Green Home Survey Form

**2010**

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|  |  |
| --- | --- |
| Client Type | [ ] Resident [ ] Workplace |
| Client Name |  |
| Contact Name  (if different) |  |
| Business or Organization Name |  |
| Address 1 |  |
| Address 2 |  |
| City |  |
| State |  |
| Phone (landline) |  |
| Phone (cellular) |  |
| Property Address (if different from above) |  |
| Address 2 |  |
| City |  |
| State |  |
| Zip |  |
| Date of Survey |  |
| Time of Survey |  |
| Survey Conducted By |  |
| Clients Present During the Survey |  |

# 1. GENERAL HOME ISSUES

* 1. When was the home built?

1.2 What style home is it?

1. Conventional ranch: all bedrooms on one side of the house
2. 1 ½ story, Cape Code, Farm Ranch: master suite is on the first floor
3. Two-story
4. Multi-level, split-level, split-foyer, other hybrid
5. Other

1.3 What is the approximate square footage of the living area?

1.4 Are there any vaulted ceilings? Where?

1.5 Are there any ceiling fans? Where?

1.6 What is the exterior composition of the house?

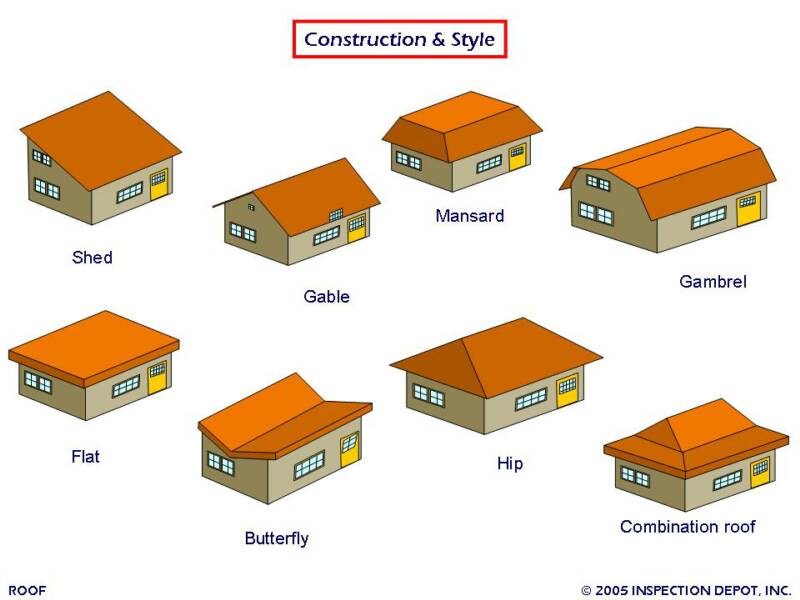
1. Clapboard or other wood siding
2. Sheet siding: plywood, hardboard, oriented strand board
3. Synthetic siding: vinyl, aluminum, steel
4. Wood shingles
5. Masonry veneers
6. stucco

1.7 Is there a chimney?

1.8 Where are the fireplaces in the interior of the house?

1.9 List all fuel types that can be used in the fireplace:

1.10 What style of roof does the house have? Circle one.



What type of material is used for the roof?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Composition shingles:** | **Wood shakes** | **Clay tile:** | **Slate:** | **Concrete tile:** | **Metal:** |
| Dimintial shingles | red cedar shakes | Clay tile | roofing slate | Concrete tile | Metal roofing |
| **Engineered rubber or plastic** | **Eco-roof** |  |  |  |  |
| (no picture available) | (no picture available) |  |  |  |  |

1.11 What motivates the homeowner for a Green Home Survey?

1. Concern about utility costs: electricity/natural gas/other
2. Add value to home (planning re-sale)
3. Drafty or otherwise uneven temperatures in rooms
4. Desire to reduce carbon footprint
5. Interest in renewable energy
6. General home improvement (not planning re-sale)
7. Room addition or structural design changes
8. Water leak or other damage
9. Other

1.12 How many rooms are in the house? What are the dimensions of each?

Living areas: #\_\_\_\_\_\_\_\_ Size(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Kitchen: #\_\_\_\_\_\_ Size(s):

Bedrooms: #\_\_\_\_\_\_\_ Sizes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Bathrooms: #\_\_\_\_\_\_\_ Sizes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dedicated Laundry Room: #\_\_\_\_\_ Size(s): \_\_\_\_\_\_\_\_\_

Additional rooms: # \_\_\_\_\_\_ Size(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1.13 How many windows are in each room and what is the window area on north/east/west and south walls?

