GREEN BUILDING

OVERVIEW

DHHL supports the use of green building practices to minimize environmental impact, maximize the quality of homes, and reduce the cost of home ownership. The Department has identified a one star rating using the Hawaii BuiltGreen Self-Certification Checklist [or the demonstrated equivalent] as the minimum standard for the design and construction of the single-family developer-built homes. Proposals with Green Building approaches that exceed this minimum are encouraged and welcome. It should be noted that use of solar water heaters is a requirement of the proposal.

Submittal Requirements:

1. Completed Hawaii BuiltGreen Self-Certification Checklist
2. Brief narrative (1 page maximum) on why the proposed approaches were selected.
3. Brief narrative (1 page maximum) on how the design will promote building orientation-related benefits without the benefit of assigning orientation (see page 5 of this exhibit, "Orientation-related benefits").

PROPOSAL AND PREFERRED APPROACHES

DHHL has identified a set of preferred green building approaches that align well with the project's physical, social and economic context. These approaches come at low or no additional cost, reduce the cost of home ownership, address local environmental concerns, and support the health of occupants. They are not a complete list of what may be implemented to meet the Green Building goals of the project. Instead, these approaches are intended as a starting point to provide guidance in the Offeror's review and completion of the Hawaii BuiltGreen Home-Builder Self-Certification Checklist for the proposal. Other options should be considered and are welcomed in the proposal.

Site Protection:

- Design landscape to infiltrate a reasonable volume of stormwater runoff from the roofs of the homes to minimize impact on infrastructure, prevent flooding and recharge groundwater
- Specify drought-tolerant, native and adapted plant species for the residential landscapes that require minimal to no irrigation to reduce potable water consumption

Energy Performance:

- (Required) Include solar hot water heaters in home design and specifications to significantly reduce hot water-related energy consumption.
- Design floor plans for cross ventilation and deep daylight penetration to promote passive cooling and decrease dependence on electrical lighting.
- Specify minimum R-19 insulation in the roofs and minimum R-11 insulation in the walls

- If used, “right-size” air conditioning units in response to passive design strategies such as insulation, window quality and placement and orientation
- Include six additional requirements to the Model Energy Code to comply with Energy Star Home Program (see Section 2-55 of Hawaii BuiltGreen Checklist)
- Specify Energy Star appliances
- Size, locate and specify a quality of glazing in response to orientation and to promote natural ventilation, reduce heat gain and maximize daylight penetration
- Specify dual flush toilets (.8/1.6 gpf) low flow faucets (.5-1gpm) and showerheads (1.5gpm) to reduce water and energy use and associated utility costs

Health and Indoor Air Quality:

- Specify low or no VOC paints, adhesive, primers and sealants to support healthy indoor air quality

Durability and Materials Conservation:

- Specify recycled-content materials for carpet assemblies, cabinets, drywall, cement, aggregates, countertops, flooring assemblies, paints, insulation, roofing to reduce raw material demand
- Develop a construction waste management plan that includes on-site recycling of the primary construction waste materials such as wood, metal, drywall, cardboard and packaging to reduce project contribution to landfills

Environmentally-Friendly Home Operations:

- Provide Homeowner Manual for environmentally-friendly home operations
- Conduct Homeowner Orientation to provide information on BuiltGreen features and how to maintain and operate a BuiltGreen Home

GREEN BUILDING CHECKLIST

The Hawaii BuiltGreen Self-Certification Checklist was developed by the Department of Business, Economic Development and Tourism's (DBEDT) Energy Division, the Building Industry Association of Hawaii (BIA-HI), the American Institute of Architects – Honolulu Chapter, the University of Hawaii's School of Architecture, Hawaiian Electric Company and community groups in Hawaii to promote environmentally-sensitive design and construction of single family homes in Hawaii. The Checklist contains over 250 required and optional action items (measures) that are organized into five categories:

1. Protecting Site Features and Functions
2. Energy Performance and Comfort
3. Health and Indoor Air Quality
4. Durability and Materials Conservation
5. Environmentally-Friendly Home Operations

To achieve certification, the builder submits a completed Checklist to DBEDT and BIA-HI that indicates which measures have been implemented and how many points earned. The project is then certified at either a one, two or three star level. One star certification requires executing all required measures plus earning 35 (if A/C) or 45 (if no A/C) additional points. Of note, the Contractor may find in reviewing the Checklist that some of its standard practices are considered "green" and already earn points towards certification.

For the purposes of this proposal, the checklist does not need to be certified by DBEDT or BIA-HI. DHHL recognizes that the action items identified in the completed checklist are not a commitment to the specific approaches, but a commitment to the standard aspired to by the DHHL of a minimum one star rating. It is expected that if selected, the contractor will work with DHHL to develop separate checklists for each developer-built housing type.

