



## ECOLOGICAL DESIGN

### Green principles for ecovillage development

As more and more green development projects are built around the world, it's becoming easier to judge what is cutting-edge in the field. The following list suggests principles for achieving truly green development appropriate for an ecovillage.

#### **The latest alternative energy technology.**

Though it's not necessary to be "off the grid," a development should include alternative energy technology (e.g., solar panels, window glazings, wind-to-electricity generators and/or hydrogen fuel cells) not just for demonstration but for total energy savings.

#### **Design for optimal energy performance.**

This includes the positioning of the development to make the most of the sun's energy, building in creative designs to optimize daylighting, including gray water re-use into the design of the structure (gray water is household wastewater from sinks and showers, not from toilets), and planning for high energy efficiency.

#### **Permaculture as a design technique.**

A development from the size of one home to multiple-unit town homes should be designed to deal creatively with stormwater run-off, should feature native and edible plants and should include space for community gardening. Part of proper landscape design is reducing the need for maintenance-little or no mowing or fertilizers and no pesticides or herbicides are needed to have a beautiful and productive yard if properly designed. Dealing with stormwater run-off not only suggests such techniques as decreasing the amount of impermeable surfaces but incorporating tools such as "green" roofs or rain-barrels into building design.

#### **Healthy homes-materials in all buildings should meet the highest green building standards for health.**

All paints, stains, and finishes should emit the lowest possible VOCs (volatile organic compounds), carpets should be eliminated or designed not to off-gas harmful chemicals, garages should be separated from living spaces or appropriate fans and ventilation built into both home and garage. The



Preserving and improving existing housing should be a primary goal of ecovillage development.

[Back to main EcoVillage](#)

same attention to air quality should be paid to appliances and furnishings. Energy-efficient homes are most often tightly sealed homes, making air quality and ventilation issues even more important.

### **Low-embodied energy.**

Green building includes attention to energy efficiency, green energy technologies, healthy indoor air quality, relationship to place, longevity of building design, and more. One tool used to measure over-all “green-ness” of a building is its embodied energy. Buildings and developments striving to be green should minimize the over-all energy required in the design, building, construction, development, use, re-use, and disassembly—all parts of the total “embodied energy” of the building.

### **Density as a design goal.**

A successful urban ecovillage should demonstrate effective techniques for doing dense development well, exhibiting an appropriate balance of public and private spaces and ensuring privacy while making the most of the land available. This is a key component in both green development and good urban redevelopment.

New Urbanist community design. The New Urbanism movement has greatly advanced the way we think of community design. A successful ecovillage should demonstrate the principles of New Urbanism by including prominent sidewalks, placing homes and shops closer to the street and including porches and common greenspaces. Another basic design principle of New Urbanism is that any development or community should be designed to encourage pedestrian rather than automobile traffic.

### **Affordability and diversity of housing types.**

Many ecological developments are not very affordable. This is an important issue for the Cleveland EcoVillage, which is located in a low- to moderate-income neighborhood. To reduce development costs, it is possible to partner with organizations such as Habit for Humanity or government programs such as Rebuild America. Other possibilities include designing affordability into the project by creating smaller units, adding mother-in-law or rental suites onto some units, or subsidizing a few units and then capping their re-sale value.

### **Community participation.**

Many ecovillages and community redevelopment models from other areas have attributed the success of their projects to effective community participation. The Cleveland EcoVillage should continue to build upon its strong community involvement base by requiring community design workshops for all new developments.

### **Designing for co-housing potential.**

Co-housing is a central feature of many ecovillage projects. By sharing kitchens, dining areas, yards and expensive tools, co-housing residents can live more affordably, reduce their environmental impacts, and develop a community of friends. The Cleveland EcoVillage should pay attention to building common spaces that will allow for future co-housing potential. This might include the development of a small community

center with a common kitchen and play area, as well as common outdoor spaces for gardens, socializing, and fun.

**Design adaptability.**

Developments should be designed for future adaptability. It should be easy to update buildings with the latest energy technologies as they become available, as well as possible to re-use the buildings for different uses in the future.

**Testing of building performance.**

Testing to see if a building is performing up to design specifications is a key component of successful green building. The developer and architect need to ensure they build-in the time and money needed for this process-referred to as building commissioning.

[Back to top](#)

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