In the United States, buildings account for:

- 39% of total energy use
- 12% of total water consumption
- 68% of total electricity consumption
- 38% of the carbon dioxide emissions

-Environmental Protection Agency
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Living an Audubon Lifestyle

What does living an Audubon Lifestyle mean? It actually means different things do different people, but it is based in caring about the environment, wildlife and enjoying activities that many times, outside, with other people that have similar interests and fun!

It can include learning about products that you may purchase that were manufactured in ways that are not harmful to the environment. It may include using these purchases in and around your home so that you actually help the environment and save money at the same time!

It might include a range of hobbies that you and your entire family can participate in and enjoy. How does nature photography sound? How about hiking, canoeing, bird watching? Maybe gardening for the beauty of your landscape and helping butterflies and hummingbirds at the same time is something that is interesting to you.

Start your own Audubon Lifestyles “blog” and keep a journal about your activities, hobbies and accomplishments for family and friends to keep up with all that you are involved with. Why not adopt a local elementary school and help both the teachers and students to learn about wildlife conservation and maybe even plant some habitat around the school property.

Of course participating in an Audubon Lifestyle means being involved in your community. Maybe you can become involved in the Homeowners Association. You can find out about your local elected officials and municipal programs for things such as recycling, community planning, public land acquisition, the arts and other activities that include opportunities for public participation. How about running for the School Board, or the Planning Board, the City or County Council…why not run for Mayor!

The thing about an Audubon Lifestyle is that it can be as private as you want, or as public as you want it to be. We are all busy with work, family responsibilities and other duties. Some people may think that participation in an Audubon Lifestyle means having to be a bird watcher, or go to evening meetings to discuss environmental issues. While those activities are part of an Audubon Lifestyle if you choose to become engaged in those activities, they may not be as important as you just thinking about the purchases that you make on a regular basis, and deciding to purchase products for your use that are less harmful for the environment than other products that you might decide to purchase and use.

How much “waste” is generated in your home every week? An Audubon Lifestyle will strive to minimize the amount of waste materials that must be disposed of each week. An Audubon Lifestyle will focus on not thinking about these materials as waste at all. Reduce, Reuse and Recycle are key words in an Audubon Lifestyle. Remember…the elegant way to manage
Site Stewardship

Resource-efficient site design and development practices help reduce the environmental impacts and improve the energy performance of new housing. For instance, site design principles such as saving trees, constructing onsite storm water retention/infiltration features, and orienting houses to maximize passive solar heating and cooling are basic processes used in the design and construction of green homes.

Energy Efficiency
Energy consumption has far-reaching environmental impacts: from the mining of fossil-fuel energy sources to the environmental emissions from burning non-renewable energy sources. And each home consumes energy year after year, meaning that the environmental impacts associated with that use accrue over time. Therefore, energy efficiency is weighted heavily in a green building program.
No matter what the climate, energy efficiency is considered a priority in most existing green building guidelines/programs. Moreover, as the cost to heat and cool a home becomes more unpredictable, it is advantageous to every homeowner to be “insulated” from inevitable utility bill increases. As with all aspects of these guidelines, the greatest improvements result from a “whole systems” approach. Energy performance does not end with increased R-values, the use of renewable energy, and/or more efficient HVAC equipment. Rather, there needs to be a balance between these features and careful window selection, building envelope air sealing, duct sealing, and proper placement of air and vapor barriers from foundation to attic to create a truly high-performance, energy efficient home that is less expensive to operate and more comfortable to live in than a conventionally constructed home.

Materials
Most successful green homes started with the consideration of the environment at the design phase—the time at which material selection occurs. Creating resource efficient designs and using resource efficient materials can maximize function while optimizing the use of natural resources. For instance, engineered wood products can help optimize resources by using materials in which more than 50% more of the log is converted into structural lumber than conventional dimensional lumber.

Resource efficiency is also about reducing job-site waste. Invariably, there are leftover materials from the construction process. Developing and implementing a construction waste management plan helps to reduce the quantity of landfill material.