Hawaii BuiltGreen Checklist (also provided at the end of this exhibit):
http://biahawaii.inets.com/docs/Webdocs/BuildGreen/HBG%20Checklist%20Rev%202006.pdf

Hawaii BuiltGreen Checklist User Guide:
http://biahawaii.inets.com/docs/Webdocs/BuildGreen/HBG%20User%20Guide%20Rev%202006.pdf
The User Guide is a reference for projects enrolled in the Hawaii BuiltGreen Program and supports use of the Self-Certification Checklist.

(Insert Preliminary Completed Hawaii BuiltGreen Checklist Here)

JUSTIFICATION FOR GREEN BUILDING APPROACH

Please describe how the proposed approaches meet the Green Building goals of the project.

ORIENTATION-RELATED BENEFITS

Evaluate the extent to which the current plan and lot layout will influence the orientation of the homes. Orientation can be used to promote daylight penetration, reduce heat gain, and support natural ventilation when aligned with responsive design strategies. Most importantly, it is available at no cost to the owner and results in lower operational costs. Whenever possible, homes should be oriented on an East-West axis with the longer sides facing North and South. However, in some cases, home orientation may be largely pre-determined.

Proposals should address how the design will promote orientation-related benefits without the benefit of assigning orientation. Please describe how your proposal promotes orientation-related benefits, without the benefit of assigning orientation.

INCENTIVE PROGRAMS

For more information on Incentive Programs related to renewable energy and energy efficiency, please go to the Database of State Incentives for Renewables and Efficiency (DSIRE) website at: www.dsireusa.org, which also provides links to these websites.

FINANCIAL INCENTIVES

Corporate Tax Credit

- Solar and Wind Energy Credit (Corporate)

Enterprise Foundation "Green Communities" Program

- Grants for ecocharrettes and for participating projects

Green Building Incentive

- Priority Permit Processing for Green Buildings

Industry Recruitment/Support

- High Technology Business Investment Tax Credit

Local Bond Program

- Honolulu - Solar Bond Program

Local Loan Program

- Honolulu - Solar Roofs Initiative Loan Program
- Maui County - Solar Roofs Initiative Loan Program

Personal Tax Credit

- Solar and Wind Energy Credit (Personal)

Utility Loan Program

- KIUC - Solar Water Heating Loan Program

Utility Rebate Program

- Hawaii Gas Company - Commercial Switch to Gas Program
- HECO - Energy$olutions Appliance Rebate Program
- HECO, MECO, HELCO - Energy $olutions Solar Water Heater Rebate
- HECO, MECO, HELCO - Energy$olutions Business Appliance Rebates and Customized Incentives Program
- HECO, MECO, HELCO - Energy$olutions Water Heater Rebate
- KIUC - Efficient Appliance Rebate Program
- KIUC - Energy Wise Commercial Energy Efficiency Program
- KIUC - Solar Water Heating Rebate Program

Alternative Fuel and Vehicle Incentives

- U.S. Department of Energy's Alternative Fuels Data Center

INCENTIVE PROGRAMS (CONTINUED)

RULES, REGULATIONS & POLICIES

Building Energy Code
- Hawaii Building Energy Code

Contractor Licensing
- Solar Contractor Licensing

Energy Standards for Public Buildings
- Renewables and Efficiency in State Facilities & Operations

Interconnection
- Interconnection Standards

Net Metering Rules
- Hawaii - Net Metering

Renewables Portfolio Standard
- Renewable Portfolio Standard

Solar Access Law/Guideline
- Prohibition of Covenant Restrictions

Alternative Fuel and Vehicle Policies
- U.S. Department of Energy's Alternative Fuels Data Center

RELATED PROGRAMS & INITIATIVES

Green Power Network: Buying Green Power in Your State

The U.S. Department of Energy's Green Power Network provides news information on green power markets and related activities. This site state-by-state information on Green Power Marketing in Competitive Markets and Utility Green Pricing Programs. In addition, the site lists marketers of Renewable Energy Certificates (also known as green tags or tradable renewable certificates), which the environmental attributes of the power produced from a renewable project. Whether or not consumers have access to green power through local utility or a competitive electricity marketer, consumers can purchase RECs without having to switch electricity suppliers.

Wind Powering America

The U.S. Department of Energy's Wind Powering America site provides stateby-state wind project information, including validated wind maps, anemometer loan programs, small wind guides, legislative briefings, wind working groups, and state-specific news.

FOR FURTHER REFERENCE

Please visit the following websites for additional information on green design and benefits.