Living areas: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

Kitchen: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

Bedrooms: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

Bathrooms: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

Dedicated Laundry Room: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

Additional rooms: #\_\_\_\_\_\_\_\_ N/E/W window area: \_\_\_\_\_\_\_\_\_ South-facing window area

1.14 Describe any particular architectural or design features of each:

Living Room:

Kitchen:

Bedroom(s):

|  |  |
| --- | --- |
| Bedroom # | Description |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Bathroom(s):

|  |  |
| --- | --- |
| Bathroom | Description |
|  |  |
|  |  |
|  |  |

Laundry Room:

Additional Rooms:

1.15 Describe the wall covering, floor covering and window covering in each room:

|  |  |  |  |
| --- | --- | --- | --- |
| Room | Wall Covering | Floor Covering | Window Covering |
| Living room |  |  |  |
| Den/Family room |  |  |  |
| Finished basement |  |  |  |
| Second living room |  |  |  |
| Dining room |  |  |  |
| Kitchen |  |  |  |
| Second kitchen |  |  |  |
| Bedroom #1 |  |  |  |
| Bedroom #2 |  |  |  |
| Bedroom #3 |  |  |  |
| Bedroom #4 |  |  |  |
| Bedroom #5 |  |  |  |
| Additional bedrooms |  |  |  |
| Bathroom #1 |  |  |  |
| Bathroom #2 |  |  |  |
| Bathroom #3 |  |  |  |
| Laundry room: |  |  |  |
| Additional room: |  |  |  |
| Additional room: |  |  |  |
| Finished basement: |  |  |  |
| Finished attic: |  |  |  |
| Finished patio room: |  |  |  |

1.16 Does the homeowner have any particular complaint about any room? Explain.

(For example, is any room hotter or colder, more difficult to heat or cool, more humid or drier? Does any room need dusting more frequently? Is it difficult to breathe in any room? Is any room poorly lit, have dry wall or ceiling problems, or have any water leakage? Is there any complaint about any room or part of the house?)

# 2. HEATING & COOLING

2.1 Is there central heating?

2.2 In the absence of a central system, which rooms have individual heating systems/units, and what type?

2.3 If there is a central heating system, what type is it? When was it installed?

1. Forced air – natural gas
2. Forced air – electric
3. Forced air – other \_\_\_\_\_\_\_\_
4. Heat pump, type \_\_\_\_\_\_\_\_\_
5. Radiant heating \_\_\_\_\_\_\_\_\_
6. Direct vent heating or conventional radiator \_\_\_\_\_\_\_\_
7. Wood stove
8. Solar
9. Biomass
10. Other \_\_\_\_\_\_\_\_\_\_\_\_\_

2.4 Does the heating unit have the following? Are they cleaned, oiled (if applicable), well maintained, and in working order?

1. Filter: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Fan: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Motor: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Ignition device or pilot light: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Vents/flue: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Blower door snug: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Thermostat in working order: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. Compressor/coils: yes or no\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
9. Fuel exchanger: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Hot water tank or tubes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Baffle, joint, gaskets (wood stove): yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Catalytic converter (wood stove): yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Control panels or doors: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. Solar cells or panels on the roof or exterior wall: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of last service: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of last filter change: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Frequency of filter change: \_\_\_\_\_\_\_\_\_\_\_\_

Does the unit turn on properly? \_\_\_\_\_\_\_\_\_

Is there any problem with the circuit breaker or fuses?

If there is a natural gas flame, does it burn blue and evenly or orange and erratically?

Are there any obvious problems with the plenum, vents, or ducts? Are there any holes? Is insulation needed?

Are there any clogged hoses or signs of condensation or standing water?