Lastly, basing the selection of building materials on their environmental impact can be tricky. For instance, a product might be renewable, but on the other hand it takes a relatively great amount of energy to transport the product to a project’s job site. When thinking about purchasing products look at its full life-cycle through six basic steps:

1. Raw material acquisition,
2. Product manufacturing process,
3. Home building process,
4. Home maintenance and operation,
5. Home demolition, and
6. Product reuse, recycling, or disposal.
Indoor Air Quality
Healthy indoor environments attract many people to green building. After energy efficiency, the quality of a home’s indoor air is often cited as the most important feature of green homes.

An increase in reported allergies and respiratory ailments and the use of chemicals that can off-gas from building materials have contributed to a heightened awareness of the air we breathe inside our homes. There are measures that can mitigate the effects of potential contaminants including controlling the source, diluting the source, and capturing the source through filtration.

Water Efficiency
The mean per capita indoor daily water use in today’s homes is slightly over 64 gallons. Implementing water conservation measures can reduce usage to fewer than 45 gallons. For this reason, green homes are especially welcomed in areas affected by long- and short-term drought conditions. Choices between sending water to growing urban areas and making water available for irrigation highlight the issues surrounding the scarcity of this valuable resource. Green homes often conserve water both indoors and out. More efficient water delivery systems indoors and native and drought-resistant landscaping choices outdoors can help prevent unnecessary waste of valuable water resources. Communities can obtain additional benefits when builders effectively use native species in landscaping.

Maintenance
Your home is an investment in living as well as in savings. If properly maintained and improved, it will pay a high yield in comfort and usefulness for your family and reduce costly repairs. Early attention to repairs will help you avoid a larger expense later on. A home that is maintained regularly will help minimize problems and help to maintain a higher level of comfort. Go over every part of your home at least once a year. Check the roof, plumbing, HVAC, windows, etc.

Heating and cooling your home uses more energy than any other system in your house. According to the U.S. Department of Energy, heating and cooling typically accounts for 44% of your utility bill. A heating or cooling system that has not been tuned up for maximum efficiency runs longer, and can drive fuel costs up significantly.
What does sustainable landscaping mean? There are varying definitions but sustainable landscaping should include an attractive environment that is in balance with the local climate and requires minimal resource inputs, such as fertilizer, pesticides and water. Sustainable landscaping begins with an appropriate design that includes functional, cost efficient, visually pleasing, environmentally friendly and maintainable areas.

There are short-term as well as long-term goals for a sustainable landscape. For example, a short-term goal may include saving water or implementing and using a compost bin. Composting locally grown crops and kitchen waste and returning it back to the garden increases the organic matter in the garden while recycling nutrients within the landscape.

A long-term goal may be to create a more self-sustaining garden. This includes all aspects of total plant health care, proper plant selection, reduced inputs and maintainability.
Landscape Lighting

Municipalities and other government agencies are moving toward decreasing light pollution. For example, the City of Boulder, Colorado approved an outdoor lighting ordinance that prevents light trespass, reduces light pollution (also known as sky glow), reduces excessive glare, promotes energy conservation, and improves safety and security, including addressing the special nighttime lighting needs of an aging population.

For these reasons, incorporate appropriate light schemes into the landscape. That means down lighting, rather than up lighting techniques must be used. One solution is to use solar garden lighting versus electric lighting. Solar lights are typically dimmer than other types of wired landscape lighting and they do not use consumable energy.
Soils, Composting and Fertilizers

Many organic yard waste materials can be composted including leaves, grass clippings, vegetable and flower plants and small amounts of woody material. Avoid material exposed to weed killers or systemic insecticides—they may not break down during the composting process. In addition, avoid plant material exposed to plant diseases unless the compost reaches a minimum temperature of 122 degrees F evenly throughout the pile. Remember, compost is a soil amendment, not a soil fertilizer.