HAWAII BUILTGREEN
Building Industry Association – Hawaii
http://biahawaii.org/

HAWAIIAN ELECTRIC COMPANY, INC.
http://www.heco.com

HONOLULU BOARD OF WATER SUPPLY
http://www.hbws.org

U.S. GREEN BUILDING COUNCIL
http://www.usgbc.org

HOME BUILDER
Self-Certification Checklist

Download the free 2006 Hawai'i BuiltGreen™ ***User Guide*** at www.HawaiiBuiltGreen.com

Please complete the checklist to qualify for a HAWAII BUILTGREEN Star Rating™ … Mahalo!

Ratings

Requirements to Qualify at 1-Star Level

- Program Orientation (one time only)
- (All ★'d items)
- Earn minimum of points:
  - For Naturally Ventilated (NV) homes, **35 pts.**
  - For Air-Conditioned (A/C) homes, **45 pts.** (Also see ★'d requirements under "A/C homes only" sections.)

Requirements to Qualify at 2-Star Level (minimum 115 points NV; 125 points A/C)

- Meet 1-Star requirements
- Earn 85 additional points; at least 5 points to come from each section.

Requirements to Qualify at 3-Star Level (minimum 210 points NV; 220 points A/C)

- Meet 2-Star requirements plus 95 additional points.
- Attend a workshop on green building topic within past 12 months (e.g., Green Building Conference or construction waste management seminar)

Air-conditioned (A/C) homes require more energy to operate and add cost to the consumer's energy bill. Hawaii BUILTGREEN™ strongly encourages well-designed Naturally Ventilated (NV), energy-efficient homes. The program recognizes, however, special circumstances where A/C may be warranted such as areas where microclimates require greater heat or humidity control, when occupants have special needs, or existing conditions include environmental noise, dust, and pollution. To create equivalency between NV and A/C homes, there are some requirements that apply to A/C homes only. These are the ★'d items in the A/C-only sections. In addition, because there are additional items that are applicable only to A/C homes there are more points available to those homes; hence the higher thresholds for A/C homes.

Home Builder User Guide

Please refer to the User Guide for the Hawaii BUILTGREEN™ Home Builder Checklist when planning your project.

This companion guide explains what is required to complete each Action Item.

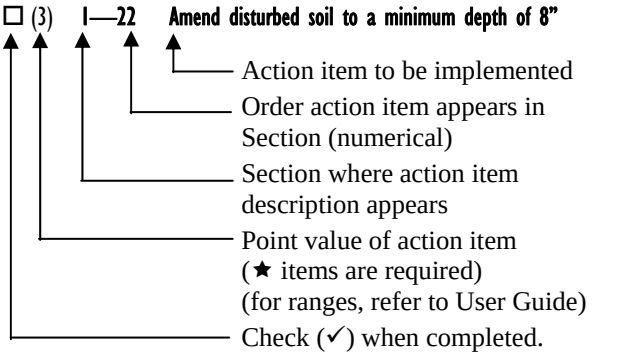
The User Guide also includes:

- Suggested Top Picks for each Section of the Checklist;
- Additional information on key technical issues;
- References to additional resources to help you implement BuiltGreen™ Action Items in your projects.

For a copy of the User Guide for the Hawaii BUILTGREEN™ Home Builder Checklist, contact the Building Industry Association of Hawaii (BIA-Hawaii):

Phone (808) 847-4666; E-mail RTC@bia-hawaii.com, or visit www.bia-hawaii.com

How to Use the Checklist



1) Check (✓) all Action Items included in project.
2) Add up points from checked Action Items
3) Subtotal points for each Section.
4) Add subtotals for your final rating – see Ratings, above left.
5) Complete the Rating Information on Page vi of the Checklist.

Section 1: Protecting Your Site's Features & Functions

DESIGN CHOICES

☐ (1) 1-1. Use plastic, low toxic wood preservatives (no CCA), or naturally rot-resistant wood for landscaping.
☐ (3) 1-2. Natural water drainage maintained.
☐ (3) 1-3. Surface water managed with detention ponds, grassy swales, or dry wells.
☐ (3) 1-4. Water management system allows groundwater to recharge.
☐ (5) 1-5. Minimum impervious surfaces on the site (no more than 15% of site excluding house and garage.) (See porous pavers in energy section.)
☐ (10) 1-6. Minimum impervious surfaces on the site (no more than 10% of site excluding house and garage.) (See porous pavers in energy section.)

