COMMUNITY MODEL DESIGN

Health and affordability

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Lifestyle and the Built Environment

Among many factors, health is influenced by lifestyle (i.e. food choices and levels of physical activity), economics (i.e. health care affordability and food security), and perhaps most inclusively, the design of the built environment. Unfortunately, in the built environment as it exists today in the United States, broad-stroke decisions made and propagated in the past have resulted in a structural frame for life that promotes unhealthy lifestyles. Specifically, the three dominant living arrangements in the United States—rural, urban multi-family dwellings, and suburban single-family homes—each in their own way fail to inherently support health or affordability. A new model for development with health, affordability, and overall quality of life as the benchmark or foundation for design decisions is needed. With that goal in mind, our research team has developed a new community typology based on European allotment garden traditions that specifically focuses on health as the primary design goal.

FOOD AND HEALTH

When thinking of ways to improve health, food is the most obvious place to start. The essential link between food and health is increasingly gaining traction in the American consciousness with growing numbers of farmers' markets, community supported agriculture (CSAs), and concern for genetically modified organisms (GMOs), corn sweeteners, and a variety of other nefarious ingredients and processes common in manufactured food. The relationship between food and health is certainly not new. Around 400BC, Hippocrates is attributed with the statement, "Let food be your medicine, and medicine be your food." Physiologically, food is the substance (along with air and water) of which we are made. Historically, food has held center stage in the definition of civilization —what foods we choose to cultivate, how we prepare and distribute those foods, and who has access to various foods based on socio-economic hierarchies.

Food in most post-industrialized societies like the United States has become overly simplified for the consumer and overly complex for the producer. Today, food production is focused on profits rather than health and for this reason food producers compete to appeal to our cravings and generate endless food options that are cheap, have essentially unlimited shelf life, and provide little nutritional value. This mode of food production relies on a complex political-economic system involving government and industrial manipulations while at the same time wholesome food, straight from the ground, is inaccessible or unaffordable for large segments of the population. This is a systemic problem of huge complexity.

If we narrow our focus, there are four primary considerations for the design of a better system of delivering these essential elements of a good life: cost, access, time, and knowledge.

COST OF A FAILING SYSTEM

The current model for determining the affordability of food assumes the costs of transportation and infrastructure—roads and bridges—are external to the cost of food. Our national debt and failing infrastructure provides the necessary evidence to support the position that centralized and isolated food production has unfunded external costs at the macro economic scale.

FIGURE 1. Allotment garden in Leipzig, Germany

At the household level, when the option of organic and/or locally grown foods is available the cost premium (sometimes as much as 85% higher on average) is prohibitive to many.[1]

From a social point of view, the rising cost of health care attributed to overweight and obesity resulting from the combination of what has become known as the Standard American Diet (SAD)—made up of calorie dense and nutritionally deficient foods – and a sedentary lifestyle has risen to $147 billion per year (in 2008 dollars).[2] However, the cost may in fact be much higher than that. According to the American Diabetes Association, the annual cost of diagnosed cases of diabetes has risen to $245 billion in 2012 from $174 billion in 2007, when the cost was last published.[3] The real costs are staggering indeed if one considers all the potentially associated physical and mental (both chronic and acute) healthcare costs.

BARRIERS TO ACCESS

Urban environments often fail to provide fresh food at affordable prices. Growing one's own food is generally not possible, and grocery stores avoid lower income areas in cities, thereby creating "food deserts" where access to food is severely limited. Lacking easy access to healthy food, consumers gravitate toward processed and packaged junk food available in convenience stores, gravely impacting health.

Suburban environments provide easier access to healthy food, but with the need for and expense of car ownership, and associatively, more sedentary lives. Suburban residents can choose to grow their own high quality organic food, unless as is often the case, homeowners' association bylaws exclude vegetable gardening. Although varied and healthy foods are more accessible to suburban residents, the inherent automobile-dependent culture goes hand-in-hand with a fast food culture. As in the urban environment, health suffers due to spatial design influences.

Even those living in rural areas where food is produced find themselves lacking access to a variety of affordable healthy food choices. Food distribution systems have come to rely on profits from highly processed packaged food and population densities required for large format grocery stores. Thus to have access to a healthy mix of protein sources along with fresh fruits and vegetables, rural residents are forced to drive long distances to population centers.[4]

TIME MISSPENT

To afford the cost of living that our car centric culture requires, many people work more than the standard forty-hour work week and often more than one job. The irony of the overworked and overstressed lives we are living is that for many people the work is terribly unfulfilling, and much of the money we earn is sunk into unnecessarily large housing, expensive personal automobiles, and the ready-made, low-quality food options that dominate our market. We're locked into a vicious circle made worse by bad design and poor choices. With so much time spent either at work or in transit to and from work, which for many is quite a considerable amount of time, there is little time left to prepare and serve wholesome foods, let alone grow and cultivate them.

LOSS OF AGRICULTURAL KNOWLEDGE

Even with heightened awareness of the importance of food quality and health, for most Americans the work of growing food (i.e. agriculture) is almost completely removed from mainstream culture. We have a 12,000-year known history of humans growing food, and less than 100 years of history during which we have entrusted that essential work, and knowledge, to an increasingly small segment of the population, currently about 2%.[5] In the suburbs we have lawns rather than gardens, and knowledge of food production has been replaced with knowledge of chemical fertilizers and weed killers necessary for monoculture lawn grasses. We drive to grocery stores to buy food trucked in from thousands of miles away rather than harvesting fresh food from our yards.

