considered.

Practice 1-13 Redesign or install new HVAC system in accordance with ACCA recommendations.

HVAC systems are an alteration and are not provided by the Mutuals.

Practice 1-14 Install high efficiency air conditioning system (SEER value of at least 14, EER value of at least 12).

HVAC systems are an alteration and are not provided by the Mutuals. However, the Mutuals may be able to set specifications for residents to meet the above SEER ratings when residents either install new or replace existing units.

Practice 1-15 Install a programmable thermostat.

Programmable thermostats are used primarily for HVAC systems to control daily function; however there are instances where a programmable thermostat can be used to regulate the "radiant heat" system. This presently is not used by the Mutuals as a standard replacement. This is due to the fact that they are more expensive and are limited to their use in a single heat source system.

Practice 1-16 Insulate air conditioning ducts, bury ducts under insulation, or place ducts in conditioned space to improve their efficiency.

HVAC systems are an alteration and are not provided by the Mutuals. However, the Mutuals may be able to set specifications for residents to meet the above specifics when residents either install new or replace existing units. Ductwork is limited to centralized HVAC systems and not applicable to through-the-wall units.

Practice 1-17 Have air conditioning vents and ducts tested and repaired for leaks and deficiencies.

HVAC systems are an alteration and are not provided by the Mutuals. However, the Mutuals may use communication avenues at their disposal to inform residents to have this procedure performed annually and at time of unit replacements. Ductwork is limited to centralized HVAC systems and not applicable to through-the-wall units.

<u>Solar Power and Photovoltaic Systems</u>

Practice 1-18 Install a photovoltaic system to generate electricity for general use.

The installation of solar technology within the Mutual residences is determined by the Mutuals' Board policies. Individual installation of solar panels on Mutual properties has to be evaluated for the various factors that affect the Community buildings, i.e. aesthetics, roof maintenance, and future issues if equipment is removed or abandoned. This is a costly retrofit or installation for the individual homeowner and has to follow strict HOA regulations. The Mutuals are in the process of investigating the potential use of this technology for their common interest areas.

Practice 1-19 Install a photovoltaic system for hot water heating and space heating.

As stated under Practice 1-18, this type of installation would have to adhere to HOA Standards and Practices. Also the multi-storied building plumbing infrastructures have interconnected configurations and may prove to be too costly or unattainable for the individual manors to develop independently.

Practice 1-20 Install a plumbing or electrical system that could be used for solar-powered hot water or space heating at a future date.

This type of system is dependent on major remodeling and modifications to Mutual manors and buildings. Since most plumbing infrastructure in the buildings are interconnected with several adjacent manors this type of system could only be feasible if a building was completely restructured.

Hot Water Energy

Practice 1-21 Replace conventional water heaters with a tankless hot water heater.

Though this procedure has many benefits, it causes complex situations for this Community. The Community homes are electric powered, which would require an electric tankless heater. To maintain a constant 120 degree temperature for the manors, water supply would require a heater that exceeds present 100 ampere service panel requirements. The process would require extensive and costly electrical modifications. Some residents have tried to install these tanks, but had them removed because of power shortage and lack of continual and constant hot water at all faucets.

Practice 1-22 Install a combined water-heater, space-heater system.

This process works well if the space requirements, plumbing and ducting are available. This is difficult if not impossible for multi-storied buildings. Water heaters are located in small cabinets and most manors do not have the air system that would allow space heating to flow throughout the manor. This process is more for single family style homes with central HVAC systems.

Practice 1-23 Insulate hot and cold water pipes.

Present practice by Staff when installing a water heater in a manor is that the hot water supply line is insulated from tank to wall. This is to comply with City Permit requirements. Insulation of interior exposed pipes at sinks in not presently performed by the Mutuals. In United Mutual where the Mutual is responsible for the exposed piping, the Mutual could entertain the possibility of changing service levels to have this process included. This would impact present assessments for labor and materials.

Windows

Practice 1-24 Replace majority of household windows with double-pane windows (U-factor ≤ 0.40, SHGC ≤ 0.40).

United Mutual replaces windows upon window failure with dual pane vinyl framed windows. Only a few windows are replaced annually. Wholesale replacement of windows would cost on the order of $15 Million. United Mutual requires members who replace windows on their own to use vinyl framed windows. Third Mutual does not, but could.

Practice 1-25 Use low SHGC film on majority of south-facing single pane windows (SHGC factor ≤ 0.40 or SC 0.44).

United Mutual could investigate a program to install SHGC film on its south-facing windows.

Practice 1-26 When replacing the entire window (not just the glass), use sustainable-source/recycled content frames with low conductivity.

United Mutual replaces windows upon window failure with dual pane vinyl framed windows. United Mutual requires member who replace windows on their own to use vinyl framed windows. Third Mutual does not, but could.

Reducing Water Use

Practice 2-4 Update plumbing and have leaks fixed on a regular basis.

This practice is handled by the Mutuals. The Managing Agent has on staff plumbers that investigate, repair and replace leaky pipes throughout the Community. This is a high priority with the Mutuals, and plumbing staff is available to respond to emergencies 24-7. Residents utilize Property Services or Security to inform of leak situations.

Practice 2-5 Replace clothes washers with Energy Star® model.

Installation or replacement of residential owners' clothes washing machines is an alteration and does not fall under the Mutuals' responsibility. However, Mutual members must submit permits and requests for these installations and Staff can recommend the use of Energy Star appliances. Mutual-owned common area laundries do require Energy Star washers as replacements.

Improving Air Quality

Practice 3-2 Use low-VOC and/or water-based paints, solvents, and finishes.

Coatings used on the Mutuals' and GRF's buildings meet the VOC requirements established by the SCAQMD. Water based paints are used for most of the Mutuals' and GRF's exterior painting.

Practice 3-3 When redoing flooring, replace carpeting with low-VOC carpeting from a sustainable source or replace carpeting with sustainable hardwood material. See also Practice 4-1.

United Mutual currently uses vinyl flooring in its manors' kitchens and baths. Natural linoleum could be investigated. Members are responsible for selecting their carpet and other flooring in both Mutuals. United Mutual could investigate imposing a requirement for the type of flooring it would allow in its manors.

Practice 3-4 Replace particleboard with solid wood, plywood, or another natural product that does not contain formaldehyde.

When necessary to replace cabinets due to damage or very infrequent failure, cabinets are replaced with like kind and quality materials, which typically consist of particle board boxes and real wood face frames. Replacement with plywood or other renewable product boxes would increase cost to the Mutual.