JOB SITE OPERATIONS

☐ (★) 1-7. No soil exposed during job (protected with mulch).
☐ (★) 1-8. No fill in sensitive areas.
☐ (★) 1-9. Sensitive areas flagged and protected during construction.
☐ (★) 1-10. Post cleanup procedures for spills.
☐ (★) 1-11. Hazardous wastes separated and properly disposed of.
☐ (★) 1-12. Sediment traps installed for construction.
☐ (★) 1-13. No adverse impacts on adjoining properties or critical areas during construction.
☐ (★) 1-14. Water quality monitored during construction.
☐ (★) 1-15. Concrete trucks and pumps washed in designated areas (not in planned pervious areas).
☐ (1) 1-16. Slopes stabilized with mulch.
☐ (1) 1-17. Balance cut and fill.
☐ (1) 1-18. Topsoil stockpiled and protected with mulch during excavation for post-construction use.
☐ (2) 1-19. No significant change to topography.
☐ (2) 1-20. Least-toxic form releases used.
☐ (2) 1-21. Amend disturbed soil to min. depth of 4" to restore soil functions.
☐ (3) 1-22. Amend disturbed soil to min. depth of 8" to restore soil functions.
☐ (3) 1-23. Native vegetation saved and reused or donated.

OUTDOOR WATER CONSERVATION

☐ (1) 1-24. Mulch used in landscaping to minimize evaporation.
☐ (2) 1-25. Rainwater recovery from roof for irrigation
☐ (3) 1-26. Drought-resistant, native plants (site-appropriate) used for 50% of landscaped area.
☐ (3) 1-27. Irrigation system has water-saving features, such as drip irrigation, electronic timer, valves with manual flow control, and rain shut-off device.

Bonus Points (Applicable for Custom Homes)

☐ (5) 1-28. Set aside 20% of site to be left undisturbed.
☐ (5) 1-29. Limit grading to 20 ft. outside building footprint.

_____Subtotal for Section 1

Section 2: Energy Performance & Comfort

DESIGN CHOICES

Site

☐ (1) 2-1. Space and arrange (stagger) buildings so all structures have good air flow.
☐ (1) 2-2. Porous paving materials installed to reduce thermal mass, heat gain, and glare.
☐ (2) 2-3. Longer sides of home oriented to face north and south to reduce heat build-up.
☐ (2) 2-4. Existing or new landscape elements (such as trees) shade building and paved areas.
☐ (2) 2-5. Built elements (e.g. trellises, carports) shade paved areas.
☐ (2) 2-6. Buildings oriented to maximize cooling potential or prevailing winds.
☐ (2) 2-7. Landscaping elements used to improve air flow around structure.
☐ (3) 2-8. Generous areas of planting and ground cover (less hardscape) included to reduce site temp.

Shell

☐ (1) 2-9. Light colored roofing installed.
☐ (2) 2-10. Light colored exterior wall surfaces used.
☐ (2) 2-11. Attic or roof cavity vented with continuous ridge and eave vents.
☐ (2) 2-12. Attic or roof cavity vented with gable end vents.
☐ (2) 2-13. Sill vents, floor vents, and venting skylights used to allow hot air to escape the building by thermal convection
☐ (5) 2-14. Shading on at least 50% of east and west wall surfaces.
☐ (5) 2-15 Radiant barriers and/or insulation installed in walls exposed to the sun, beyond any applicable local codes and ordinances.
☐ (5) 2-16. Radiant barriers and/or insulation installed in ceilings and attic spaces, beyond any applicable local codes and ordinances.

Openings

☐ (1) 2-17. Orient to minimize heat build-up through openings.
☐ (2) 2-18. Inlet openings (air comes in) slightly larger than outlet openings (air goes out) to enhance air flow.
☐ (2) 2-19. Windows located at body level.
☐ (2) 2-20. Generous screened openings protected from rain.
☐ (2) 2-21. High performance glazing used on windows exposed to the sun (SHGC = .65 or less; U-value - .45 or less; VLTC of .7 or more; designed to keep heat out.)
☐ (2) 2-22. For spaces with openings on adjacent walls, windows located far apart and at diagonal.
☐ (2) 2-23. For spaces with openings on same wall, use appropriately-spaced casement windows or wing walls.
☐ (2) 2-24. Operable openings equal to at least 12% of floor area.
☐ (2) 2-25. At least two operable windows to the outside included in each space.
☐ (2) 2-26. Diffuse glare from skylights through baffles, splaying, or use of translucent glazing.
☐ (3) 2-27. All skylights used have SHGC of 0.5 or less.
☐ (3) 2-28. Operable skylights or skylights with built-in vents (on leeward side of skylight) installed.
☐ (3) 2-29. Casement or jalousie windows used for best air flow.
☐ (3) 2-30. No more than 25% of total glass area is located on east and west walls combined.