2.5 If there is duct work, has it ever been professional cleaned? When?

2.6 Has the system ever failed?

a. When?

b. What did the homeowner do?

c. What was the problem?

2.7 Is there central cooling?

2.8 In the absence of a central system, which rooms have individual cooling systems/units,   
and what type?

2.9 If there is a central cooling system, what type is it? When was it installed?

1. Whole house fan
2. Forced air – natural gas
3. Forced air – electric
4. Forced air – other \_\_\_\_\_\_\_\_
5. Heat pump, type \_\_\_\_\_\_\_\_\_
6. Radiant \_\_\_\_\_\_\_\_\_
7. Solar
8. Biomass
9. Other \_\_\_\_\_\_\_\_\_\_\_\_\_

2.10 Does the cooling unit have the following? Are they cleaned, oiled (if applicable), well maintained, and in working order?

1. Filter: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Fan: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Motor: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Ignition device or pilot light: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. Vents/flue: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Blower door snug: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
7. Thermostat in working order: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
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9. Fuel exchanger: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. Hot water tank or tubes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Baffle, joint, gaskets (wood stove): yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
12. Catalytic converter (wood stove): yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
13. Control panels or doors: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
14. Solar cells or panels on the roof or exterior wall: yes or no \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of last service: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of last filter change: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Frequency of filter change: \_\_\_\_\_\_\_\_\_\_\_\_

Does the unit turn on properly: \_\_\_\_\_\_\_\_\_

Is there any problem with the circuit breaker or fuses?

If there is a natural gas flame, does it burn blue and evenly or orange and erratically?

2.11 Are there any obvious problems with the plenum, vents, or ducts? Are there any holes? Is insulation needed?

2.12 Are there any clogged hoses or signs of condensation or standing water?

2.13 If there is duct work, has it ever been professional cleaned? When?

2.14 Has the system ever failed?

a. When?

b. What did the homeowner do?

c. What was the problem?

# 3. HEATING & COOLING PRACTICES

* 1. What is the generally desired temperature during the day?

3.2 What is the generally desired temperature at night?

3.3 How frequently does the heater kick on during an hour?

3.4 How long does it take to warm the house to the desired temperature?

3.5 How frequently does the air conditioner kick on during an hour?

3.6 How long does it take to cool the house to the desired temperature?

3.7 Does the house have a programmable thermostat?

3.8 At what temperatures is the thermostat set?

3.9 How many people adjust the settings on the thermostat?

3.10 Does anyone frequently turn the thermostat on and then off again when the desired temperature is reached?

3.11 Are any windows or doors open when the heater or air conditioner is running?

3.12 Does anyone frequently enter and leave the house when the heater or air conditioner is running?

3.13 Are temperature controls adjusted in lengthy absences?

# 4. THERMOSTAT

4.1 What type of thermostat does the home have?

4.2 Do all people who operate the thermostat know how it functions?

4.3 Before checking the thermostat, turn off power to the circuit. If it fails to disconnect, replace it.

4.4 Remove the thermostat base from the wall and fill the hole with insulation or caulk. Air coming through any holes can throw off the functioning of the thermostat.

4.5 Pull off the outer cover of the thermostat and clean dust from the bimetal coil with a soft brush. Turn the dial and clean thoroughly with the brush.

4.6 Remove the screws holding the thermostat body. Gently pull back on the fan control level; slip a piece of white band paper back and forth to clean behind the lever. Do the same for any and all levers.

4.7 Make sure the thermostat is level. Hold a level or weighted string in front of the thermostat to determine if the two alignment marks line up. If they do not, remove the mounting screws, realign the thermostat and drive in new screws (the old ones may be stripped and not holding the thermostat level).

4.8 If the homeowner does not have a programmable thermostat, introduce them to the advantages of one.

# 5. VENTILATION & INDOOR AIR QUALITY

5.1 Does the air in the house feel and smell fresh? Or, is the air stale?

5.2 Are exhaust fans used and how long are they allowed to run?

* 1. Are vents clean or is there sign of dust and debris on them?

