



Urban Conversion

If city-dwellers are to put the ideal of sustainability into practice in their personal living space, there is need to convert their homes and yards in appropriate ways. This conversion, when done on single-family dwellings located within cities, has been called *urban conversion*.

Described below are the changes to house, yard, and way of home-life that are typically involved in a holistic shift toward sustainability. Not all of the changes mentioned are appropriate to all situations. But, to constitute an urban conversion in the full sense, all of the categories of change should be addressed in one manner or another.

Core design objectives of an urban conversion should include:

- reducing energy demand and water needs as much as possible
- using resources that are available on site – including water (rainwater and greywater), sunlight, and vegetation – thereby increasing self-reliance
- eliminating toxicity and waste as much as possible

Toxicity

Toxicity should be eliminated as fully as possible. The use of toxic household substances in the home should be conscientiously avoided. No toxic pesticides should be used in the yard. Building materials used in new construction should have a minimum of toxicity. Existing toxic materials should be properly disposed of.

Waste

Waste should be minimized. Organic matter should be composted or put in a slash pile. Opportunities to recycle and reuse should be fully exploited. As much use as possible should be made of used building materials.

Embodied Energy

When engaging in new construction, the embodied energy of building materials should be minimized. This is, building materials should be selected which require the least energy to produce. And when selecting appliances, deciding on building design, etc., choices made should take into account the minimizing of embodied energy.

Water

On-site rainwater should be captured and used to the extent that is reasonable. This may involve rainwater catchment tanks, directing rainwater into swales, or collecting rainwater in a pond. This water then should be put to appropriate uses in the yard – for irrigation, charging the water table, filling ponds, etc. Wastewater should also be made use of, where possible, through installation of a suitable greywater system. A greywater system can purify wastewater before reuse, or simply direct the wastewater into the soil in efficient ways.

Vegetation

Opportunity should be optimized to grow useful types of plants in the yard. In a yard that has a balance of useful plants, there would be vegetables, fruits, nuts, herbs, and medicinal plants, as well as, perhaps, fuel, fiber, and building material plants. Plants should be located and grown in ways that serve a variety of subsidiary purposes: mulch, shade, animal habitat, soil building, weed suppression, aesthetics, low-maintenance ground cover, harmful insect suppression, etc. Plant selection should be done keeping in mind that we live in a semi-Mediterranean climate (long dry summers), and that global warming will mean that water resources are likely to become increasingly limited.

Impermeable Surfaces

Impermeable surfaces should be minimized. Where possible, cement paving should be removed and replaced either with useful vegetation or with alternative surfacing, such as brick, gravel, bark mulch, or turf-grid type permeable pavers. Surfacing material should be selected that is appropriate to the use being made of the concerned surface.

On-site Energy Generation

Technologies should be installed to generate, capture, or efficiently utilize solar energy. Good passive solar design can capture solar heat and light. This can be augmented with an attached solar greenhouse or with a solar mass that absorbs daytime solar gain for nighttime release. Technologies that convert and use solar energy, such as solar hot water heaters and photovoltaic panels, can be installed.

Energy Demand Reduction

Concerted efforts should be made to reduce the energy required to power the utilities and appliances of one's household. Compact florescent bulbs should be installed in all sockets and fixtures that will take them, and bulb wattage should be appropriate to the space being lighted. Energy efficient appliances (with an Energy Star rating or better) should be installed. Temperature settings on hot water tanks should be kept low. Hot water pipes should be wrapped if in unheated spaces. Home insulation should be ample. And so forth.

Transportation

Strategies should be worked out to minimize the household's use of fossil fuels for transportation. Fuel-efficient vehicles can be purchased, if affordable. Or diesel vehicles can be converted to use biodiesel fuel. Motor scooters, motorcycles, or Gizmos can be used in place of cars. Bicycles can be considered as an alternative to cars. Use of vehicles can be reduced: errands can be clustered and done efficiently; vacation trips can be to places less distant; opportunities for home employment can be worked out; and public transportation and carpooling can be used.