Practice 3-5 Seal all exposed particleboard surfaces if not replacing them.

Sealing all particle board surfaces on the cabinets in both Mutuals would be cost prohibitive for either Mutual.

Practice 3-6 Replace vacuum cleaner filters with HEPA filters.

Within manors, this would be the responsibility of the residents.

Practice 3-7 Use low tox or orange-based cleaners.

Within manors, this would be the responsibility of the residents.

Practice 3-8 Replace doormats at entrances from the outside or have place to put shoes to reduce the tracking in of outside pollutants.

This would be the responsibility of the residents.

Practice 3-9 Use environment-friendly refrigerants in air conditioning units.

Residents' air conditioning units are considered an alteration and are maintained by the owner. However, based on the Clean Air Act section 608, most refrigerants that harm the environment have been discontinued. Most new air conditioners have only environment-friendly refrigerants.

Bathroom

Reducing Water Use

Practice 2-6 Install a recirculating hot water pump.

This particular item is presently being evaluated by both Mutuals under a separate "Water Conservation Report." The hot water demand system cost can be significant, with a very long payback period.

Practice 2-7 Insulate hot water pipes in the bathroom.

Present practice by Staff when installing a water heater in a manor is to insulate the hot water supply line from tank to wall. This is to comply with City Permit requirements. Insulation of interior exposed pipes at sinks in not presently performed by the Mutuals. In United Mutual where the Mutual is responsible for the exposed piping, the Mutual could entertain the possibility of changing service levels to have this process included. This would impact present assessments for labor and materials.

Practice 2-8 Install a graywater toilet plumbing system.

Due to the internal plumbing infrastructure of the Community manors, this process would be difficult if not impossible to accomplish. This would take significant research and would be very costly to implement.

Practice 2-9 Replace standard toilets with low-flow toilets.

Low-flow toilets are supplied and replaced within the Community. United Mutual is responsible for toilet replacements and uses the low-flow toilets as a standard replacement fixture. In Third Mutual, the toilets are owned by the member and may have areas that have a higher flow toilet, however the standard replacement set by the Mutuals require low-flow toilets when replaced by staff as a chargeable service.

Practice 2-10 Install filters on faucets and shower heads.

The Mutuals do not provide this service and it is up to the residents to decide on their drinking and bathing water preferences. The Mutuals have had the water supply from ETWD tested by outside consultants during their water supply piping issues. The water tested to be of a high quality and non-corrosive.

Practice 2-11 Replace aerators on the ends of faucets.

Presently all Mutual supplied standard faucets are equipped with aerators.

Practice 2-12 Replace faucets and shower heads with high-efficiency models.

Standard kitchen faucets supplied to United Mutual, and as a chargeable service to Third Mutual, are Delta faucets with aerators. The resident has choice of ADA or regular style basin faucets. These present standard models are not low-flow models. However, Delta does provide similar models that meet the 1.5 gallon requirements at a higher cost per unit.

Improving Air Quality

Practice 3-10 Install a high-efficiency ventilation system to reduce air moisture and mildew growth.

Bathrooms within the Mutuals have efficient ventilation.

CITY OF LAGUNA WOODS

VOLUNTARY GREEN BUILDING CERTIFICATION PROGRAM
RESIDENTIAL UNITS

LAGUNA WOODS GREEN REMODELING PRACTICES

The residents of Laguna Woods may select from the following green building practices to retrofit their home. These practices are organized in a user-friendly format based on areas within a home (i.e. living room, kitchen, etc.) and type of practice (i.e. water efficiency, energy efficiency, etc.). These standards are meant to be used by residents of Laguna Woods and each practice is given a number of points that will bring residents closer to becoming certified. The maximum number of points available is 175 and the minimum number of points needed to be certified is 55. The number of points given to each practice is weighted similarly to other green building programs to keep this program consistent with others.

For certification, at least two practices must be met in each category. The categories are Reducing Energy Use, Reducing Water Use, Improving Air Quality, and Reducing Waste.

Kitchen and Dining Areas

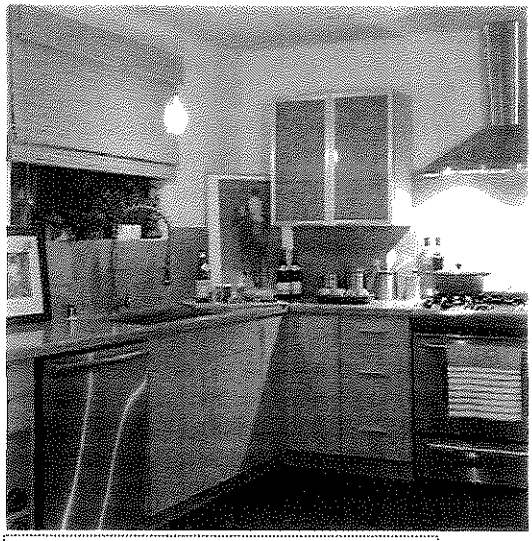

Figure 5: Examples of sustainable cabinetry and Energy Star® appliances.
Sources: HGTV, 2008.

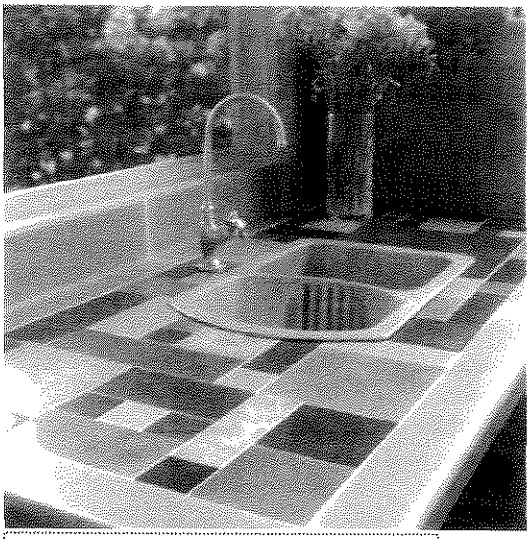

Figure 6: Example of recycled content tiles.
Sources: Alternative Consumer, 2008

Reducing Energy Use

Practice 1-1 Replace dishwasher with Energy Star® model.

