



Home & Environment

Saving Energy and Money Saving Energy with Natural Lighting

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Daylighting is the practice of using windows and skylights to bring natural lighting into your home, thereby reducing the need for artificial lighting.

A fresh coat of paint and new window treatments may add style to your home décor, but did you know that they can also conserve energy and reduce your utility bills? Follow these home decorating and landscaping tips to reduce your energy consumption and utility costs.

Home décor

- Place furniture, such as reading chairs, desks, and sewing machines, in areas that allow you to take advantage of daylighting. In addition, make sure furniture and window treatments do not block air vents.
- Avoid setting TVs and lamps near thermostats. The air-conditioning thermostat senses heat from these appliances. This may cause the air conditioner to run longer than needed.
- When painting a room, consider a light color for walls. Lighter colors minimize the need for artificial lighting.
- Use window treatments, such as curtains, blinds, shades, or interior shutters. In winter months, open curtains and shades during the day to allow warmth of the sun in, and close them during the night to prevent heat loss. In summer months, close curtains on south- and west-facing windows during the day to keep heat out. During warmer months, consider white shades, drapes, or blinds, as they will reflect heat away from the house.
- Use multiple layers of bedding during colder months.



Solar heat gain can be decreased by up to 65% on south-facing windows and 77% on west-facing windows during summer months by using window awnings.

- Use throws. Throws not only accent your home décor but can help keep you warmer during cooler months without adjusting your thermostat.
- Use area rugs on tile, wood, or laminate floors.
- Install glass fireplace doors to reduce drafts and loss of heated or cooled air.
- Replace outdated faucets and shower fixtures with low-flow WaterSense faucets and showerheads.
- Use a circulating fan, such as a ceiling fan, table fan, or floor fan. During summer months, ceiling fans allow you to increase your thermostat by around 4°F while maintaining the same level of comfort. However, when you leave the room, turn off your ceiling fan. Ceiling fans cool people, not rooms, by producing a wind chill effect.

Landscaping

A well-designed landscape can reduce heating and cooling costs by providing effective shade, acting as a windbreak, and funneling summer breezes. Before applying these landscaping tips in your yard, it is important to consider your regional- and microclimate (Figure 1). A microclimate is the amount of sun, shade, wind, snow,

In 2009 the average American family spent roughly \$1,900 on home utility bills. Not only is this amount a burden for the family budget, but it is also costly to the environment. Each year, the electricity produced by fossil fuels for a single home results in more carbon dioxide released into the air than that produced by two average cars.

moisture, and dryness surrounding your home. Your regional- and microclimate will determine how effective these landscaping tips are at reducing your home's energy consumption.

- Air temperatures can be decreased by as much as 9°F from shading and evapotranspiration of trees. (Evapotranspiration is the method by which plants move and release water vapor.) Deciduous trees can be used to block solar heat in summer months and allow solar heat during winter months. Dense evergreen trees and shrubs can be used to provide continuous shade or as a windbreak to block heavy winds.
- The size, density, and shape of a tree will determine where it is most beneficial for energy efficiency. A deciduous tree with a high, spreading crown planted to the south of your home presents maximum summer roof shading, whereas a deciduous tree with a crown lower to the ground is more beneficial to the west due to lower afternoon sun angles. (If your home is solar-heated, deciduous trees should not be planted on the southern side of your home because they may block winter sun.)
- Dense trees and shrubs with low crowns planted to the north and northwest of your home block or impede wind, providing a windbreak.

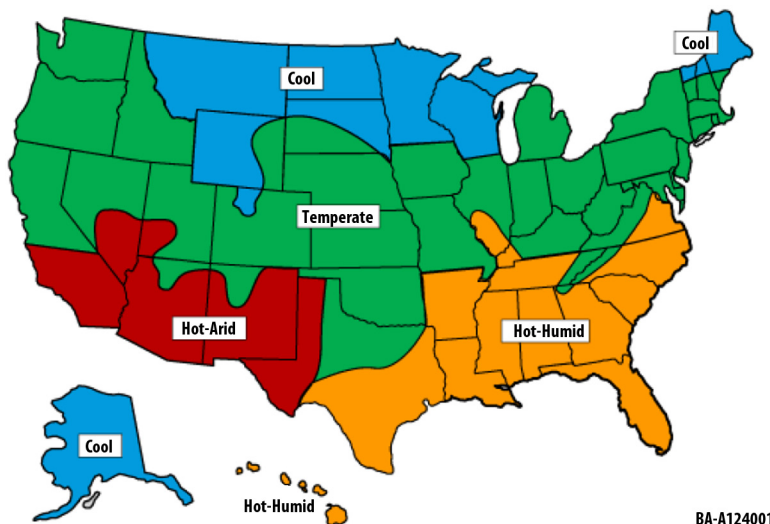


Figure 1. Your climatic region affects the landscaping strategies you must use to conserve energy. Source: U.S. Department of Energy.



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- Trees, shrubs, and groundcover plants can be planted around your home to reduce heat radiation by shading ground and pavement areas. For instance, a large bush, hedge, or trellis with climbing vines can be planted to shade a patio, sidewalk, or driveway. In addition, shrubs, bushes, and vines planted a minimum of one foot away from your home's walls create a dead air space which helps to insulate your home in winter and summer periods. Do not allow dense foliage to grow next to your home (allow at least one foot of space between fully grown plants and exterior wall). Wetness or continual humidity could result in problems.

References

Energy Savers Booklet (2009). Retrieved November 1, 2010, from http://www.energysavers.gov/pdfs/energy_savers.pdf.

Energy Savers: Ceiling Fans and Other Circulating Fans (2010). Retrieved November 2, 2010, from http://www.energysavers.gov/your_home/space_heating_cooling/index.cfm/mytopic=12355.

Energy Savers: Daylighting (2010). Retrieved November 1, 2010, from http://www.energysavers.gov/your_home/lighting_daylighting/index.cfm/mytopic=12290.

Energy Savers: Landscaping (2010). Retrieved November 1, 2010, from http://www.energysavers.gov/your_home/landscaping/index.cfm/mytopic=11910.

Energy-saving Home Design and Decor Tips from Progress Energy Florida (n.d.). Retrieved November 2, 2010, from <http://progress-energy.com/aboutus/news/article.asp?id=24842>.

Passive Solar Energy for Homes: Daylighting-eXtension (2010). Retrieved November 1, 2010, from http://www.extension.org/pages/Passive_Solar_Energy_for_Homes:_Daylighting.

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