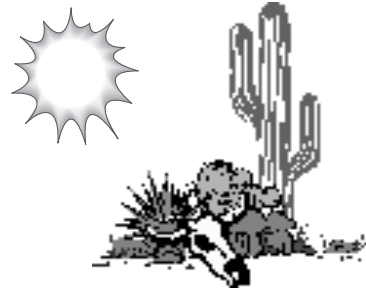


# WHY GREEN BUILDING?

The act of building has a significant effect on our regional and global environments. In the process of building, resources are consumed, natural habitats are altered and the ecological systems that support life are affected. This has been the case for thousands of years, but as the world's population and patterns of consumption have increased, the impacts have become more critical.



There are growing initiatives to reduce the environmental impact of building. New materials are being introduced that use resources more efficiently and wisely. Energy efficiency and indoor air quality are playing a greater role in the construction of healthy and comfortable homes, and efforts are underway to reduce water consumption and the inordinate amount of waste generated during construction.



By designing for energy, water, and resource efficiency, buildings improve in performance with enhanced comfort and lower operating costs. With Green Building, we can satisfy all of our housing needs, conserve limited resources, and protect our natural environment for the long-term health of our planet and future generations.

# GREEN BUILDING PROGRAM

## OVERVIEW

The Scottsdale Green Building Program rates building projects in the following six environmental impact areas:

- Site Use
- Energy
- Indoor Air Quality
- Building Materials
- Solid Waste
- Water

A green building point rating system is used to qualify projects into the program. Design flexibility is achieved by offering over 150 green building options, while maintaining a whole building systems approach. A builder, designer, or developer may enter any given number of projects into the program. The Green Building Program is voluntary and open to builders in the Scottsdale area.

## INCENTIVES

As a consumer-driven program, the city of Scottsdale is engaged in an on-going effort to bring the program to the attention of the general public and building industry:

- Development process assistance (expedited plans)
- Construction job site signs
- Directory of participating builders and designers
- Certification (green building inspections)
- Lecture series, workshops, and special events
- Homeowner's manual (explanation of features)
- Recognition of builders and designers on city web site

## PARTICIPATION

Every builder and designer who enters a project into the Green Building Program is expected to attend at least two green building related lectures, workshops, or seminars. These educational programs provide information on energy/resource efficient and environmentally responsible buildings, and feature experts in all areas of environmental design and construction. Lectures, workshops, and special events are held throughout the year.

# SCOTTSDALE GREEN BUILDING ADVISORY COMMITTEE

The Green Building Advisory Committee serves in an supportive capacity to help develop and sustain a pro-active campaign for environmentally responsible building in Scottsdale. The committee provides guidance to improve program criteria, promotion, education and special events. Members of the committee serve on a voluntary basis.



## WHERE TO GET MORE INFORMATION:

**Green Building Program**  
City of Scottsdale  
7447 E. Indian School Road  
Scottsdale, Arizona 85251

**Phone: 480-312-4202**

**Web site: [www.ScottsdaleAZ.gov/greenbuilding](http://www.ScottsdaleAZ.gov/greenbuilding)**



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CITY OF SCOTTSDALE

# GREEN BUILDING PROGRAM

*“Sustainable Building  
in the Sonoran Desert”*

**Green Building is a whole-systems approach utilizing design and building techniques to minimize environmental impact and reduce the energy consumption of a building while contributing to the health of its occupants.**

**SCOTTSDALE**



**GREEN BUILDING  
PROGRAM**

# CONSIDERATIONS FOR GREEN BUILDING



## PROTECT AND ENHANCE THE SITE

Scottsdale is located in the northern region of the Sonoran Desert which stretches south to cover most of the Mexican state of Sonora. The Sonoran desert is one of the most unique deserts in the world embodying a diverse ecosystem of flora and fauna.

- Protect ecologically sensitive land and indigenous plants.
- Minimize size of development footprint
- Integrate building with site topography and optimize indoor/outdoor transitions for outdoor living (i.e. courtyards, porches, canopies, etc.)
- Avoid chemical herbicides, pesticides, and other ground treatments with toxic or hazardous constituents.