Points: *3 points each*

Resources/More Information: *High efficiency appliances can save large amounts of money and energy.*

Energy Star® dishwashers are required to be at least 41 percent more efficient than standard dishwashers. Energy efficiency for dishwashers is measured as the Energy Factor, which is based on the kilowatt hours used to run the dishwasher and to heat the water (EnergyStar, 2009). Table 1 shows the federal standard energy factors compared to Energy Star® standards.

Table 1
Energy Star Dishwasher Efficiency

Type of Dishwasher	Federal Standard Energy Factor	Energy Star® Standard Energy Factor	Difference
Regular[1]	≥0.46	≥0.65	0.19 (~29.2%)
Compact[2]	≥0.62	≥0.88	0.28 (~29.5%)

Source: Energy Star®, 2009

Notes:
[1]≥8 Place Settings & 6 Serving Pieces
[2]<8 Place Settings & 6 Serving Pieces

Practice 1-2 **Replace refrigerator/freezer with Energy Star® model.**

Points: *5 pts each*

Resources/More Information: *Refrigerators and freezers account for about 10 to 15 percent of the average household's energy use. Energy Star® refrigerators use at least 20 percent less energy than the current federal standard requirement and 40 percent less energy than standard models sold in 2001 or earlier. Energy Star® freezers use about 10 percent less energy than models following current federal standards.*

If you replace your old fridge with a new, energy efficient one, ***make sure you recycle the old fridge!*** *Refrigerators and freezers use a large percentage of most households' total energy consumption. Energy Star® has information on how to recycle your old fridge and freezer at* ***www.recyclemyoldfridge.com****. You can also contact Southern California Edison at 1-800-234-9722 to participate in their refrigerator recycling program. Appliance stores, like Best Buy, will also recycle your old appliance when you purchase a new one from their store.*

Other tips for keeping existing refrigerators running efficiently can be found at www.simplesteps.org.

Practice 1-3 **Use high efficiency appliances in kitchen.**

Points: *2 points total*

Resources/More Information: *Energy Star® and high efficiency models of kitchen appliances (such as microwaves) are also available for use. Select appliances that are registered as Energy Star® appliances or that have equivalent high efficiency ratings.*

Reducing Water Use

Practice 2-1 **Have water-efficient faucets installed (kitchen only).**

Points: *2 points total*

Resources/More Information: *Low-flow faucets are found in most hardware stores. Most standard faucets and showerheads use about 2.5 gallons of water per minute (gpm). Federal law requires all showerheads sold in the United States since 1994 to use 2.5 gpm or less. Most efficient models use about 1.5 to 0.5*

gpm and cost from between $45 to $180 (faucets) and $29 to $75 (showerheads).

To reduce water use even more, install aerators on sink faucets.

Rebates for improving water efficiency are available from the Metropolitan Water District. Contact them at 1-877-235-4331 or visit www.bewaterwise.com.

See practice 2-12 for bathrooms.

Practice 2-2 **Insulate hot water pipes going to the kitchen (See Energy Practice 1-23).**

Points: *1 point total*

Resources/More Information: *This practice is one of the easiest and cheapest ways to save water and energy. Hot water in pipes does not remain hot for very long. Insulating pipes with this foam insulation would reduce the amount of water and energy wasted waiting for hot water to run out of the tap.*

Various sizes and types of insulation can be found. Choosing the pipe insulation with the highest R-value will keep pipes warmer and save more energy and water. An R-value greater than 2 is preferable. Most pipe insulation is made of foam and can be found at hardware stores or online at www.harwaredandtools.com, www.blackenergy.com, or other hardware sites. Using extra home insulation in addition to the foam piping will improve insulation effectiveness.

See Practice 1-23. Points can only be given for this practice when they follow these guidelines:

One area of house (bathroom/kitchen) = 1 point maximum; entire house = 2 points maximum

Practice 2-5 **Install a recirculating water pump under the sink.**

Points: *3 points each, 6 points maximum*

Resources/More Information: *A recirculating water pump actually saves both energy and water. Turning the pump on will recirculate tap water back to the water heater before it exits the tap. Instead of letting water be wasted while waiting for it to get hot, it will continue running the same water through the recirculator. It also takes less time for the water to heat up as well so it saves energy. Once the water becomes hot, the recirculator will shut off and the water at the tap is instantly hot.*

This device could be installed in a kitchen or bathroom. The Metlund Hot Water D'MAND system costs from between $280 to $340 (S-50 Series for small homes). The Watts Hot Water Recirculating Pump costs about $200. These units can be found at SolarDirect.com or at Home Depot.

These units are recommended for homes with traditional water heaters, not for homes with tankless water heaters.

Improving Air Quality

Practice 3-1 **Install an efficient ventilation system in kitchen.**

Points: *1 point maximum*

Resources/More Information: *Ventilation systems that vent to the* ***outside*** *are available with Energy Star® ratings. An efficient system that improves indoor air quality can be used in kitchens. More information on a variety of ventilation systems can be found on the Energy Star® web site: www.energystar.gov/*

Reducing Waste

Practice 4-1 **If replacing cabinetry, counters, or furniture, use recycled-content, environmentally friendly materials (certified by Forest Stewardship Council). Use low-VOC paints, finishes, and adhesives when possible and try to find products that are locally produced.**

Points: *3 points to 13 points*

Points are given separately to (a) tables, chairs, and other furniture, (b) counters, and (c) cabinetry (3 points for each category, up to 9 points total; 2 points given total for use of low-VOC finish, paint, or adhesive; 2 additional points given if products are produced and purchased locally).

More Resources: *This practice should be utilized when the residents/property owner is conducting a renovation to their home.* ***Replacing existing furniture or cabinetry when it is not needed is less sustainable.*** *This practice should also be applied when a substantial amount (the majority) of the homes cabinetry, countertops, or furniture meet the criteria.*

Practice 4-2 **If replacing thermal insulation, use environmentally-friendly insulation.**

Points: *1 point.*

Resources/More Information: *Alternative insulation materials made from recycled materials use fewer resources. Some insulation materials are also easier on the environment – choose insulation that has the Green Guard label. A list of California certified insulation is provided by the Bureau of Home Furnishings and Thermal Insulation (www.bhfti.ca.gov/).*

Practice 4-4 **Install a built-in recycling center.**

Points: *2 points*

Resources/More Information: *Nothing makes recycling easier than having easily recognizable bins available for the placement of products to recycled. Laguna Wood's waste is currently sent to a materials recovery facility, where recyclable products are separated from remaining trash going to landfills.*