☐ (3) 2-31. Exterior horizontal shading installed for north and south windows (sufficient to protect completely from direct sun).
☐ (3) 2-32. Exterior vertical shading installed for east and west windows (sufficient to protect completely from direct sun).
☐ (3) 2-33. Light shelves used for sidelighting.
☐ (3) 2-34. For toplighting, roof monitors or clerestories used. (No skylights.)

Interior Layout and Finishes

☐ (1) 2-35. For spaces with openings on opposite walls, rooms oriented 45 degrees from wind direction.
☐ (2) 2-36. Design floor plans to provide effective cross ventilation and air flow at body level.
☐ (2) 2-37. Layout designed so activities with highest illumination needs are daylight.
☐ (2) 2-38. Floor plan allows deep daylight penetration.
☐ (3) 2-39. Use light colored interior finishes to enhance daylight (but avoid glare).

Mechanical Venting and Cooling

☐ (1) 2-40. Timers installed on bathroom fans.
☐ (2) 2-41. All bedrooms and family room wired for ceiling fans.
☐ (2) 2-42. Solar powered attic vent installed.
☐ (3) 2-43. Whole house fan installed.
☐ (3) 2-44. Ceiling fans installed in all bedrooms and family room.
☐ (10) 2-45. No air conditioning.

AIR CONDITIONED (A/C) HOMES ONLY

☐ (★) 2-46. House meets Hawaii Model Energy Code standards for A/C buildings. (See Quick References for further details.)
☐ (★) 2-47. A/C system sized for efficient operation (not oversized).
☐ (★) 2-48. Programmable thermostats provided.
☐ (2) 2-49. Provide alternate means to balance air flow (e.g. undercut doors, return air ducts)
☐ (2) 2-50. Duct unions and joints sealed with low-toxic mastic and fibrous tape.
☐ (3) 2-51. Ducts in conditioned space OR insulated to R-11.
☐ (3) 2-52. Insure easy access to A/C system for maintenance and repair.
☐ (3) 2-53. Minimum SEER 12 A/C system.
☐ (5) 2-54. Duct Blaster Test conducted.
☐ (5) 2-55. House is Energy Star-compliant (Hawaii MEC for A/C, PLUS options defined by EPA; see User Guide for further details.)

WATER HEATING

Distribution

☐ (1) 2-56. Electric water heater upgrade w/min .93 EF (energy factor)
☐ (1) 2-57. Water heater timer installed.
☐ (1) 2-58. Gas water heater upgrade w/min .60 EF
☐ (1) 2-59. Heat trap installed or 1-inch pipe insulation on at least first 8' of outlet pipe from water heater. (Required (★) for A/C homes as part of meeting MEC.)
☐ (1) 2-60. Solar heater or heat pump for swimming pool heaters. (Required (★) for A/C homes as part of meeting MEC.)
☐ (1) 2-61. Water heater located within 20' pipe length of bathroom fixtures.
☐ (2) 2-62. Use a heat pump water heater w/min. 1.9 EF.
☐ (2) 2-63. Hot water lines insulated to min. R-3 throughout house.
☐ (5) 2-64. Design south-facing roof area for future solar collector (min. 80 sq. ft within 30° of true south) and rough in plumbing necessary for solar water heating system.
☐ (10) 2-65. Solar water heater installed.

Indoor water conservation

☐ (★) 2-66. Low flow shower heads & sink faucets used (2.5 gpm).
☐ (★) 2-67. Low flow bath faucets used (2.0 gpm).
☐ (2) 2-68. Front-loading, horizontal axis, or equal clothes washer provided.
☐ (5)* 2-69. Rainwater collection for potable use (with filtration as required.)

***Double points in locations that have municipal supply.**

ELECTRIC LIGHTING

☐ (1) 2-70. Reflectors in can fixtures to maximize available light.
☐ (1) 2-71. Dimmers for spaces where low-level lighting appropriate.
☐ (2) 2-72. Light tubes installed to reduce need for electric lighting.
☐ (3) 2-73. Compact fluorescent lamps (CFLs) used in three high-use locations (including kitchen and entry light).
☐ (3) 2-74. Fluorescent lamps (T-8 or T-5) used in service areas of the home. (Bulbs with CRI > than 80 and CCT of 3000K)
☐ (3) 2-75. Electronic ballasts for all fluorescents installed.
☐ (3) 2-76. CFLs substituted for incandescent down lights.