Amending soils greatly depends on what is being planted. Native plants adapt to local soil conditions and do not greatly benefit from soil amendments. However, many non-native plants and natives establish quickly and develop a healthier root system with the addition of soil amendments.

Changing the structure on the top 8 to 12 inches of the soil is a slow process. Some organic material, such as grass clippings, decomposes quickly and does little to change soil structure. Other organic amendments like coarse grade sphagnum peat take years to decompose but add little nutritional value. Garden soil that offers good water retention and both oxygen and water permeability (loam texture) may take 10 or more years to create. Do not add too much organic matter too quickly or it can compound a soluble salt problem. Incorporate no more than 3 cubic yards of organic matter per 1,000 square feet per year.

Base fertilizer applications on a soil analysis and specific plant requirements. Many annual flowers or bedding plants and vegetables have a higher nitrogen and phosphorus requirement than herbaceous perennials, shrubs and trees. Some native plants can actually decline from too many applications of fertilizers.
Landscape Watering

- Early morning or night is the best time for watering to reduce evaporation.
- Lawns need about 1 inch of water each week. If the weather is very hot, apply an inch of water about every 3 days.

Irrigation
Prevent water loss through evaporation by using mulches. Add 3 to 4 inches around flower beds and under trees but avoid mounding mulch next to the trunk.

Group plants that have similar water requirements. If the plants in a grouping have different water requirements, the tendency is to accommodate those plants with a higher need. This practice negates any water saving benefit you might have achieved by planting the low-water plants.

Using technology to reduce water loss via evaporation or even poor design is also an important rule of sustainable landscaping. The homeowner may wish to consult with a certified irrigation technician or a certified landscape irrigation auditor and request a water audit of existing systems. Irrigation specialists can create appropriate designs using appropriate technology. For difficult-to-manage situations, consider drip or subsurface irrigation. If a system has been used for more than five years, newer technology is available including evapotranspiration (ET) controllers, soil sensors and refined control panels.

Even if the system is new, irrigation heads may need realignment and adjustment to prevent overspray onto the sidewalk or street. Sprinkler layout is important and the pattern of irrigation heads should be in triangles or squares. Irregular patterns will create dry areas interspersed with overly wet areas. Sustainable landscaping means using water appropriately and avoiding waste.
Air Infiltration

Air that transfers in and out of homes through cracks, crevices and holes can increase energy consumption. Here are some helpful tips to avoid air infiltration:

- Seal around pipe penetration coming through walls.
- During hot and cold weather, ensure windows are closed tightly and locked.
- Ensure weather-stripping around doors and windows is tight.
- When your fireplace is not operating, its flue should be closed tightly, with a sign hanging from the flue handle warning it is closed.
- Check the ceiling behind the cornice of built-in bookshelves for holes cut during construction.
- Drop-down, disappearing stairways should fit tightly into the ceiling and be carefully weather-stripped.
- Whole-house attic fans should be sealed tightly during the winter.
- Make sure your outside dryer vent door closes when the dryer is not in use. This requires cleaning away lint accumulation periodically.

Windows

A considerable amount of heat transfers through windows. If you have single-pane windows, consider doing the following:

- Tighten and weather-strip your old windows and then add storm windows.
- Compare the above cost with replacing your old single-glazed windows with new double-glazed windows.
- In colder climates “low-e” coatings on glass can help reduce heat loss through windows.
- In hot climates, consider adding solar screening to west-facing windows that catch a lot of heating late in the day. Solar screening is sold at many home improvement stores.

Insulation

- If you have R-19 or less insulation in your attic, consider bringing it up to R-38 in moderate climates, R-49 in cold climates.
- In cold climates, if you have R-11 or less floor insulation, consider bringing it up to R-25.
Compact Fluorescent Lighting

When you replace standard incandescent light bulbs with high-efficiency compact fluorescent bulbs, you can reduce your lighting costs by up to 75%. In addition, compact fluorescent bulbs can last up to 10 times longer than incandescent bulbs—about 10,000 hours—saving money on replacement costs as well.