Practice 4-5 **Compost food waste.**

Points: *1 point*

Resources/More Information: *Although most residences in Laguna Woods do not have outside areas to use for gardening, there are still community gardens within the City. Having a compost receptacle in the house that can be taken to a nearby community garden would reduce the amount of waste going to a landfill and it would improve the soil quality of local gardens. Composting is an easy practice – a list of compostable materials can be found here: vegweb.com/composting/.*

REDUCING ENERGY USE

Lighting and Electronics

Practice 1-4 **Replace light bulbs with high-efficiency light bulbs.**

Points: *At least 4 bulbs = 1 point; at least 8 bulbs = 2 points; at least 12 bulbs = 3 points.*

Resources/More Information: *Using high efficiency light bulbs is an easy and inexpensive way to reduce energy usage. Look for compact florescent light bulbs.*

Practice 1-5 **Replace florescent light bulbs with low-mercury florescent bulbs.**

Points: *1 point*

Resources/More Information: *Either compact or tube-style florescent light bulbs contain small amounts of mercury in them. Some manufacturers make high-efficiency florescent lights that contain very small amounts of mercury.*

Practice 1-6 **Install lighting controls.**

Points: *1 point per controller, up to 3 total points*

Resources/More Information: *Lighting controls are useful in rooms that are not used often, like closets or storage rooms, or at entrances and outdoor areas. They use motion sensors to determine when someone has entered a room and will shut off after a predetermined amount of time. As long as there is movement in a room, they will remain on.*

Practice 1-7 **Replace entertainment appliances with Energy Star® appliances.**

Points: *Up to 9 points*

Resources/More Information: *Common household appliances such as televisions, CD and DVD players, and stereo equipment use a lot of electricity. Manufacturers make high-efficiency models that are Energy Star® qualified. Energy Star® televisions are up to 30 percent more efficient, Energy Star® audio equipment use about 6 percent less energy, and set top boxes (for receiving cable, satellite, or internet television signals) are about 30 percent more efficient than standard models (EnergyStar, 2009). Visit the Appliances section of www.energystar.gov for*

*more information. Also, when appliances are not in use, it is a good idea to unplug them to reduce energy use. Energy used when electronics are not being used (even if they are "OFF") is called a "**phantom load**."*

Insulation

Practice 1-8 **Install insulation in attic.**

Points: *4 points.*

Resources/More Information: *Attic, or crawl space, insulation helps maintain a constant temperature in the remainder of the living space of a house or unit. There are currently 13 types of insulation tested by the California Bureau of Home Furnishings and Thermal Insulation. They vary by heat flow (R-value), fire safety, corrosion and fungi resistance, size, odor, pliability, settling, bond strength and deflection, and separation by air movement. For a complete listing of the 2009 certified insulation types and manufacturers visit the California Bureau of Home Furnishings and Thermal Insulation web site at http://www.bhfti.ca.gov/.*

Practice 1-9 **Upgrade ceiling and wall insulation to meet Title 24 requirements.**

Points: *4 points.*

Resources/More Information: *Title 24 of the California Code of Regulations (the Energy Code) has standards for home insulation so that it meets energy goals. To meet Title 24, wall insulation must a minimum R-value of 12 and ceiling insulation must have a minimum R-value of 19. Existing homes can have new insulation sprayed or lined in the wall cavities.*

Also see Practice 4-2 regarding recycled content and environmentally friendly insulation types that save natural resources.

Heating, Cooling, and Ventilation

Practice 1-10 **Use passive solar for heating and cooling to reduce the need for heating, ventilation, and air conditioning.**

Points: *5 points.*

Resources/More Information: *Passive solar techniques are usually used when homes are designed and built to capture the energy of sun and reduce the need for mechanical heating, cooling, and ventilation systems. The three types of passive solar design are direct, indirect, and isolated gain.*

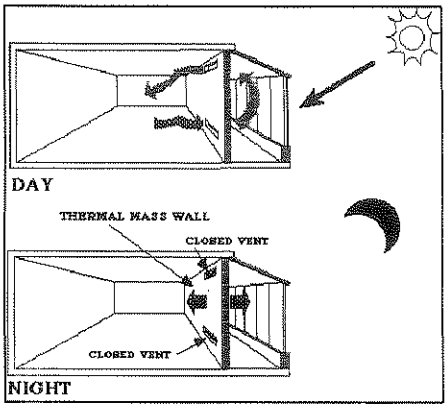

Figure 3: Passive solar design example. The thermal mass wall absorbs heat and transmits it into the home. Vents can help regulate the temperature.
Figure 4: Example of passive solar lighting. Sources: Green Builder, 2008; Wasco Windows, 2008.

Appropriate south-facing windows can be used to create passive solar designs that save energy. An example of a porch turned into a passive solar room is shown in Figure X. Other retrofit designs include the use of thermal walls near south-facing windows that radiate heat throughout the day and into the night (NAHB Research Center, 2000).

Visit www.OCSolar.com or New Leaf America (www.newleafamerica.com; 800-278-4333) for more information on local implementation of passive solar design. New Leaf America has a local office in Laguna Beach that offers consultation on designing passive solar features.

Practice 1-11 Install awnings over south-facing windows to provide shade.

Points: *3 points*

Resources/More Information: *To balance out passive solar heat gain during hot seasons, shade awnings can be placed over south-facing windows.*

Practice 1-12 Install a high efficiency ceiling fan.

Points: *2 points per room*

Resources/More Information: *Ceiling fans use about 98 percent less energy than air conditioning (Build It Green, 2007). Ceiling fans do not necessarily lower the air temperature of rooms but they do make rooms more comfortable for inhabitants. Air conditioners can be used less when ceiling fans are running (United States Green Building Council [USGBC] & The American Society of Interior Designers [ASID], 2008).*

Practice 1-13 Redesign or install new HVAC system in accordance with ACCA recommendations.

Points: *5 points*

Resources/More Information: *The Air Conditioning Contractors of America have manuals for installing and maintaining air conditioning, heating, and air conditioning systems that contain recommendations for creating energy efficiency (ConSol, Inc., 2008). These recommendations are based on the appropriate size and design of an air conditioning unit for a given house. A unit may have an seasonal energy efficiency ratio (SEER) value of 14*

What are SEER and EER?

SEER (Seasonal Energy Efficiency Ratio) and EER (Energy Efficiency Ratios) are values given to air conditioning units. The amount of cooling supplied, in Btu's per hour, is divided by the power used by the cooling unit, in watts. A higher SEER or EER means the system is more efficient.

or greater but if it is too large for the size of the home, then it would still be energy inefficient (Advanced Energy, 2000).