5.4 Are combustion appliances vented to the outdoors?

5.5 Does anyone feel sick, congested or excessively sleepy after an extended time in the house?

5.6 Does being in the house make anyone wheeze?

5.7 Do you or family members feel noticeably better when you leave the house?

5.8 Does anyone smoke in the house?

5.9 Is anyone in the house concerned about carbon monoxide, radon or other pollutants?

5.10 Is a humidifier used? Has it been cleaned or could it be producing mold?

5.11 Are there any obvious, visible signs of mold or moisture in the house?

# 6. INTEGRITY OF THE THERMAL ENVELOPE

6.1 Are all seams between the house and window or door moldings sealed with caulk?

6.2 Do all windows have weatherstripping on the tops, bottoms, and sides? (If there are double-hung windows, do they have weatherstripping between the sashes?)

6.3 Is all weatherstripping around the windows in good condition and performing as intended?

6.4 Do all doors have weatherstripping on the top, bottom, and sides? Is the material in good condition and performing as intended?

6.5 Are there any broken or loose window panes? Are there any cracks around windows or doors that should have putty inserted to close gaps?

6.6 Are there any storm windows and are they in good condition?

6.7 Do doors have sweeps across the bottom to prevent air leakage at the thresholds?

6.8 Inspect around the foundation and exterior of the house. Pay particular attention to plumbing, gas pipes, wiring, utility entry points, telephone lines, cables. Are there any openings that can be filled with caulk or foam insulation?

6.9 Feel around fireplaces, built in bookshelves, around switch plates and plugs. Is there any air?

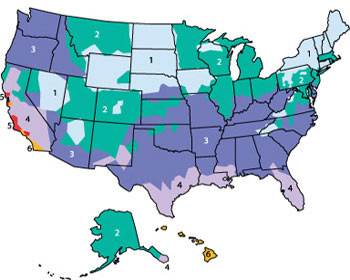
6.10 Have insulated outlet gaskets been installed? Are they in good condition?

6.11 Does the house seem reasonably cool in the summer and warm in the winter?  
 Yes or no. Explain.

6.12 Are there any rooms that are more easily penetrated by sound through the walls, floor, or ceiling?

# 7. INSULATION

Note: Recommended R-Values for Insulation vary by Climate Zone. See map and chart below.



http://sutherlands.com/resources/insulation\_zones.php

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Zone 1 | Zone 2 | Zone 3 | Zone 4 | Zone 5 | Zone 6 |
| Attic | R-49 | R-49 | R-49 | R-38 | R-38 | R-38 |
| Cathedral  Ceiling | R-38 | R-38 | R-38 | R-38 | R-38 | R-30 |
| Wall | R-18 | R-18 | R-18 | R-13 | R-13 | R-13 |
| Floor | R-25 | R-25 | R-25 | R-13 | R-13 | R-11 |
| Crawlspace | R-19 | R-19 | R-19 | R-19 | R-19 | R-13 |
| Slab Edge | R-8 | R-8 | R-8 | R-4 | R-4 | R-4 |
| Basement  Interior | R-11 | R-11 | R-11 | R-11 | R-11 | R-11 |
| Basement  Exterior | R-10 | R-10 | R-10 | R-4 | R-4 | R-4 |

**R-Values as Determined by Inches of Insulation for Most Common Insulation Types:**

**Fiberglass Insulation Molded Expanded Polystyrene Extruded Polystyrene**

**R-13 3.5 inches R-4 1 inch R-5 1 inch**

**R-21 5.25 inches R-6 1.5 inches R-10 2 inches**

**R-25 7.25 inches R-8 2 inches**

**R-30 10 inches**

**R-38 12 inches**

**Polyurethane and Polyisocyanurate Cellulose Reflective**

**R-7 to R-8 1 inch R-3.4 to R-3.8 1 inch Reflects up to 97% of radiated heat**

**R-values of 1.1 to 18, depending on**

**installation location and method**

7.1 Inspect the Homeowner’s House for Insulation; Inserted Recommended Level; Describe the Type of Insulation in Each Location, the Number of Inches, and Also Describe the Condition of the Material and Installation.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Zone\_\_\_  Recommended  R-Values | Insulation Type  Number of Inches | Description of the Material’s Condition  And the Quality of Installation (gaps, etc.) |
| Attic |  |  |  |
| Cathedral  Ceiling |  |  |  |
| Wall |  |  |  |
| Floor |  |  |  |
| Crawlspace |  |  |  |
| Slab Edge |  |  |  |
| Basement  Interior |  |  |  |
| Basement  Exterior |  |  |  |

