# Green Home Remodeling Tips

Remodeling offers a great opportunity to improve the comfort, quality, and performance of your home by incorporating energy efficiency, water conservation measures, and indoor environmental quality enhancements. The following tips will help you make informed decisions as you plan your next home remodeling project.

**ENERGY**

- *Arizona Home Performance with Energy Star* - Arizona Home Performance with ENERGY STAR offers a comprehensive whole house check-up to help you improve the safety, durability, comfort, and energy efficiency of your home. Visit the AZ Home Performance program for more information - www.azhomeperformance.com
- *Insulation* ï 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.
- *Windows* ï 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 0.25 or less. As a least-cost alternative, consider exterior shading devices such as an overhang (at least 10 feet on east/west exposures), vertical/horizontal louvers, screen wall, trellis and/or vegetation including trees.
- *Daylighting* ï Consider adding natural light sources to reduce the need for artificial light. Light tubes appropriately placed with exterior shaded windows are good ways to enhance natural light with minimum heat gain in existing homes.
- *Lighting* ï The 2007 Federal Energy Independence and Security Act phases out the manufacturing of incandescent light bulbs through the year 2020 by requiring at least a 67% wattage reduction. Many fluorescent bulbs offer a soft white light that mimics incandescent light bulbs, yet can use up to 75% less energy. LED lighting is a viable alternative to both incandescent and fluorescent lighting. LED lighting can be more efficient, durable, versatile, and longer lasting. LEDs are being incorporated into bulbs and fixtures for various lighting applications while offering unique design opportunities. Energy Star labeled lighting fixtures and lamps ensure good performance, including color rendering, harmonic distortion, start-up time, long life, and energy efficiency.

- *Appliances* ï It makes good economic sense to buy energy efficient appliances. The energy cost to run appliances over its lifetime is much greater than the purchase cost. 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 - www.epa.gov

- *Water heaters* ï 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 tank 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 water heaters are more expensive than a normal tank water heater. As another alternative, consider a demand-controlled hot water recirculation pump when the water heater is located more than 20 feet from the furthest bathroom or kitchen fixture. To conserve energy, the circulation pump should only operate when hot water is needed by means of an activation button appropriately located in each bathroom with an automatic shut-off that is activated by a temperature sensor.
- *Flooring* ï If you are replacing floors, consider durable and natural surfaces such as tile, stone, cork, resilient flooring (linoleum, cork), harvested wood (certified by the Forest Stewardship Council or Sustainable Forest Initiative), bamboo, or exposed stained concrete. Tile, stone, and exposed concrete are good retainers for coolness. Carpet has no thermal mass so the floor will be warmer in the summer. Depending on use and application, carpets can be a source of allergens and contribute to an unhealthy indoor environment. When selecting carpeting, ensure that it meets the Carpet and Rug Institutes Green Label program.

**WATER**

- *Landscaping* ï A majority of city treated (potable) water goes to outdoor landscaping. You can substantially reduce your potable water usage by replacing non-native plants and shrubs with native varieties. The native vegetation is well adapted to our arid climate. Native plants not only require less water, but also require less maintenance once established. Native plants have built-in resistance to local pests that exotic plants do not have. Consider replacing your lawn with a native landscape or reseeding with a low water use variety. For irrigation, consider a smart irrigation controller (weather-based or soil moisture sensor). See the Scottsdale Water Conservation Department resources for rebates, guidelines and other information - http://www.scottsdaleaz.gov/Water/Conservation
- *Rainwater and Graywater* ï Direct runoff water from gutters to vegetated landscape areas. Rainwater can be also be collected and stored in cisterns for later use (cistern must be covered to prevent algae and mosquito breeding). Graywater is also an alternative source for irrigating vegetation. Graywater is wastewater from washing machines, bathroom sinks, showers and tubs. Graywater should not be sprayed or run off your property. See the Water Conservation Alliance of Southern Arizona (Water CASA) for more information ï www.watercasa.org
- *Appliances and Fixtures* ï Fix leaky fixtures and replace faucets and showerheads with high-efficiency fixtures that are WaterSense labeled. Consider replacing toilets with high efficiency toilets that use 1.28 gallons or less per flush (WaterSense labeled) including dual-flush toilets that provide an optional flush control for liquid waste (uses half as much water with superior flushing performance). Finally, use front-loading washing machines that use less water with better cleaning and spin-drying performance. See the EPA WaterSense program for more information - www.epa.gov/watersense

*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 Scottsdales Green Building website - *www.scottsdaleaz.gov/greenbuilding*

rev. 02/17