ACCA Manual J *determines the heat load capacity of a home*

ACCA Manual D *determines the appropriate duct work for a home*

ACCA Manual S *determines the appropriate AC equipment size and type*

Local air conditioning, heating, and ventilation companies can provide these services.

Web sites:

Air Conditioning Contractors of America (consumer information)
www.acca.org/consumer/

Best Practices for HVAC Home Retrofits
http://ducts.lbl.gov/HVACRetrofitguide.html

See Appendix B for requirements meeting the home energy rater index, required by the International Energy Conservation Code, adopted by California.

Practice 1-14 **Install high efficiency air conditioning system (SEER value of at least 14, EER value of at least 12).**

Points: *5 points*

Resources/More Information: *SEER and EER values are influenced by a range of characteristics of air conditioning systems including the size of the unit, the refrigerant charge, and the airflow through the ducts. Sometimes an air conditioning unit may have a SEER value of 14 on its label but the actual performance of the equipment will vary on the size of the house and how well it is set up.*

To receive tax credits for projects increasing home efficiency in 2009, SEER and EER values for air conditioning units must be at least 14 and 12, respectively.

Practice 1-15 **Install a programmable thermostat.**

Points: *2 points*

Resources/More Information: *Programmable thermostats automatically changes the heating and cooling of a home so that it*

maintains an ideal comfortable temperature. These are especially useful when you are asleep or away from your home. These can be found in hardware and home improvement stores.

Practice 1-16 **Insulate air conditioning ducts, bury ducts under insulation, or place ducts in conditioned space to improve their efficiency.**

Points: *3 points*

Resources/More Information: *Insulating air conditioning ducts appropriately can significantly improve the efficiency of an air conditioner. This can be done to existing air conditioning ducts if they are not yet insulated or to new systems to improve the SEER and EER values.*

Practice 1-17 **Have air conditioning vents and ducts tested and repaired for leaks and deficiencies.**

Points: *2 points*

Resources/More Information: *Vents and ducts can lose efficiency over the years and older systems can lose a lot of hot or cool air through inadequate distribution systems. This can cause a reduction in energy efficiency. Professionals can test a home's distribution system for leaks and deficiencies.*

Use duct mastic, not duct tape, when fixing leaks.

Solar Power and Photovoltaic Systems

Practice 1-18 **Install a photovoltaic system to generate electricity for general use.**

Points: *7 to 20 points*

Points will be awarded based on these qualifications: *Systems that generate up to 2 kw = 7 pts; up to 5 kw = 15 pts; more than 5 kw = 20 pts*

Resources/More Information: *Photovoltaic systems are large remodeling projects that can be quite intimidating. However, they are becoming more affordable and more common as homes and businesses begin to realize their benefits.*

Residential solar energy systems use photovoltaics to heat homes and water, to generate electricity, and to provide lighting.

Solar Energy Industries Association
http://www.seia.org/

The Department of Energy's Consumers' Guide to Energy Efficiency and Renewable Energy
http://apps1.eere.energy.gov/consumer/renewable_energy/solar/index.cfm/mytopic=50011

Practice 1-19 **Install photovoltaic systems for hot water heating and space heating.**

Points: *5 points per system (10 points maximum)*

Resources/More Information: *Installing a photovoltaic systems just for water heating or space heating will usually have a faster rate of return than installing a complete photovoltaic system, as mentioned above in Practice 1-16 (Prelitz, 2009). Local companies or businesses offer consulting for installation and selection of appropriate photovoltaic systems:*

For more information on Solar electricity:

www.grosolar.com
www.solar-tec.com
www.recsolar.com

For more information on Solar water heating:

www.gosolaire.com
www.naturalenergyusa.com
www.vascosolar.com

Practice 1-20 **Install a plumbing or electrical system that could be used for solar-powered hot water or space heating at a future date.**

Points: *3 points per system (6 points maximum)*

Resources/More Information: *Providing the framework for a photovoltaic system to be installed in the future makes meeting energy needs in the future that much more achievable. A system doesn't have to be laid out all at once and having the components already there will make the home "solar-ready." Preparing a home for solar-powered water heating or space heating can be done by rearranging the pipes and wiring in a way that gives them access to a (typically) roof-mounted solar panel. Configuring a home for solar-powered water and space heating can be done with consultation by organizations listed above for Practice 1-17.*

Hot Water Energy

Practice 1-21 **Replace conventional water heaters with a tankless hot water heater.**

Points: *4 points*

Resources/More Information: *Heating water requires a large amount of energy. There are many options for improving water heating efficiency and generally, the type of water heating most suitable for an individual residential unit or home will depend on the characteristics of that home. It is recommended that homeowners contact a home performance inspector prior to installing a new hot water system.*

Tankless hot water heaters do not store water, so they don't experience energy loss through the cooling of water in a tank. They can be run by electricity or gas but in most cases, gas-powered tankless water heaters with electric ignitions use less energy.

Practice 1-22 Install a combined water-heater, space-heater system.

Points: *3 points*

Resources/More Information: *Water heating (whether with tankless water heaters or other efficient water heaters) and space heating can be combined with systems designed to serve both needs.*

Practice 1-23 Insulate hot and cold water pipes.

Points: *1 point total*

Resources/More Information: *This practice is one of the easiest and cheapest ways to save water and energy. Hot water in pipes does not remain hot for very long. Insulating pipes with this foam insulation would reduce the amount of water and energy wasted waiting for hot water to run out of the tap.*

Various sizes and types of insulation can be found. Choosing the pipe insulation with the highest R-value will keep pipes warmer and save more energy and water. An R-value greater than 2 is preferable. Most pipe insulation is made of foam and can be found at hardware stores or online at www.harwaredandtools.com, www.blackenergy.com, or other hardware sites. Using extra home insulation in addition to the foam piping will improve insulation effectiveness.