## ENHANCE ENERGY EFFICIENCY

Decisions made during the design and construction of a building will affect environmental performance for decades to come. An integrated design approach can result in energy savings through the proper utilization of windows, lighting, mechanical systems and active/passive solar systems.

- Incorporate passive solar design strategies. Orient and zone building and interior spaces for seasonal benefits (reduce energy load and maximize comfort).
- Use a well insulated building envelope with internal thermal mass.
- Install high-performance low-e windows.
- Locate windows for natural light and cross ventilation; use external shading devices for unwanted heat gain.
- Seal and insulate ducts; locate within air conditioned spaces where possible.
- Select energy efficient heating/cooling equipment (min. SEER 12), lighting (fluorescents & halogens), and appliances.
- Consider active solar systems (i.e.- water heating and photovoltaic/solar electric).



## USE ENVIRONMENTALLY-RESPONSIBLE MATERIALS

Most of the environmental impacts associated with building materials have occurred prior to their installation. Raw materials are extracted from the ground or harvested from forests; pollutants are emitted during manufacturing; and energy is consumed throughout production. Some materials, such as those containing ozone-depleting HCFCs and VOCs, continue emitting pollutants during use and /or have significant environmental impacts associated with their disposal. Resource-efficient materials are designed to have minimum impact on the health of our environment and ourselves.

- Select materials that are durable and appropriate for our desert climate (won't degrade in sun/dryness).
- Select products and materials of local manufactures to limit embodied energy and support local economies.
- Select materials with recyclable and recycled content (reclamation and reuse of existing materials).
- Select materials with low embodied energy (energy used in resource extraction, manufacturing & shipping).
- Avoid materials that unduly deplete limited natural resources, such as lumber from old-growth forests.
- Avoid materials made from toxic or hazardous constituents (benzene, arsenic, formaldehyde, etc.).
- Avoid materials that generate pollution during manufacturing or use.



## CREATE A SAFE INDOOR AIR ENVIRONMENT

Research indicates that air pollutant levels in our homes and offices can be four to five times higher than the air outside. Since people spend 80 to 90 percent of their time indoors, the quality of indoor air has become a major concern. Health effects from exposure to indoor air pollutants range from short-term health effects (sneezing, itchy eyes, headaches, dizziness), to more serious long-term effects such as respiratory disorders. A healthy indoor environment can be achieved through proper ventilation and selection of non-toxic materials.

- Avoid materials and finishes with high VOC (volatile organic compound) such as particle boards, some carpets, adhesives, and paints (use materials with less than 250 grams/liter VOC).
- Provide for ventilation in all occupied areas of the building.
- Maximize control of the indoor environment with features like operable windows, task lighting and zoned temperature controls.



## PROVIDE FOR EFFICIENT WATER USE

In the desert, the environment imposes a natural mandate on how we should build in order to manage water. The depletion of groundwater is an especially critical issue of concern in Arizona. The State Department of Water Resources has implemented water management strategies to address this regional problem. One way to conserve water is to incorporate water management strategies into building and site design.

- Use low-flow plumbing fixtures (i.e. dual flush toilets) and water efficient appliances (i.e. horizontal axis washing machines).
- Incorporate an efficient hot water delivery system (i.e. tankless, recirculating, centrally located of water heater).
- Provide or convert to desert responsible landscaping (xeriscape).
- Consider graywater usage, which takes the waste water from such locations as bathroom sinks, showers, bathtubs and laundry rooms, and uses it for landscape irrigation.
- Collect and/or direct rainwater for irrigation.



## REDUCE GENERATION OF SOLID WASTE

Construction debris constitutes a major portion of the material destined for landfills. Reduction of construction debris is one of the most frequently overlooked areas for resource conservation. According to the Center for Resourceful Building Technology, the building of a typical single-family home produces an average of four to six tons of waste per building site. Wood, drywall, metal, rubble and cardboard comprise the majority of recyclable construction and demolition wastes.

- Sort construction and demolition waste for recycling (job site bins for wood, metals, wallboard, etc.).
- Purchase building material in required dimensions to minimize waste.
- Reuse as many discarded materials as possible in the building process.
- Donate reusable materials to local non-profit building supply companies or other community groups where they can be used to build or improve housing stock.