Using the diagram below to ensure that all possible locations of insulation in the home have been inspected.

http://www.oldhouseweb.com/how-to-advice/insulation-the-facts-part-2.shtml

|  |
| --- |
| house insulation |
| 1. In unfinished attic spaces, insulate between and over the floor joists to seal off living spaces below.\* 1A attic access door 2. In finished attic rooms with or without dormer, insulate ... 2A between the studs of "knee" walls; 2B between the studs and rafters of exterior walls and roof; 2C ceilings with cold spaces above; 2D extend insulation into joist space to reduce air flows. 3. All exterior walls, including ... 3A walls between living spaces and unheated garages, shed roofs, or storage areas; 3B foundation walls above ground level; 3C foundation walls in heated basements, full wall either interior or exterior. 4. Floors above cold spaces, such as vented craw spaces and unheated garages. Also insulate ... 4A any portion of the floor in a room that is cantilevered beyond the exterior wall below; 4B slab floors built directly on the ground;\*\* 4C as an alternative to floor insulation, foundation walls of un-vented crawl spaces; 4D extend insulation into joist space to reduce air flows. 5. Band joists. 6. Replacement or storm windows and caulk and seal around all windows and doors. |

# 8. DOORS & WINDOWS

8.1 Inspect all exterior doors for material composition, condition, and integrity. Ask the homeowner if there is any consideration being given to replacing any doors that are not of optimal R-values.

8.2 Are there any installation problems? Is the door hung improperly or has it settled or moved?

8.3 Is there a sliding glass door? What kind of frame and design? Can you feel air loss around the door or see gaps?

8.4 Inspect any glass inserts for gaps, cracks or air leakage. Does caulking need to be inserted or repairs need to be made?

8.5 Are the windows single-pane, double-pane, or tripled paned?

8.6 Do the windows have any glazing on the glass?

8.7 Does the homeowner have any interest in updating the glass in the windows with better energy efficiency values (U-factor, visible transmission, air leakage, and solar heat gain coefficient).

8.8 What kinds of window covering are there? For example, are there thermal drapes? Do they cover the windows completely?

8.9 Calculate the area of the windows as a percentage of room area for the north-west and east sides of the house. Calculate the south side of the house separately. In the first instance, window area should be no more than 8% to 9% of floor area. In the instance of the south wall, window area can be up to 12% of wall area.

8.10 Determine how many of each kind of window is in each room (double-hung, fixed, casement) and whether they are in good working condition. Are there any broken parts on the windows? Are there any visible gaps?

# 9. APPLIANCES

9.1 Circle which appliances are present in the home. Note the age of the appliance, whether it is satisfactorily operational in the homeowner’s view and how frequently it is used. Also note if it is an EnergyStar appliance and whether the homeowner has any plans to replace each appliance within the next year.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Appliance-Fuel Source | Age | Operation  Good-Poor-None | Frequency  of Use | Energy Star? | Replace w/in 12 months? | Regular maintenance/cleaning? Last service or malfunction? |
| Range/Oven - |  |  |  |  |  |  |
| Cook Top - |  |  |  |  |  |  |
| Microwave - |  |  |  |  |  |  |
| Refrigerator - |  |  |  |  |  |  |
| Icemaker - |  |  |  |  |  |  |
| Frig front dispenser |  |  |  |  |  |  |
| Freezer - |  |  |  |  |  |  |
| Dishwasher - |  |  |  |  |  |  |
| Trash Compactor - |  |  |  |  |  |  |
| Garbage disposal - |  |  |  |  |  |  |
| Clothes washer - |  |  |  |  |  |  |
| Clothes dryer - |  |  |  |  |  |  |
| Other |  |  |  |  |  |  |

9.2 Range/Oven/Cook Top:

a. Do all heating elements work?

b. Does the fan work?

c. Does the door close fully and properly?

d. Does the thermostat work? (Test heating temperature)

e. Is the range/oven cleaned regularly?

