

demonstrating environmentally sound techniques for small-scale farming; the New England Small Farms Institute in Belchertown with similar goals and a deep feminist commitment among key staff; the New Alchemy Institute on Cape Cod with a wide array of research in food and energy appropriate technology, and experience in working with the Cape self-reliance co-operative; the Hippocrates Institute in Boston which teaches indoor growing of low-cost live foods; Boston Urban Solar Energy Association; Boston Urban Gardeners, and on and on. Moreover, the New England Permaculture Consultancy includes almost a third of the total number of trained Permaculturists in North America. We specialize in designing the very kinds of systems necessary to transform our cities into productive landscapes. Six Consultancy members are Massachusetts-based.

Bill Mollison, author of the books *Permaculture I* and *Permaculture II*, has said, "It is quite easy to turn the city into a highly productive, food-growing, self-regulated, clean air, high negative ion, healthy situation. The only reason we're not doing it is this: we're not doing it. There is no other reason."

I agree.

**Massachusetts Fruition Project 2:
The Urban Permaculture Project:
Design Principles and Concepts**

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Permaculture

The primary aim of this project has been the development of low cost, low maintenance strategies for urban, open spaces which get the maximum use and yield while meeting as many local needs as possible. That is a large demand which generally runs counter to modern design philosophies which emphasize form over function.

It is in the work of Bill Mollison, an Australian who first developed and coined the Permaculture principles less than a decade ago, that one can find, clearly stated, a design process which works to achieve these aims. Developed to counter the high cost, high energy, gradually failing, modern agricultural systems of the present, Permaculture seeks to work in nature's own fashion and in concert with the conditions that prevail on a particular site...

To quote directly from Mollison's work, "If there is a single claim that I could make, in order to distinguish Permaculture from other systems of agriculture...it is that Permaculture is primarily a consciously-designed agricultural system." In this system a plan is carefully thought out in advance which works with the natural conditions of the site, matches the skills, needs, resources and commitments of those who will use the site and concerns itself not only with a planned spatial arrangement but with an evolution over time that will lead to a sustainable, self-maintaining system that produces more, usable energy than it consumes, sustains or builds the soil, recycles and produces nutrients and provides for other needs of those using the site.

In order to achieve this lofty goal it is necessary to carefully choose, in advance, elements and components of the design which serve two or more of the stated functions, to plan to serve each function in two or more ways and to locate each component of the plan so that it interacts in beneficial ways with other components of the system. In short, there is nothing random in a Permaculture design; what, where, and when elements are placed in the system all serve the end goals of the plan.

As previously stated, permanence and stability in a landscape are most easily achieved when one works with rather than against ecological forces. In the northeastern United States, for example, the primary biological element is the forest. An appropriate design for this region would, therefore, use succession plantings of trees and shrubs as a major design component. In fact perennial plantings in general are an important part of any Permaculture system because of their permanence and relative ease of maintenance—it is the type of perennials which vary from region to region.

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Because of the emphasis on obtaining maximum value from minimum inputs, Permaculture design has been seen as especially applicable to marginal lands; lands on which high-energy, imposed solutions of modern agriculture and modern design are particularly inappropriate. In the urban context marginal lands are the same vacant lots which confound local revitalization efforts.

Urban Permaculture Concepts

There is much to recommend the Permaculture model for application to urban sites. However, problems, needs and conditions in the cities can be quite different than those in more rural settings. It has, therefore, been necessary to adapt the Permaculture model for urban landscape designs.

On June 21, 1979, the city of Boston fell within 72 hours of a major food shortage. The national truckers strike, which reduced Boston's food imports to a trickle, was resolved just in time to avert a potentially explosive food emergency. Food co-ops and other food stores relying on locally grown produce were far better stocked during the crisis.

That vulnerability to food shortages or other food distribution crises has not diminished. In fact a number of recent reports on the state of agriculture in this country warn that problems like soil erosion, an extreme dependence on oil resources, rapid depletion of water resources, salinization and urbanization of precious farmland, vulnerability to major climactic changes or pest problems and potential competition from increased food exports leave areas of the country which import most of their food open to future shortages or much higher prices. Massachusetts imports 93% of its food, according to a recent report. The city of Boston likely imports over 99%.

Indeed, in most of these reports on the state of agriculture the northeastern part of this country is singled out as being the most dependent on outside sources. While the best solution lies in a regional effort at greater food self-sufficiency, cities should grow more of their own food. This is the first principle of urban Permaculture.

The growing community garden movement has been an encouraging step in this direction. It has also been an excellent use of surplus, vacant lots. In the city of Boston over five and one-half thousand families garden on 130 community garden sites with an estimated food production of over one million dollars annually.

These figures point out another important value of urban food production. It is estimated that a small garden plot (20' x 30') can yield over \$750 worth of food annually. This constitutes direct "self-employment" for unemployed, low

income or fixed income people. As vacant land often appears in economically depressed neighborhoods, its use for food production by local residents provides an important self-help opportunity.

It is the basis of an urban Permaculture design that food production should be expanded to include a greater variety of methods and to include and even emphasize food production in all landscape designs. How this is to be done has been a major concern of the UPP [Urban Permaculture Project].

The cities have precious little open space, especially as compared to rural or even suburban areas. Aside from food needs, most city neighborhoods, especially in older cities, need more housing, recreation and play areas, tot lots, community parks and shaded sitting areas, ornamental gardens, wildlife habitat and so on. All of these options for use of open space are both legitimate and necessary for a livable environment that reduces problems resulting when there is little for children and teenagers to do.

Recognizing that there are a multitude of important uses for urban vacant land, the second urban Permaculture principle is that multi-functional and multi-use design for maximum utilization of open land is essential, more essential in the cities than anywhere else.