APPLIANCES

☐ (2) 2-77. Provide a microwave oven to reduce reliance on range.
☐ (2) 2-78. Energy efficient range provided.
☐ (2) 2-79. Energy Star clothes dryer provided.
☐ (3) 2-80. Energy Star clothes washer provided.
☐ (3) 2-81. Energy Star dishwasher provided.
☐ (5) 3-82. Energy Star refrigerator provided.

Bonus Points for Custom Homes

☐ (10) 2-83. Photovoltaic or other renewable source for electricity (>10% of electric load) installed.

_____Subtotal for Section 2

Section 3: Health and Indoor Air Quality

DESIGN

See Section 2: Energy and Comfort. It contains several Action Items that enhance airflow and cross ventilation naturally.

FLOORS

☐ (1) 3-1. If using carpet, specify with Carpet and Rug Institute's (CRI) Indoor Air Quality (IAQ) label.
☐ (1) 3-2. Ceramic tile grout seams sealed to control mold growth.
☐ (2) 3-3. Water-based finishes used on wood floors.
☐ (2) 3-4. If using carpet, install by tacking (no glue).
☐ (2) 3-5. Use plywood and composites of exterior grade or formaldehyde-free.
☐ (2) 3-6. Low toxicity, low solvent mastics, sealants, and adhesives used for flooring.

☐ (2) 3-7. Formaldehyde-free subfloor and underlayment material used.
☐ (3) 3-8. Install low-pile or less allergen-attracting carpet and pad (w/ CRI IAQ label).
☐ (3) 3-9. Natural linoleum with low-toxic adhesive or backing used.
☐ (5) 3-10. Hardwood or tile floors installed in 50% of living area.
☐ (5) 3-11. Carpet limited to one-third of home-square footage.
☐ (10) 3-12. No carpet installed in home.

CABINETRY AND TRIM

☐ (1) 3-13. Ceramic tile grout seams sealed to control mold growth.
☐ (2) 3-14. Water-based finishes applied on woodwork.
☐ (2) 3-15. Low-toxicity, low solvent mastics, sealants, and adhesives used for cabinetry, trim, and countertops.
☐ (3) 3-16. Cabinets and trim made with formaldehyde-free board and low-VOC finish.

INTERIOR WALLS

☐ (1) 3-17. Seal ceramic tile grout seams to control mold growth.
☐ (1) 3-18. Formaldehyde-free fiberglass insulation (available with BIBs or spec'd. Not standard batts).
☐ (3) 3-19. Low-VOC/low-toxic interior paints and finishes used for large surface areas (VOCs no more than 50 g/l)
☐ (3) 3-20. Low toxicity, low solvent mastics, sealants and adhesives used for wallcoverings.

MECHANICAL AND OTHER CONTROLS

☐ (★) 3-21 Clothes dryer vented to outdoors.
☐ (1) 3-22. Exhaust fans installed in home office areas.
☐ (1) 3-23. Polyethylene piping used for supply plumbing.
☐ (3) 3-24. Crawl and attic spaces ventilated to prevent moisture accumulation.
☐ (3) 3-25. Quiet fans (1.5 sones or less) installed in baths and kitchens to encourage use. (Include 60-minute timer).
☐ (3) 3-26. Moisture barriers sealed prior to installation of flooring.
☐ (3) 3-27. No electronic filters used in home.

AIR CONDITIONED (A/C) HOMES ONLY

☐ (3) 3-28. Use construction filters and replace just prior to move-in.
☐ (3) 3-29. Seal at doors, windows and all penetrations against moisture and air leaks.
☐ (5) 3-30. A/C systems provide fresh air at 0.35 AC/H or 15 CFM per person (whichever is higher).

JOB SITE OPERATIONS

☐ (1) 3-31. Use "green" cleaners for final cleanup.
☐ (1) 3-32. Protect building materials from moisture damage.
☐ (2) 3-33. Vacuum stud bays before drywalling.
☐ (2) 3-34. Vacuum floors before final flooring installation.
☐ (3) 3-35. Ventilate after each new finish is applied.

Bonus Points (Applicable for Custom Homes)

☐ (3) 3-36. No pollen-bearing shrubs and trees (e.g. mock orange, pikake, plumeria, and mango) or allergenic grasses (e.g. rye) planted next to operable windows.

_____ Subtotal for Section 3

Section 4: Durability and Materials Conservation

DESIGN CHOICES

☐ (2) 4-1. Standardize dimensions used to reduce waste.
☐ (2) 4-2. Install materials with longer life cycles.
☐ (2) 4-3. Use stacked floor plans.
☐ (2) 4-4. Install materials produced in Hawaii.