9.3 Refrigerator:

a. Is the circuit breaker in working order?

b. Is the plug in undamaged condition?

c. Is the compressor running smoothly?

d. Is there on each side of the refrigerator?

e. Have the homeowner check evaporator coils to make sure they aren’t iced up. (This requires emptying the refrigerator, turning off the unit for 24 hours with the freezer door open. If it cools properly after restarting, the defroster is defective.)

f. Check condenser coils to make sure they are free of dust. (Remove kick panel and clean coils with a refrigerator brush.)

h. What temperature is the refrigerator set at? The freezer? Can they be adjusted downward?

9.4 Dishwasher:

a. Discuss how the household uses the dishwasher (fullness of loads, pre-rinsing, water temperature, heat dry).

b. Stop the dishwasher mid-cycle and test the temperature. It should be 140 degrees F.

9.5 Garbage disposer:

a. If water backs up even though the disposal is running, the problem is in the drain pipe, not the disposer.

9.6 Clothes washer/dryer:

a. Discuss energy-efficient practices such as washing with cold water, washing and drying full loads, and ensuring that filters and vents are cleaned each time.

9.7 In Module 7, you learned the Top Ten electricity users in the average house. Share this list with the customer.

|  |
| --- |
| Top 10 Electricity Uses\* |
| 1. Pool/spa heater |
| 1. Pool filter/pump |
| 1. Refrigerator |
| 1. Freezer |
| 1. Clothes dryer |
| 1. Waterbed heater |
| 1. Room air conditioner |
| 1. Lighting |
| 1. Heated aquarium |
| 1. Electric range top |

\*excluding central space heating, central air conditioning, and water heating – the largest electricity users

9.8 Emphasize the following points to the homeowner about general appliance use:

1. If your appliances are more than two or three years old, and you can afford to, you may wish to check into new Energy Star models because many advances have been made in energy/water efficiency.
2. Regular maintenance is critical not just for efficiency but for preserving your appliances and getting a long and useful life from them. Make sure to change filters, clean coils and other maintenance steps.
3. Instruct all household members on how to use appliances efficiently. Even a child can learn good habits; once learned, those habits can follow a person for a lifetime.

# 10. HOME ELECTRONICS

10.1 Explain to the customer that “phantom load”—the fact that certain appliances and electronic equipment still consume electricity when not actively being used—is a growing concern in technology-savvy homes. If you have an inexpensive ($30) energy monitor or more expensive whole house monitor, you can calculate precise electrical use per device per hour for the customer. But, if not, you can still present the following highlights.

**Phantom Load:** The following devices are known to still use electricity when still plugged in but not actively in use. Phantom energy use can cost around $200 per year in lost energy, or more for the household with more electronic equipment. This is energy use when the household is not actively using the device or appliance. The total cost nationwide in the United States is $3 billion per year, according to the U.S. Department of Energy.

10.2 Check which phantom energy users the household has and how many of each:

|  |  |  |
| --- | --- | --- |
| **Phantom Energy Using Device** | **#** | **Notes** |
| Cable box |  |  |
| Satellite dish |  |  |
| Stereo-sound system |  |  |
| Video cassette recorder |  |  |
| DVD |  |  |
| Computer |  |  |
| Computer printer |  |  |
| Cable modem/DSL |  |  |
| Television |  |  |
| TIVO |  |  |
| Cell phone charger (plugged in) |  |  |
| Microwave |  |  |
| Coffee pot |  |  |

Of course, there is no way to avoid devices with digital clocks continuing to use electricity; if you shut them off, you will have to re-set the clock each time. However, all other devices should be unplugged when not in use. Devices in close proximity can be plugged into a multi-outlet power strip (or to protect your devices, make sure to get a surge protector); then several devices can be shut off when not in use with just one switch.