See Practice 2-2 and 2-5. Points can only be given for this practice when they follow these guidelines:

One area of house (bathroom/kitchen) = 1 point maximum; entire house = 2 points maximum

Windows

Practice 1-24 **Replace majority of household windows with double-pane windows (U-factor ≤ 0.40, SHGC ≤ 0.40).**

Points: *2 points*

Resources/More Information: *Window products are rated by the National Fenestration Rating Council for their abilities to allow the passage of heat energy from inside to outside, or vice versa. The U-factor is the thermal conductance, or the rate of heat loss, and SHGC is the solar heat gain coefficient. These factors are different for different climates. California is in the South/Central climate zone, which requires some degree of heating and cooling. For normal windows, Energy Star® requires windows to have a U-factor less that 0.40 and a SHGC also less than 0.40 (Energy Star®, 2009). For skylights, the U-factor should be less than 0.60 and the SHGC should be less than 0.40 (Energy Star®, 2009).*

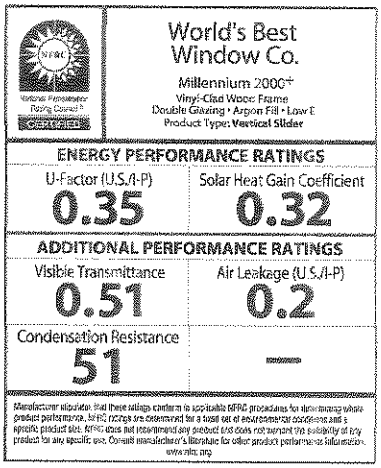

Figure 4: Look for windows with U-factors and SHGC similar to these. Source: National Fenestration Rating Council, 2007.

Energy Star® Window Selection for Homes
www.energystar.gov/index.cfm?c=windows_doors.pr_windows

National Fenestration Rating Council
http://www.nfrc.org/

Also, see Appendix E for information on window selection in California.

Practice 1-25 **Use low SHGC film on majority of south-facing single pane windows (SHGC factor ≤ 0.40 or SC 0.44).**

Points: *2 points*

Resources/More Information: *Solar heat gain can be blocked through the application of a low SHGC film. This practice should be used in cases where there are large windows facing the south that transmit a lot of heat from the sun. Window films are reflective materials that will block some of this heat gain. It should be noted that some tinted films tend to radiate heat inside homes and metallic films tend to create glare on the outside of windows. To learn more about window film selection, check out GreenYourHome.com (http://www.greenyour.com/home/home-improvement/window/tips/choose-a-window-film).*

For California, a SHGC less than 0.40 is recommended (Energy Star®, 2009).

Practice 1-26 **When replacing the entire window (not just the glass), use sustainable-source/recycled content frames with low conductivity.**

Points: *1 point maximum*

Resources/More Information: *Window frames should have low conductivity, high insulation factors to improve energy efficiency inside the house. Wood, vinyl, and fiberglass frames can all be found with high efficiency ratings and they can be made from sustainable sources or recycled material. These characteristics should all be used to select window frames.*

Reducing Water Use

Practice 2-4 **Update plumbing and have leaks fixed on a regular basis.**

Points: *1 point total*

Resources/More Information: *Leaking and inefficient pipes are a common cause of water loss. Have your water pipes tested and treated for leaks by a plumber. If new pipes or joints are needed, have them installed. Ideally, your water heater should be within 8 to 15 feet of all hot water fixtures to reduce the amount of water running out of a faucet while waiting for it to get hot (Build It Green, 2007). If you are remodeling your home interior, position your fixtures so they are closer to the heater. If you are not remodeling your home interior, you can have an on-demand water heater (Practice 1-19) or water recirculator installed (Practice 2-5).*

Practice 2-5 **Replace clothes washers with Energy Star® model.**

Points: *2 points*

Resources/More Information. *Energy Star® qualified clothes washers save about 7,000 gallons of water per year and they save both owners about $50 a year in energy costs. Clothes dryers are not measured by Energy Star because the difference between model ability is not that great.*

The El Toro Water District offers customers an $85 rebate for installing a water-efficient clothes washer.

Improving Air Quality

Practice 3-2 **Use low-VOC and/or water-based paints, solvents, and finishes.**

Points: *2 points*

Resources/More Information: *Volatile organic compounds are a common indoor air quality contaminant. Indoor levels of VOCs can be up to 10 times higher than outdoor quantities and they come from a variety of sources, including paints, paint strippers, other solvents, wood finishes and preservatives, moth repellants, air fresheners, automotive products and fuels, dry cleaned clothing, hobby supplies, and aerosol sprays (USEPA, 2009). The health effects of VOC's can range from mild (eye, nose irritation) to severe (damage to kidney and liver). They have also been known to cause cancer in animals and humans (USEPA, 2009). There are no federal standards for VOC levels in nonindustrial settings but many green housing guidelines require a minimal amount of VOC-containing products.*

Most low- or no-VOC products can be found in local hardware stores. FreshAire® brand of paint is zero VOC, has a can made from recycled material, and is certified by the GreenGuard Environmental Institute (The Freshaire Choice, 2008). It and other low- or no-VOC paints are available at most hardware stores. This brand costs a bit more than others at about $35 to $38 per gallon.

Practice 3-3 **When redoing flooring, replace carpeting with low-VOC carpeting from a sustainable source or replace carpeting with sustainable hardwood material. See also Practice 4-1.**

Points: *3 points*

Resources/More Information: *Carpeting emits volatile organic chemicals, holds allergens and mold, and is not conventionally made from sustainable resources (United States Green Building Council [USGBC] & The American Society of Interior Designers [ASID], 2008). Try to avoid carpeting in general and choose wood from a sustainable source (The Forest Stewardship Council certified), salvaged from another building, or from renewable resource (i.e. bamboo) instead. If carpeting is required, opt for the following:*

- *Using area rugs from sustainable sources instead, which can be washed or shaken out*
- *Using natural linoleum (made from cork or wood flours, linseed oil, and colorants)*
- *Using low-VOC carpeting made from natural materials such as wool, cotton, jute, or hemp*

Hardwood floors can be wood, stone, or tiled. Look for products that are recycled or sustainably harvested. These types of products can be found in hardware and home improvement stores. More information can be found on the Forest Stewardship Council website (www.fsc.org). the Carpet and Rug Institute (www.carpet-rug.com; 706-278-3176; look for the "Green Label Plus"), and the Greenguard Environmental Institute (www.greenguard.org/; 800-427-9681).

Practice 3-4 **Replace particleboard with solid wood, plywood, or another natural product that does not contain formaldehyde.**

Points: *3 points*

Resources/More Information: *Particleboard contains a urea-formaldehyde compound which can swell and deteriorate easily from moisture exposure and is also not good for air quality. It can harbor mold and does not last as long as more durable materials, such as wood and stone. Replace particleboard with certified sustainable wood products or salvaged wood or stone products.*

More information about formaldehyde can be found on the California Air Resources Board website (www.arb.ca.gov/research/indoor/formaldgl08-04.pdf).