Although compact fluorescent bulbs initially cost more than incandescent bulbs, they use less energy and last longer. The following chart shows the potential life-cycle savings when replacing a 75 Watt incandescent with a 20 Watt compact fluorescent. In this example, we’ve estimated that the compact fluorescent bulb lasts as long as 10 incandescent bulbs. Estimated savings over the 10-year life of the compact fluorescent bulb are more than $40.

Compact Fluorescent Screw-In Replacement Bulbs
The two-piece compact fluorescent has a bulb that plugs into a reusable screw-in ballast adapter. These ballasts have an average life of 45,000-50,000 hours.

One-piece compact fluorescents are sold as a complete bulb/ballast unit. When the bulb needs to be replaced, the entire unit must be replaced. However, these bulbs last about 10 times longer than standard incandescent bulbs.

Circline bulbs are fluorescent tubes in the shape of a circle. They can be screwed in to replace incandescent bulbs, and can be plugged into a reusable ballast or purchased as a one-piece unit.

<table>
<thead>
<tr>
<th>Incandescent</th>
<th>Compact Fluorescent</th>
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</thead>
<tbody>
<tr>
<td>60 Watts</td>
<td>15 Watts</td>
</tr>
<tr>
<td>75 Watts</td>
<td>20 Watts</td>
</tr>
<tr>
<td>90 Watts</td>
<td>23 Watts</td>
</tr>
<tr>
<td>100 Watts</td>
<td>28 Watts</td>
</tr>
</tbody>
</table>

* This comparison is an approximation. The actual lumens or light output may vary from bulb to bulb.

<table>
<thead>
<tr>
<th>Bulb</th>
<th>Retail cost</th>
<th>Annual Energy Cost per Bulb*</th>
<th>Total 10-year Energy Cost</th>
<th>Total Life-Cycles Cost**</th>
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</thead>
<tbody>
<tr>
<td>75 Watt incandescent</td>
<td>$7.50</td>
<td>$7.50</td>
<td>$75.00</td>
<td>$82.50</td>
</tr>
<tr>
<td>20 watt compact fluorescent</td>
<td>$3</td>
<td>$2.00</td>
<td>$20.00</td>
<td>$23.00</td>
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* Based on 1,000 hours of use per year at a cost of $0.10 per kWh of electricity
**Includes initial retail cost plus total 10-year energy cost
<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
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<tr>
<td>Annual Lupine</td>
<td>Lupinus bicolor</td>
</tr>
<tr>
<td>Beach Burr</td>
<td>Ambrosia chamissonis</td>
</tr>
<tr>
<td>Beach Primrose</td>
<td>Camissonia cheiranthifolia</td>
</tr>
<tr>
<td>Beach Strawberry</td>
<td>Fragaria chiloensis</td>
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<tr>
<td>Beeplant Figwort</td>
<td>Scrophularia californica</td>
</tr>
<tr>
<td>Bittercress</td>
<td>Cardamine oligosperma</td>
</tr>
<tr>
<td>Blue Toad Flax</td>
<td>Linaria canadensis</td>
</tr>
<tr>
<td>Bush Monkeyflower</td>
<td>Mimulus aurantiacus</td>
</tr>
<tr>
<td>California Blackberry</td>
<td>Rubus ursinus</td>
</tr>
<tr>
<td>California Croton</td>
<td>Croton californicus</td>
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<tr>
<td>California Figwort</td>
<td>Scrophularia californica</td>
</tr>
<tr>
<td>California Poppy</td>
<td>Eschscholzia californica</td>
</tr>
<tr>
<td>Canadian Flax</td>
<td>Linaria canadensis</td>
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<td>Chamisso’s Lupine,</td>
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<tr>
<td>Coast Buckwheat</td>
<td>Erigonum latifolium</td>
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<tr>
<td>Coast Dandelion</td>
<td>Agoseris apargioides</td>
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<tr>
<td>Coast Fiddleneck</td>
<td>Amsinckia spectabilis</td>
</tr>
<tr>
<td>Cobweb Thistle</td>
<td>Cirsium occidentale</td>
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<tr>
<td>Common Monkey Flower</td>
<td>Mimulus guttatus</td>
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<tr>
<td>Contorted Primrose</td>
<td>Camissonia contorta</td>
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<td>Coyote Bush or Brush</td>
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<td>Deer Weed</td>
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<tr>
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<td>Gilia capitata</td>
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<tr>
<td>Dune Knotweed</td>
<td>Polygonum paronychia</td>
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<td>Dwarf Plantain</td>
<td>Plantago erecta</td>
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<tr>
<td>Horseweed</td>
<td>Conyza canadensis</td>
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</tr>
<tr>
<td>Lotus</td>
<td>Strigosus Lotus strigosus</td>
</tr>
<tr>
<td>Man-root</td>
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<tr>
<td>Miner’s Lettuce</td>
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<tr>
<td>Miniature Lupine</td>
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<tr>
<td>Mock Heather</td>
<td>Ericameria ericoides</td>
</tr>
<tr>
<td>Nightshade</td>
<td>Solanum douglasii</td>
</tr>
<tr>
<td>Owl’s Clover</td>
<td>Triphysaria pusilla</td>
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<tr>
<td>Pacific Snakeroot</td>
<td>Sanicula crassicaulis</td>
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<tr>
<td>Paintbrush</td>
<td>Castilleja wightii, among others</td>
</tr>
<tr>
<td>Pearly Everlasting</td>
<td>Anaphalis margaritacea</td>
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<td>Popcorn Flower</td>
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<td>Sandmat</td>
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</tr>
<tr>
<td>Seaside Daisy</td>
<td>Erigeron glaucus</td>
</tr>
</tbody>
</table>
References, Resources & Links