TERMITE DETAILS

☐ (★) 4-5. Ensure that all wood used has EPA-approved chemical treatment.
☐ (★) 4-6. Field-treat all cuts and drill-holes in treated wood.
☐ (1) 4-7. All plantings at least 24 inches from the building perimeter.
☐ (1) 4-8. All roots thoroughly removed when vegetation cleared.
☐ (1) 4-9. Regular inspection for termites during construction (post schedule).
☐ (1) 4-10. Easy access provided for termite inspection by homeowner.
☐ (1) 4-11. Use only materials impervious or highly resistant to termites (pressure treated lumber, concrete, masonry, galvanized steel, and plastic lumber).
☐ (1) 4-12. Poured concrete in place of wood or CMU for building foundations.
☐ (1) 4-13. All slab penetrations sealed with epoxy or non-shrink grout.
☐ (1) 4-14. Galvanized termite pans separate foundations from wood structures.
☐ (2) 4-15. Install termite colony elimination system.
☐ (3) 4-16. Install 4-inch basalt termite barrier (BTB) around footings and beneath slabs (protect during construction).
☐ (3) 4-17. Install a non-chemical ground treatment termite control system (steel mesh or equivalent).
☐ (3) 4-18. Use copper termite pans to separate foundations from wood structures.

FRAMING

☐ (1) 4-19 Use two-stud corners.
☐ (0) 4-20. Deleted
☐ (0) 4-21. Deleted
☐ (0) 4-22. Deleted
☐ (1) 4-23. Install recycled content fascia, soffits, or trim.
☐ (2) 4-24. Use Intermediate Framing System (16" O.C. studs, with 2-stud corners, ladder partitions, let-in headers).
☐ (2) 4-25. Use recycled-content sheathing.
☐ (0) 4-26. Deleted
☐ (0) 4-27. Deleted
☐ (0) 4-28. Deleted (Covered in 4-5)
☐ (3) 4-29. Use Advanced Framing System when permitted (24" O.C. studs, 2-stud corners), ladder partitions, let-in headers, etc.

FOUNDATION

☐ (3) 4-30. Non-asphalt based damp proofing used for foundation and basement walls.
☐ (3) 4-31. Use concrete with fly ash content.
☐ (3) 4-32. Use recycled aggregate containing crushed concrete, brick, concrete block, asphalt, or glass cullet for base or fill.

SUB-FLOOR

☐ (2) 4-33. Use recycled-content underlayment.

WINDOWS AND DOORS

☐ (1) 4-34. No luan doors used.
☐ (1-3) 4-35. Use window frames and doors made of wood certified as "sustainably produced" (see User Guide for recognized certifiers).
☐ (2) 4-36. Flashing to seal above doors, windows, and other openings.
☐ (3) 4-37. Frames are wood/composite with recycled content.
☐ (3) 4-38. Interior doors reclaimed.

INSULATION

☐ (2) 4-39. Use insulation with recycled content, including cellulose, fiberglass, expanded polystyrene (EPS), and mineral wool.
☐ (2) 4-40. Use environmentally-preferable foam insulation (formaldehyde-free, CFC-free, HCFC-free).

INTERIOR WALLS

☐ (1) 4-41. Use drywall with recycled-content gypsum.

FINISH FLOOR

☐ (1-3) 4-42. Use wood flooring certified as "sustainably produced" (see User Guide for recognized certifiers).
☐ (1) 4-43. If installing vinyl flooring, use product with post-industrial recycled content.
☐ (1) 4-44. Install recycled-content carpet pad.
☐ (2) 4-45. Use recycled-content or renewed carpet.
☐ (3) 4-46. Use reclaimed wood.
☐ (3) 4-47. Install cork or bamboo flooring.
☐ (1) 4-48. Install laminated or veneered wood floor.
☐ (3) 4-49. Use concrete or indigenous stone flooring.
☐ (3) 4-50. Use recycled-content ceramic tile.
☐ (1) 4-51. Use resilient flooring with no chlorine used during manufacturing.

CABINETRY AND TRIM

☐ (3) 4-52. Cabinets made with medium density fiberboard or wheatboard.
☐ (2) 4-53. Finger-jointed or engineered wood trim (including MDF).
☐ (3) 4-54. Use countertops with recycled content.
☐ (3) 4-55. Install concrete or indigenous stone countertops.
☐ (3) 4-56. Use refurbished cabinets.
☐ (1-3) 4-57. All hardwood trim or casework from wood certified as "sustainably produced" (see User Guide for recognized certifiers).

ROOF

☐ (1) 4-58. Flash all roof-to-wall intersections.
☐ (1) 4-59. Use resource-efficient roofing such as metal panels or composite shingles with recycled content.
☐ (2) 4-60. Install 30-year roofing material.
☐ (3) 4-61. Install 40-year roofing material.