# 11. LIGHTING

11.1 Following are the major considerations for lighting for the living areas indoors and for outdoor applications.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Living Area | Lighting Function | Type of Bulb/Wattage | Is a Motion Sensor, Timer or Dimmer Switch an Option | Usage Frequency; Use Modification |
| Kitchen | Task Lighting (Can or Track Lights) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Kitchen | Ambient (overhead/general “daylight” lighting) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Kitchen | In-Between Lighting (over sink, pendant) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Dining Room | Pinpoint/Mood/Art Lighting (Track or Can Lighting) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Living Area | Lighting Function | Type of Bulb/Wattage | Is a Motion Sensor, Timer or Dimmer Switch an Option | Usage Frequency; Use Modification |
| Dining | Ambient (overhead/general “daylight” lighting) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Dining | In-between lighting (pendant) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Living Room | Ambient (overhead/general “daylight” lighting) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Living Room | Task Lighting (Reading) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Living Room | Accent/Mood/Art Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #1 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #1 | Mirror Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #1 | Overhead Shower |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Living Area | Lighting Function | Type of Bulb/Wattage | Is a Motion Sensor, Timer or Dimmer Switch an Option | Usage Frequency; Use Modification |
| Bathroom #2 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #2 | Mirror Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #2 | Overhead Shower |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #3 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #3 | Mirror Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bathroom #3 | Overhead Shower |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #1 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #1 | Task Lighting (Reading/Studying) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #1 | Accent/Mood/Art Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #1 | Other Purpose? |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Living Area | Lighting Function | Type of Bulb/Wattage | Is a Motion Sensor, Timer or Dimmer Switch an Option | Usage Frequency; Use Modification |
| Bedroom #2 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #2 | Task Lighting (Reading/Studying) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #2 | Accent/Mood/Art Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #2 | Other Purpose? |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| Bedroom #3 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #3 | Task Lighting (Reading/Studying) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #3 | Accent/Mood/Art Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #3 | Other Purpose? |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| Bedroom #4 | Ambient (Overhead) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #4 | Task Lighting (Reading/Studying) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Living Area | Lighting Function | Type of Bulb/Wattage | Is a Motion Sensor, Timer or Dimmer Switch an Option | Usage Frequency; Use Modification |
| Bedroom #4 | Accent/Mood/Art Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Bedroom #4 | Other Purpose? |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| Outdoors (Front Yard) | “Safety” Lighting (or at night) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Outdoors (Front Yard) | Decorative Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| Outdoors (Front Yard) | Special Purpose, Flood Lights |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Outdoors (Back Yard) | “Safety” Lighting (or at night) |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |
| Outdoors (Back Yard) | Decorative Lighting |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| Outdoors (Back Yard) | Special Purpose, Flood Lights |  |  |  |
| 1. |  |  |  |  |
| 2. |  |  |  |  |
| 3. |  |  |  |  |
| 4. |  |  |  |  |

11.2 Discuss with the Homeowner:

1. The need to use Energy Saver Compact Fluorescent Lamps or Lighting (CFL) in all possible instances because of the significant energy savings presented. Discuss the various CFLs (three-way, dimmable, A-line, post, and spiral) that can last 6 times, 8 times, or 16 times longer than a standard A-line bulb.
2. Discuss how “purpose-driven” lighting and installing a variety of purposed lighting options can make more strategic use of lighting energy (example: use a single task light rather than a more diffuse overhead or ambient light).
3. Discuss how behavior modification (shutting out lights when not in use, using dimmer switches or three-way bulbs) is fundamental to reducing energy usage in lighting applications.

# 12. WATER HEATING

12.1 What type of water heater does the home have?

1. Conventional (this is what most will have) \_\_\_\_\_
2. Demand water heater (tankless/hot water on demand) \_\_\_\_\_
3. Heat pump \_\_\_\_\_
4. Solar water heater \_\_\_\_\_
5. Tankless coil and indirect water heater (space heating system heats water) \_\_\_\_\_

12.2 How old is the water heater?

12.3 If the water heater is conventional, what size is the tank?

12.4 Why did the homeowner select this size water heater?

12.5 Or is this the original water heater in the house?

12.6 Is the water heater an Energy Star model?

12.7 Does the water heater tank have an R-value of R-24 or better?

12.8 If the value is less than R-24, the water heater should have an insulation blanket to reduce standby heat loss.

12.9 Is the water heater set at a temperature between 120 degrees F and 130 degrees F (for natural gas water heaters, use a thermometer to gauge the temperature of water from the tank).