Audubon International
46 Rarick Road, Selkirk, NY 12158 USA
http://www.auduboninternational.org

American Lighting Association
P.O. Box 420288, Dallas, TX USA 75342-0288
http://www.americanlightingassoc.com

The Appalachian Mountain Club
5 Joy Street, Boston, MA 02108
http://www.outdoors.org

California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814
http://www.consrv.ca.gov

Colorado State University
Fort Collins, CO 80523 USA
http://www.colostate.edu

Department of Public Works Building – Conservation Office
275 Old Lancaster Road, Sudbury, MA USA 01776
http://www.sudbury.ma.us

EnergyStar
1200 Pennsylvania Ave NW, Washington, DC USA 20460
http://www.energystar.gov

Homemoisture.org
North Dakota State University
PO Box 5626, Fargo, ND USA 58105
http://www.homemoisture.org/

U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W., Washington, DC USA 20460
http://www.epa.gov

Natives For Your Neighborhood
http://www.regionalconservation.org

National Association of Home Builders
1201 15th Street, NW Washington, DC USA 20005
http://www.nahb.org

North American Insulation Manufactures Association
44 Canal Center Plaza, Suite 310, Alexandria, VA USA 22314
http://www.naima.org
Natural Resources Conservation Service  
14th and Independence Avenue, SW Washington, DC USA 20250  
http://www.nrcs.usda.gov

North Carolina State University  
Raleigh, NC USA 27695  
http://www.ncsu.edu

The United States Department of Transportation  
1200 New Jersey Ave, SE  
Washington, DC 20590  
http://www.dot.gov

University of Tennessee  
Energy, Environment and Resources Center  
Knoxville Tennessee USA 37996  
http://eerc.utk.edu

The University of Florida  
Gainesville, FL USA 32611  
http://www.ufl.edu

The University of Arizona  
College of Agriculture and Life Sciences  
Tucson, AZ USA 85721-0036  
http://cals.arizona.edu

U.S. Department of Energy  
1000 Independence Ave., SW, Washington, DC USA 20585  
http://www.eere.energy.gov

World Wildlife Fund  
http://www.worldwildlife.org
About 80% of what Americans throw away is recyclable, yet our recycling rate is just 28%.

- Environmental Protection Agency