Practice 3-5 **Seal all exposed particleboard surfaces if not replacing them.**

Points: *2 points*

Resources/More Information: *Sealing particleboard surfaces with a low VOC sealant will reduce its exposure to water and humidity and it will reduce its release of toxins into the air.*

Practice 3-6 **Replace vacuum cleaner filers with HEPA filers.**

Points: *1 point*

Resources/More Information: *High-efficiency particulate air (HEPA) filters can be used with appliances throughout the house or on vents and ducts. Using them on vacuums will help filter out allergens and toxins that have settled in flooring.*

HEPA information can be found at http://www.hepafilters.com/residential.php.

Practice 3-7 **Use low toxic or orange-based cleaners.**

Points: *1 point*

Resources/More Information: *Responsible ongoing maintenance of a house or living unit is essential in order for it to remain "green." Even the little tasks, such as cleaning, have a role in reducing the impact of the house on the environment. Use cleaners that are orange-based or made from other "eco-safe," biodegradable products. The fewer ingredients listed on the bottle, the better.*

Practice 3-8 **Place doormats at entrances from the outside or have place to put shoes to reduce the tracking in of outside pollutants.**

Points:

Resources/More Information: *Shoes not only track in dirt from outside but they can bring in toxins and pesticides from the street and lawns. Have quality doormats at all entrances and have a place to store shoes near entrances so that people have a place to put them.*

Practice 3-9 **Use environmentally refrigerants in air conditioning units.**

Points: *2 points*

Resources/More Information: *Air conditioning units have refrigerants that are harmful to the environment (CFCs). Choose a model that has low CFC content.*

Bathroom

Reducing Water Use

Practice 2-6 **Install a recirculating hot water pump.**

Points: *3 points each, 6 points maximum*

Resources/More Information: *See Practice 2-5.*

Practice 2-7 **Insulate hot water pipes in the bathroom.**

Points: *1 point total*

Resources/More Information: *This practice is one of the easiest and cheapest ways to save water and energy. Hot water in pipes does not remain hot for very long. Insulating pipes with this foam insulation would reduce the amount of water and energy wasted waiting for hot water to run out of the tap.*

Various sizes and types of insulation can be found. Choosing the pipe insulation with the highest R-value will keep pipes warmer and save more energy and water. An R-value greater than 2 is preferable. Most pipe insulation is made of foam and can be found at hardware stores or online at www.harwaredandtools.com, www.blackenergy.com, or other hardware sites. Using extra home insulation in addition to the foam piping will improve insulation effectiveness.

See Practice 1-23. Points can only be given for this practice when they follow these guidelines:

One area of house (bathroom/kitchen) = 1 point maximum; entire house = 2 points maximum

Practice 2-8 **Install a graywater toilet plumbing system**

Points: *3 points each*

Resources/More Information: *A graywater toilet system links used tap water from the sink to the toilet. Water that has run down the drain in the sink is filtered and reused in the toilet.*

Practice 2-9 **Replace standard toilets with low-flow toilets.**

Points: *1 point each, 3 point maximum*

Resources/More Information: *Low-flow toilets use fewer gallons of water per flush on average. Most new toilets already meet these standards. Choose a toilet that uses at most 1.5 gallons per flush.*

Rebates for replacing toilets with low-flow varieties are available from the Metropolitan Water District. Contact them at 1-877-235-4331 or visit www.bewaterwise.com.

Practice 2-10 **Install filters on faucets and showerheads.**

Points: *1 point each (3 points maximum)*

Resources/More Information: *It is recommended to install filters on faucets that are used for drinking water (the kitchen sink) and on showerheads to reduce the amount of chemicals added to water through treatment processes.*

Practice 2-11 **Place aerators on the ends of faucets.**

Points: *1 point maximum*

Resources/More Information: *As simple as it is, many homes and businesses do not have aerators at the end of faucets. These little screw-on devices can be found in all hardware stores. They reduce the flow of water through the faucet.*

Practices 2-12 **Replace faucets and shower heads with high-efficiency models.**

Points: *2 points total*

Resources/More Information: *Low-flow faucets are found in most hardware stores. Most standard faucets and showerheads use about 2.5 gallons of water per minute (gpm). Federal law requires all showerheads sold in the United States since 1994 to use 2.5 gpm or less. Most efficient models use about 1.5 to 0.5 gpm and cost from between $45 to $180 (faucets) and $29 to $75 (showerheads).*

Rebates for improving water efficiency are available from the Metropolitan Water District. Contact them at 1-877-235-4331 or visit www.bewaterwise.com.

Improving Air Quality

Practice 3-10 **Install a high efficiency ventilation system to reduce air moisture and mildew growth.**

Points: *1 point total*

Resources/More Information: *Mold and mildew are proliferate in moist areas such as the bathroom. Improve the condition of your bathroom and air quality by installing a high efficiency ventilation system in the bathroom that vents to the outside.*

Laguna Woods Residential Green Remodeling Practices (April 2009)

This set of green home practices are meant to be used when retrofitting a home to meet the qualifications for a "Retrofitted Green Home" in Laguna Woods. Each retrofitting project will naturally vary depending on the existing conditions of the home, the homeowners' resources, and the home's potential for being retrofit. Therefore, three levels of certification are used to designate homes. These three levels have minimum point levels are shown below. Residents should select at least two practices from each category (energy usage, water usage, air and indoor environment, and waste reduction). Points will not be awarded if all qualifying practices are from the same category.

60 Points Green Retrofitted Home (minumum qualification)

110 Points Star Green Retrofitted Home

155 Points Star Plus Green Retrofitted Home

1.X	Practices with a "1" have a primary goal of reducing energy usage (E)
2.X	Practices with a "2" have a primary goal of reducing water usage (WA).
3.X	Practices with a "3" have a primary goal of improving air and indoor environment (IA).
4.X	Practices with a "4" have a primary goal of reducing waste (WS).

