Green Home Remodeling Tips

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Remodeling offers a great opportunity to incorporate energy and water saving techniques. This handout is meant to help you make informed decisions as you plan for the remodeling of your home.

ENERGY

- *Lighting* – use compact fluorescent bulbs. Newer fluorescent bulbs offer a soft white light that mimics a regular light bulb, yet uses 75% less energy. The best targets are 60-100W bulbs used several hours a day.
- *Appliances* – The energy cost to run appliances over its lifetime is much greater than the purchasing cost. It makes good economic sense to buy energy efficient appliances. Your refrigerator is likely the largest energy consumer in the house, so think about replacing your refrigerator if it is old. Look for Energy Star labeled appliances.
- *Water heaters* – If you don't have an insulating blanket on your water heater, consider getting one. It will pay for itself in less than a year. If you need to replace a water heater, think about an on-demand tankless water heater. A tankless water heater does not hold any water, so it does not need to be turned down for vacations, there is no risk of failure like that of a tanked heater that can spill many gallons of water and ruin your floor. They use less overall energy, since no water is kept hot in a tank. Gas tankless water heaters are generally more efficient. You will need to have your house checked to ensure your gas lines are sized properly. Whole house tankless heaters start at about twice as much in cost as a normal tanked water heater. Other possible disadvantages include limited hot water flow when there are multiple fixtures running at one time. As another alternative, consider a recirculating hot water system. This involves installing a pump to circulate hot water on a loop between the most remote plumbing fixture and the water tank. In order to conserve energy, the circulation pump only operates when hot water is required by means of an activation button or timer.
- *Windows* – South-facing windows offer a great opportunity to absorb free energy (winter sunlight) while north-facing windows provide uniform lighting throughout the year. East- and west-facing windows are subjected to intense morning and afternoon sunlight causing significant summer heat gain. Consider installing low-e double pane windows for at least the east and west windows. Look for a Solar Heat Gain Coefficient (SHGC) of 0.40 or less. As a least-cost alternative, consider exterior shading devices such as an overhang (at least 10 feet), trellis, vertical/horizontal louvers, screen wall, or vegetation such a trees.
- *Daylighting* – Consider adding natural light sources to reduce the need for artificial light. Light tubes appropriately placed and exterior shaded windows are good ways to enhance natural light with minimum heat gain in existing homes.

- *Flooring* – If you are replacing floors, consider more durable and natural surfaces such as tile, stone, cork, harvested wood (certified by the Forest Stewardship Council or Sustainable Forest Initiative), exposed stained concrete, or bamboo. Carpets are often the source of allergens and can contribute to an unhealthy indoor environment. Carpet also has no thermal mass so the floor will be warmer in the summer. Tile, stone, and exposed concrete are good retainers for coolness.
- *Insulation* – Increase the amount of insulation in your house to a minimum R-30 in the ceiling and R-13 or greater in the walls where feasible. Consider exterior wall insulation applications (outsulation) such as foam and ceramic coatings. As a least-cost alternative, consider exterior shading for sun exposed walls such as an overhang (at least 10 feet on east & west walls), vertical trellis with vines, and/or trees. Provide abundant shade around all entrances to reduce summer heat island effect. Seal doors with weather-stripping and windows with caulking.

WATER

- *Landscaping* – A majority of our water usage goes to outdoor landscaping. You can substantially reduce your water usage by replacing non-native plants and shrubs with native varieties. The native vegetation is well adapted to our arid climate and sunny days. Native plants not only require less water, but also require less maintenance once established, and often no chemicals or herbicides for protection. Native plants have built-in resistance to local pests that exotic plants do not have. Consider reseeding your lawn with a low water variety, or simply removing it altogether. See the Scottsdale Water Conservation Department resources for rebates, water guidelines and other helpful information.
- *Rainwater and Graywater* – Direct runoff water from gutters to bushes, trees, plants and other vegetation. Rainwater can be stored in cisterns and for later use (cistern must be covered to prevent algae and mosquito breeding). Gray water is also a good source for watering plants. Graywater is wastewater from washing machines, bathroom sinks, showers, and tubs. Graywater may not be sprayed or run off your property. See green building resource list for more information.
- *Appliances and Fixtures* – Leaky fixtures can account for substantial water loss. Fix leaky fixtures; replace faucets and showerheads with low flow fixtures. You can also replace your toilets with dual flush toilets that provide an optional flush control for liquid waste (uses half as much water with superior flushing performance). There are also other ultra-low flow toilets that use less than 1.6 gallon per flush. Finally, consider front-loading washing machines that use less water with better cleaning and spin-drying performance.

Use local licensed contractors and regionally manufactured and/or extracted materials. This conserves energy wasted in transportation and supports our local economy.

For more information, please visit Scottsdale's Green Building website -
www.scottsdaleaz.gov/greenbuilding

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