Designing for maximum use of available space assumes that large numbers of people are expected to use the site. In urban areas, especially where usable open space is scarce, use of a site by many people is probably a safe conclusion under almost any circumstances. It is important to plan for a site to sustain such use without conflict between these uses or between groups of people using the site for different purposes. Urban design principle number three can be stated, design the site for heavy use and divide the site into areas of clearly defined use.

Financial resources for redevelopment have become scarce in most parts of the country. Yet, in neighborhoods with an abundance of vacant lots the very existence of those lots is often a sign that those neighborhoods have been neglected by both public and private institutions. Given the low income status of these neighborhoods, it is clear that expensive designs are inappropriate.

The transient nature of the residents of some neighborhoods and a sense of distrust or apathy toward local revitalization efforts fueled by continually unfulfilled promises leads to an uncertain, long range commitment in some communities. Even if there is local support for an open space development plan now, those conditions could change some years in the future. The necessary reliance on volunteer labor to maintain these facilities leads to additional uncertainty over long-range maintenance of a site.

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It is the fourth principle, then, that urban landscape designs should concentrate on low-cost, low maintenance strategies. Permaculture design emphasizes this so that it is appropriate for urban conditions.

Permaculture designs also place importance on a site plan that meets the needs and capabilities of the landowner or users of the site. This consideration is placed along with a thorough knowledge of the site, climate and other landscape conditions. In an urban situation, however, the importance of the role of people—local residents in particular—is far more crucial. Involvement and participation of local residents in the planning, design and implementation of a community open space project is critical to the success and continued life of that project.

While listed as the fifth urban design principle, this may well be the most important one and cannot be overemphasized.

To summarize, an urban Permaculture design will emphasize appropriate features that raise food and meet the needs and wishes of local residents. It will make the best, most complete use of the land by integrating many uses that do not compete. Such designs should be economically feasible and easy to care for, yet take the punishment that heavy use and urban conditions mete out.

The Design Process

There are a number of successful open space projects in several cities where one can find examples of good, urban design at work. A brief synopsis of this process, based on these successful models as well as the experience of the UPP, would provide a step-by-step guide to help assess the work of this project while suggesting a methodology for future projects.

1. After choosing the land to be developed, it is important to determine ownership and acceptable uses. A range of such possibilities might include:

1. squatting,
2. permission of the owner for particular uses,
3. short term lease arrangements,
4. long term leases,
5. access through ownership by a community land trust or other organization or outright ownership.

An elaborate design is probably not appropriate if use of the land is not permitted or is limited by tenure or other restrictions. On the other hand, demonstration of successful use of a site may encourage the owner (whether public or private) to allow for long-term use, to sell the land at a reasonable rate or even to donate the land for community use.

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2. Know the site. To know what is appropriate for a site it is very important to map out the area, noting buildings, fences, pathways and other features of the site. At the same time determine site characteristics such as soil fertility, type, profile, structure, level of compaction and lead levels, climate and water availability, vegetation presently growing on the site and the types of plants which will likely establish and grow there.

3. Know the neighborhood. Observe what people like to do in the area. Talk to people to learn what their interests and skills are. Determine cultural preferences. Establish contacts with agencies and organizations which work in that neighborhood, especially neighborhood bloc groups, community development agencies and community garden groups. These groups have often already shown an interest in the revitalization of their community. Even churches can be a source of interested residents and support.

4. List all the plusses and minuses which may affect development of the site. For example, list resources like skills available in the community, technical assistance available locally, sources of recyclable or donated materials, sources of plants and organic materials, sources of funds and donations. At the same time list constraints, limitations of funds and/or materials, projected difficulties and other problems which will limit what can be done on the site.

5. Set up a structure to allow local residents—including children and, especially, abutters to the site—and local organizations to participate together in planning and designing the site. This may be done through an existing organization, a separate committee or just an informal group of interested residents. At this point input from technically proficient advisors is important to develop a realistic plan; this is especially important for a Permaculture design because of the extensive knowledge of plants, animals, structures and the ways they interact which is needed for a successful design. It is also very important to take into account the resources and constraints listed previously and capability of the community to successfully implement and maintain the completed design.

6. With an initial plan agreed upon, the design should be sketched and explained in a manner which is understandable by other residents and groups participating in the process. It is important at this stage to take the proposed design back to the community for comments and criticisms. Allow for continual

flexibility as new input and information become available. A final plan should have general agreement and acceptance by the neighborhood as a whole.

7. An acceptable design is only the first step in the development process. People need to be assigned the work of gathering the needed materials, resources and funds and to begin organizing an implementation plan. Responsibilities and assignments will also be needed for maintenance and future development of the site. A constant level of involvement helps to make a site design successful.

With this basic overview of the Urban Permaculture design process, the discussion of the site design for the Roxbury Community School and the Leyland Street neighborhood can proceed.

To Spray or Not to Spray...

Jim Fruth and NAFEX Round Robin

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Q. There are many ‘beneficial’ sprays, dormant oil, micronutrients, Safer soaps, baking soda/garlic bug remedies etc., etc. The big thing is, is it toxic or not? And hothouses produce tomatoes, etc., some advertising ‘no sprays’ but since they fumigate hothouses, the whole spraying issue is just to befuddle the consumers. But I have felt the vibes from some certified organic people who look down on growers who try to grow naturally without signing up with some organization. Toxic pesticides only came in after World War I so everything before was grown naturally. If I grow it, I want to eat a healthy product. Everyone sprays; what are you spraying?

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A. Sonja, you said, “everyone sprays.” WRONG!!! No, not everyone, I don’t spray and I’d bet thousands of other folks don’t own a sprayer.

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