	No.	Practice	Category	Points Available	Points Received
Kitchen	1.1	Replace dishwasher with Energy Star® model.	E	3 pts each	
	1.2	Replace refrigerator/freezer with an Energy Star® model.	E	5 pts each	
	1.3	Use high efficiency appliances in kitchen.	E	2 pts max	
	2.1	Have water-efficient faucets installed. (Kitchen only.)	WA	1 pt each	
	2.2	Insulate hot water pipes going to the kitchen. (Whole house = 2pts, See Practice 1.23).	WA	1 pt max	
	2.3	Install a recirculating hot water pump under the kitchen sink.	WA	3 pts max	
	3.1	Install an efficient ventilation/exhaust system in kitchen.	IA	1 pt max	
	4.1	If replacing any cabinetry, counters, or furniture, use recylced-content, environmentally-friendly materials (5 pts). All finishes, adhesives, and paints are low-VOC (2 pts).	WS	17 pts max	
	4.1a	a. Tables, chairs, and other furniture.	WS	5 pts max	
	4.1b	b. Counters	WS	5 pts max	
	4.1c	c. Cabinetry	WS	5 pts max	
	4.1d	d. Use low-VOC paint, adhesives, and finishes.	WS	2 points	
	4.1e	e. Locally-produced products are used.	WS	2 pts max	
	4.2	Install a built-in recycling center.	WS	1 pt max	
	4.3	Compost food waste.	WS	1 pt max	
Overall Household Practices	1.4	Replace light bulbs with high-efficiency compact florescent light bulbs. (Up to 4 bulbs = 1 pt, up to 8 bulbs = 2 pts, up to 12 bulbs = 3 pts)	E	3 pts max	
	1.5	Replace florescent light bulbs with low-mercury florescent bulbs	E	1 pt max	
	1.6	Install lighting controls (1 pt per controller).	E	3 pts max	
	1.7	Replace entertainment appliances with EnergyStar® models. (3 points each; up to three appliances)	E	8 pts max	
	1.7a	a. Televisions/Television-DVD combination units	E	3 pts each	
	1.7b	b. DVD or HD DVD players/Entertainment system components	E	2 pts each	
	1.7c	c. Power adapters/battery chargers/cordless phones	E	1 pts each	
	1.7d	d. Set-top boxes (available for Direct TV users only in CA)	E	2 pt each	
	1.8	Install insulation in attic.	E	4 pts each	
	1.9	Upgrade ceiling (2 pts) and wall (2 pts) insulation to meet Title 24 standards.	E	4 pts max	

	1.10	Use passive solar for heating and cooling to reduce the need for heating, ventilation, and air conditioning.	E	5 pts max	
	1.11	Install awnings over south-facing windows to provide shade.	E	3 pts max	
	1.12	Install a high efficiency ceiling fan (2 pts per room).	E	4 pts max	
	1.13	Redesign or install new HVAC Systems in accordance with ACCA recommendations.	E	5 pts max	
	1.14	Install high efficiency air conditioning (SEER value of 14, EER value of 12). (Cannot receive points for both this practice and 1.X - ACCA Recommendations)	E	5 pts max	
	1.15	Install a programmable thermostat.	E	2 pts max	
	1.16	Insulate AC ducts.	E	3 pts max	
	1.17	Have AC vents and ducts tested and repaired for leaks and efficiency.	E	2 pts max	
	1.18	Install a photovoltaic system. (Up to 2 kw = 7 pts, up to 5 kw = 15 pts, more than 5 kw = 20 pts)	E	20 pts max	
	1.19	Install photovoltaics for hot water heating or space heating systems.	E	10 pts max	
	1.20	Install a plumbing or electrical system that could be used for solar-powered hot water or space heating at a future date. (3 pts each)	E	6 pts max	
	1.21	Replace gas water heaters with a tankless water heater.	E	4 pts max	
	1.22	Install a combined water heater/space heater system.	E	3 pts max	
	1.23	Insulate hot water pipes throughout entire home.	E	2 pts max	
	1.24	Replace majority of household windows with double-pane windows. (U-factor < 0.40.)	E	2 pts max	
	1.25	Use low SHGC film on majority of single pane windows. (U-factor < 0.40, SHGC < 0.40, or SC < 0.44.)	E	2 pts max	
	1.26	If replacing entire window (not just glass), use sustainable, recycled-content, low-conductivity frames.	E	1 pt max	
	2.4	Update plumbing and have leaks fixed on a regular basis.	WA	1 pt max	
	2.5	Replace clothes washers with EnergyStar® or other energy efficient model.	WA	2 pts max	
	3.2	Use low-VOC and/or water-based paints, solvents, adhesives, and finishes. Where applicable, these products should be water-based as well.	IA	3 pts max	
	3.2a	a. Low-VOC paints, solvents, adhesives, and finishes	IA	2 pts max	
	3.2b	b. Water-based wood finishes	IA	1 pt max	
	3.3	When redoing flooring, replace carpeting with low-VOC carpeting from a sustainable source or replace carpeting with sustainable hardwood material. See also Practice 4-1.	IA	3 pts max	
	3.3a	a. Flooring is not carpeting but a sustainable, recycled hard material. (Must be majority of flooring.)	IA	6 pts max	
	3.4	Replace particleboard with solid wood, plywood, or another natural product that does not contain formaldehyde.	IA	3 pts max	
	3.5	Seal all exposed particleboard surfaces if not replacing them.	IA	2 pts max	
	3.6	Replace vacuum cleaner filers with HEPA filers.	IA	1 pt max	
	3.7	Use low toxic, orange-based, or environmentally-friendly cleaners.	IA	1 pt max	
	3.8	Place doormats at entrances from the outside or have place to put shoes to reduce the tracking in of outside pollutants.	IA	1 pt max	
	3.9	Use environmentally friendly refrigerants for AC units.	IA	2 pts max	
	4.4	If replacing insulation, use environmentally friendly insulation. Choose from:	WS	1 pt max	
	4.4a	a. Recycled content insulation.	WS	1 pt	
	4.4b	b. New, but non-toxic content insulation.	WS	1 pt	

Bathroom	2.6	Install a recirculating hot water pump under the kitchen sink.	WA	6 pts max	
	2.7	Insulate hot water pipes in the bathroom.	WA	1 pt max	
	2.8	Install a greywater toilet plumbing system.	WA	3 pts max	
	2.9	Install filters on faucets and showerheads (1 pt each).	WA	4 pts max	
	2.10	Replace standard toilets with low-flow toilets (1 pt each).	WA	3 pts max	
	2.11	Use aerators on faucets.	WA	1 pt max	
	2.12	Install high efficiency faucets and showerheads.	WA	2 pts max	
	3.1	Install a high efficiency ventilation system to reduce air moisture and mildew growth (1 pt each).	IA	2 pts max	
		Maximum Points		**178**	
		Points Earned			**0**
		Level of Certification:			