

Benefits of Green Buildings

The built environment has a substantial impact on our natural environment, economy, health and productivity. According to the U.S. Environmental Protection Agency, in the United States buildings account for:

- 39% of total energy use
- 68% of electricity consumption
- 38% of greenhouse gas emissions
- 60% of non-industrial waste output
- 12% of potable water consumption

The benefits of building “green” are numerous and include not only environmental benefits, but economic and health benefits as well.

Environmental benefits of building “green”:

- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste
- Conserve natural resources

Economic benefits of building “green”:

- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

Health and community benefits of building “green”:

- Improve air, thermal and acoustic environments
- Enhance occupant comfort and health
- Heighten aesthetic qualities
- Minimize strain on local infrastructure
- Contribute to overall quality of life



Town of Queen Creek Green Building Policy

The Town of Queen Creek instituted a Green Building Policy in August 2007 to reflect the Town’s commitment to encouraging environmentally sensitive construction practices in the Town by adopting construction practices inspired by the Leadership in Energy and Environmental Design (LEED) certification process.

It is now the policy of the Town of Queen Creek to finance, plan, design, construct, manage, renovate and maintain its facilities and buildings to be sustainable. This applies to new construction and major remodels in which the total project’s square footage exceeds 5,000 gross square feet.

The Town uses the U.S. Green Building Council’s LEED rating system as a design and measurement tool to determine what constitutes sustainable building by national standards.

The private sector is encouraged to voluntarily apply LEED principles in the design, construction and operation of buildings within Queen Creek.

For more information about the Town of Queen Creek’s Green Building Policy, please visit the Town Web site at www.queencreek.org or call 480-358-3003.



Town of Queen Creek

22350 S. Ellsworth Road
Queen Creek, AZ 85242
480-358-3003

www.queencreek.org



Green Building Program

Creating an oasis of environmentally friendly programs in the Town of Queen Creek



Environmentally Friendly Practices



Protecting and Enhancing Queen Creek

The Town of Queen Creek has grown from rich rural roots, which provides strong incentive for the community to plan ahead and create programs, buildings and policies that are earth-friendly. The Town's goal is to identify ways to encourage developers and residents to remain conscientious about the effect their activities have on the environment.

- Minimize the size of development footprints.
- Integrate buildings with site topography and optimize indoor/outdoor transitions for outdoor living (e.g., courtyards, porches, canopies).
- 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 solar design strategies.
- 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 located within air conditioned spaces.
- Select energy efficient heating/cooling equipment (min. SEER 12 - Seasonal Energy Efficiency Ratio), lighting (fluorescents and halogens) and appliances.
- Consider active solar systems (e.g., 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 raw energy is

consumed throughout production. Some materials, such as those containing ozone-depleting HCFCs (hydro chlorofluorocarbons) and VOCs (volatile organic compounds) 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 the desert climate (won't degrade in sun/dryness).
- Select the products and materials of local manufacturers 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 and shipping).
- Avoid materials that unduly deplete limited 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

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 VOCs, such as particle boards and 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 such as 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 challenge. One way to conserve water is to incorporate water management strategies into building and site design.

- Use low-flow plumbing fixtures (e.g., dual flush toilets) and water-efficient appliances (e.g., horizontal-axis washing machines).
- Incorporate an efficient hot water delivery system (e.g., tankless, recirculating, centrally located water heater).
- Provide or convert to desert-responsible landscaping (Xeriscape).
- Consider graywater usage, which takes the waste water from locations such as bathroom sinks, showers, bathtubs and laundry rooms, and use 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 materials in required dimensions to minimize waste.
- Reuse as many discarded materials as possible in the building process.
- Donate reusable materials to local nonprofit building supply companies or other community groups where they can be used to build or improve housing stock.