12.10 How large is the family’s need for hot water and is the family satisfied with the current water heater?

1. How many showers are taken daily? How long are the showers?
2. How many baths are taken daily?
3. How many loads of clothes are washed? Do all loads have to be washed on warm or hot?
4. How many loads of dishes are washed in the washer or in the sink?
5. Are there any leaking pipes that might cause excessive hot water use?
6. Might a smaller water heater tank serve the family’s needs just as well? For a family of four in a home with two full bathrooms, a washing machine, and a dishwasher, a water heater tank (electric) from 50 gallons to 80 gallons with a 5,500-watt heating element is recommended. A family of five under all the same circumstances should have a 65 gallon to 80 gallon water heater tank. A family of four with a gas water heater should have a 50-gallon tank with a 40,000-Btu burner; a family of six should have a 50-to-75 gallon tank and a 40,000-Btu burner.

12.11 Dirt and sediment can collect in the bottom of the water heater tank and reduce the appliance’s efficiency. One a year, the tank should be drained and re-filled. Has this been done once per year? Has it ever been done?

Here are instructions:

http://www.diynetwork.com/how-to/how-to-drain-a-water-heater/index.html OR

http://www.instructables.com/id/Water\_Heater\_Maintenance/

Lowe’s advises checking the pressure release value every six months. To do this:

1. Turn off the electricity to the water heater or turn the gas switch to pilot.
2. Shut off the cold water inlet to the water heater.
3. Position the bucket to catch water from the pressure relief valve.
4. Pull the trip lever on the valve. You should hear a slight rush of air or see some water and vapor exit through the pressure relief valve. If you don't, drain the tank and replace the valve.

# 13. WATER CONSUMPTION

13.1 Check for any signs of leaks (puddles, moisture on floors or around cabinets)

13.2 Is caulking in good condition around tubs, toilets and showers, or should it be replaced?

13.3 How many sinks are there in the house?

a. How many sinks have low flow (aerating or non-aerating) faucets?

b. How many do not?

13.4 How many showers are there in the house?

a. How many showers have low-flow (aerating or non-aerating) showerheads?

b. How many do not?

13.5 How many toilets are there in the house?

a. How many toilets are of the low-flow type?

b. How many are not?

13.6 Is there any water leakage around the base of the toilet? The wax ring may need replaced.

13.7 If the toilet runs continuously, the clip on the float cup may need adjusted or the flapper may need replaced. The chapter on plumbing in “How Your House Works,” by Charles Wing has a full array of descriptions for maintenance, along with many diagrams.

13.8 Outdoors, is the lawn watered?

* 1. Is there a sprinkler system?
  2. Is the sprinkler system in good condition?
  3. Is the sprinkler system on a timer?
  4. Has attention been given to landscaping that uses minimal water and mulch that holds moisture in? Are trees and plants used to shade the home?

13.9 What other uses of water are made outdoors? Is there a pool? If there is a pool and a pool heater, does the homeowner know how it functions and is it turned down or off when not in use (daily/seasonally)?

13.10 Can cars be washed at a local car wash instead of in the drive way?

13.11 Are hoses and outdoor spigots in working order so there are no leaks? Are they turned off efficiently?

# 14. UTILITY BILL CONSIDERATIONS

14.1 If the homeowner was motivated to seek a Green Home Survey by concern about utility bills, ask if the customer has all utility bills (or amounts paid) to each energy and water utility over the last year and would be willing to work with you to monitor utility bills over the next year as recommendations resulting from the Green Home Survey are implemented.

14.2 If the homeowner is supportive of this approach, offer to provide a brief “lesson” to members explaining the results of the Green Home Survey to all household members, including recommendations and any need for behavior modification.

14.3 Utility bills—and the various charges they include—vary by locality (city, state, and nation). Most utility public information or public relations offices can provide a schematic or other type of brief explanation of the charges on the standard utility bill for your use in discussing utility bills with the customer as monitoring proceeds over the next year. Offer to provide an update to the household on its progress at six-month intervals.