It is not only risky to turn over the knowledge needed to grow the food we all need to a tiny fraction of the population it also degrades the cultural value of *AgriCulture*. The Slow Food movement was born from these concerns, and its philosophy shares essential virtues with the new model of community development we are proposing. We support the idea that to fully gain the health benefits that food provides it is essential to embrace the full process of growing, cultivating, preparing, and consuming food.

A Healthier Option for Community Design

To provide a more active and healthy option for living, we propose a new model inspired by European allotment gardens. While most European allotment "communities" do not allow full-time residency, they resemble miniature towns with a network of gravel walking paths in the place of streets. In these arrangements the shared interest in growing food fosters community bonds and a food culture, two things lacking in the urban, suburban, and rural environments described above.

Taking the more structured European allotment communities as reference for our "allotment garden" model (Figure 1) we expand the scale of allowable structures on each garden parcel to accommodate permanent residency with bylaws that are essentially the inverse of typical suburban Home Owners Association (HOA) rules. Edible gardening would be required rather than prohibited. Maximum allowable house sizes (1,000 sf) would replace minimums (often 2,000 sf or more), and would restrict automobiles to parking outside the limits of the community.

The combination of smaller houses, walking paths rather than streets, and required gardening (typical to European allotments) would create a community designed to promote active lifestyles with an emphasis on accumulating and sharing the knowledge and skills required to grow food and prepare healthy meals. This model of living would also transcend typical economic stratification. With small lots (2,500 – 4,000sf) and small houses, people across a wide spectrum of income levels could afford to participate in a living arrangement with a high quality of life.

Case Study in Allotment Community Design

To demonstrate land use and design options for allotment community design we selected an abandoned strip mall as the site for our model (Figure 2). Hundreds of similarly derelict sites across the United States are a testament to the blight of suburban retail economics but also provide a potential opportunity for redevelopment. Our proposal shows how these sites—typically flat and large enough for a community of 100-300 garden homes—can be reclaimed for healthy and affordable living.

FEATURES

Our case study community consists of 200 single-family homes with a zoned maximum size of 1,000 sf and a recommended minimum of 400 sf. A form-based code would limit the volume of allowable structures to minimize the shadows cast on adjacent properties because food plants typically require full sun exposure.

FIGURE 2. Site selection, an abandoned strip mall in Christiansburg, Virginia

ALLOTMENT GARDEN COMMUNITY DESIGN

A centrally located Social House with both indoor and outdoor facilities would serve as a café for residents and the general public to come together for meals and conversation. The outdoor dining would be particularly enjoyable for families with young children by combining restaurant service adjacent to a playground. The Social House would also be used for various community activities and HOA meetings. The commercial kitchen would be used for community canning and food preservation during harvest times.

Playgrounds and a ball field encourage neighborly relationships and physical activity to enhance health. A composting facility and greenhouses provide, respectively, for soil fertility and for growing winter crops and spring starter plants.

Economically, each of the features listed contributes to a micro economy by creating a diverse set of jobs that need to be done. Greenhouse gardening, compost management, food service, construction, and facility management and maintenance jobs would all be available and necessary within the community on a limited basis for residents who might desire supplemental income and activities.

COST AND ACCESS

While our primary impetus for developing the garden community model for living was the health of residents through active living, food quality, and enhanced social interaction, a significant side benefit is affordability. In our case study example, the assessed value of the twenty-two acre property is approximately $8,000,000 despite 85% vacancy in the buildings. Even a relatively high assumed cost for the land, demolition of the existing buildings and parking lot, and development of new water, sewer, power, and walking paths would bring the total cost/value of the 200 building lots to approximately $10,000,000, or $50,000 per building lot. This lot valuation would include the land for common commercial (greenhouses and café) and recreational spaces. We imagine the greenhouses and café would operate as non-profit enterprises managed by the community HOA.

Even with a $50,000 land purchase price, ownership cost of a typical 800 square foot home in the community would be less than the typical expenditure for households receiving public assistance based on market rate construction cost. Ideally, common interest in the unique living arrangement provided in the community would lead to a highly diverse population with varied financial resources. If we think of automobiles as an analogy, as with a luxury Mercedes-Benz or entry level Ford or Chevrolet, home value would relate to amenity and quality of finish rather than size. Also with the 1,000 square foot size maximum for all homes, community based construction models such as Habitat for Humanity could further reduce home ownership cost.

Additionally, by effectively removing the automobile within the community, and by utilizing a site with pre-existing proximity to employment, shopping, and entertainment outside the community, the need for automobile ownership would be greatly reduced. An environment designed to eliminate the need for personal automobile use in day-to-day life is perhaps the single most significant step toward enhancing health and personal financial stability, because cars limit our physical activity and they are very expensive to own and operate.

TIME, KNOWLEDGE, AND CULTURE

With a much lower cost of living in the allotment garden community homes, many residents could afford to work less at their “paying” jobs and in turn could spend more time on other pursuits like interacting with family and friends. Having a network of people who all have a common pursuit such as gardening would also create the opportunity for knowledge creation and sharing about agriculture and food preparation. This knowledge accumulation and transfer would be seamless in daily life and would greatly help younger generations to restore a healthy relationship with food and nature that is so vital to human survival.

Bird's-eye view of allotment garden homes and lots

Interior rendering of an allotment garden home

Conclusion

Existing models of living—rural, urban and suburban—are all clearly failing to provide affordable living arrangements that support healthy lives. Our economy has evolved to one that is geared too exclusively toward specialized work for wages that are exchanged for everything we need or want in our lives. In this model we have lost our connection to fundamental elements of a high quality of life—healthy food, engaging community relationships, and living arrangements that encourage physical activity in a safe environment.

One viable alternative may be designing and building European-style allotment gardens in which people can reside full-time in affordable housing organized around a strong food culture.

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