EXTERIOR FINISH

☐ (1) 4-62. Use resource-efficient siding such as metal, vinyl, cement fiberboard, and stucco.
☐ (1) 4-63. Use 50-year siding product.
☐ (1) 4-64. Use reworked paint.
☐ (2) 4-65. Exterior coatings and paints have recycled content.
☐ (2) 4-66. Materials are factory finished.

OUTDOOR FEATURES

☐ (0) 4-67. Deleted (Covered in 4-5)
☐ (1) 4-68. Compost or mulch used in landscaping.
☐ (1) 4-69. Crushed/ground gypboard used as a soil amendment.
☐ (2) 4-70. Reclaimed or salvaged material used for landscaping walls.
☐ (2) 4-71. Recycled content materials used for fences, benches, decking, docks, retaining walls, picnic tables, and landscape borders.
☐ (5) 4-72. Create functional outdoor living spaces while limiting overall square footage of structure.

JOB SITE OPERATIONS

(For custom homes, triple points for each item in this category, due to increased difficulty.)

☐ (1) 4-73. Posted job-site waste management plan (including reduce, reuse, recycle goals/actions).
☐ (1) 4-74. Waste management education conducted on site for field personnel.
☐ (1) 4-75 Detailed take-off provided as cut list to framer.
☐ (1) 4-76. Recycling areas or containers well-signed.
☐ (1) 4-77. Central cutting area or cut packs.
☐ (1) 4-78. Subcontractors required to participate in waste reduction efforts.
☐ (1) 4-79. Use suppliers offering reusable, recyclable or U-turn packaging.
☐ (1) 4-80. Reuse building materials.
☐ (1) 4-81. Reuse dimensional framing materials.
☐ (1) 4-82. Use recyclable supplies, e.g., construction fences, tarps, etc.
☐ (1) 4-83. Excess materials donated to a non-profit organization (e.g., Hawaii Materials Exchange).
☐ (1) 4-84. Wood scraps sold or given away.
☐ (1) 4-85. Reusable items sold or donated.
☐ (1) 4-86. Use reusable forms.
☐ (1) 4-87. Recycle cardboard.
☐ (1) 4-88. Recycle metal scraps.
☐ (1) 4-89. Recycle clean wood (borate-treated or untreated scrap), e.g., for composting.
☐ (1) 4-90. Recycle packaging.
☐ (1) 4-91. Recycle drywall.
☐ (1) 4-92. Recycle concrete/asphalt rubble, rock, and brick.
☐ (1) 4-93. Least toxic materials selected to reduce disposal requirements (e.g., paints, termite treatments).

Bonus Points

☐ (5) 4-94. Track and prominently post waste reduction results on site (similar to safety record signs).
☐ (5) 4-95. Home no larger than 1,800 square ft.
☐ (10) 4-96. Home no larger than 1,400 square ft.
☐ (10) 4-97. More than 50% of wood used in home is certified by a third-party agency as "sustainably-produced."

_____Subtotal for Section 4

Section 5: Environmentally-Friendly Home Operations

- ☐ (★) 5-1. Owners provided with information on operating and maintaining their "green" home for optimum performance. If A/C, must include instructions about efficient O&M for A/C system and operation of programmable thermostats. (See User Guide for minimum requirements.)
- ☐ (★) 5-2. Owners provided with information about maintaining their outdoor landscaping using "green" techniques. (See User Guide for minimum requirements.)
- ☐ (2) 5-3. Provide a list of Energy Star appliances for those not installed.
- ☐ (2) 5-4. Provide a laundry line. (If indoors, e.g. garage, MUST PROVIDE ADEQUATE VENTILATION.)
- ☐ (2) 5-5. Recycling center with two or more bins included in or near kitchen (can be outdoors).
- ☐ (2) 5-6. Build a lockable storage closet for hazardous cleaning & maintenance products, separate from occupied space
- ☐ (3) 5-7. Furnish three compact fluorescent light bulbs to owners (encouraged if installing screw-in compacts)
- ☐ (3) 5-8. Conduct consumer orientation during final walk-through (point out BUILTGREEN™ features, how to maintain them, operate them.)
- ☐ (2) 5-9. Builder's own idea for education and encouraging consumers to take care of their home in an environmentally friendly way.

_____ Subtotal for Section 5

Rating Information

Developer/Builder _____

Project _____

Home location _____

Total Points for Home _____

Program Level Obtained:

☐ 1-Star ★ ☐ 2-Star ★★ ☐ 3-Star ★★★

(*See front of checklist for qualifying requirements)*

By my signature, I certify that I have performed all Action Items checked above:

_____

(Home Builder Signature and Date)