

FoodSpace: Food production in the city

Existing alternatives to factory foods can be remarkably nostalgic, relying on models of rural purity and tiny homesteads, separated from the urban centres these farms serve. Our cultural associations with the purity of the countryside and the pollution of cities have limited our incorporation of new urban farming methods. By relying on standard, and horizontal, spatial relationships to our food, we have overlooked the potential of cities to provide us with fresh, seasonal, and local foods.

FoodSpace is a design thesis at the University of California at Berkeley, and as such not (yet) implemented.

Current food production systems rely on a spatial separation between food production and food consumption. Mono-cropped fields stretch across the North American landscape on a massive scale. Interstate highways snake through them, supporting the movement of trucks carrying our food over thousands of miles. Food is grown, processed, and packaged far from the spaces in which it is consumed. From the point of view of the consumer, most, if not all, food production and delivery to our plates remains an entirely invisible process, and yet it shapes what we eat and how we eat the food that keeps us alive.

Design and architecture have rarely challenged this separation. Production occurs far from where consumption takes place, allowing for the exploitation of human labour and an unsustainable dependence on fossil fuels for energy and transportation. Urban design provides an architectural infrastructure only for the consumption of food, never the production of it. Urban agriculture in North America has been forced to take up forgotten shards of land and limited container spaces on few rooftops. Historically, livestock and gardens were necessary parts of American cities, but cities have become significantly less productive during the past 50-100 years.

ROLE OF CONSUMERS

Since the late nineteenth century, we have been dependent on brands to

differentiate products, as well as to increasingly define who we are, and what is important to us. For consumers, alternatives to status quo farming take shape in how we choose our foods. We have in recent years increasingly bought food based on its origins and production methods, with labels such as: “organic,” “pesticide-free,” “minimally-processed,” “free range,” “no antibiotics,” “non-GMO”.

What if, in addition to the current “alternative models” of health food coops, CSA boxes, and farmers’ markets, urban food production could play a more active role in food consumption? Rather than depend on brands and labels to represent the food production methods, we could consume – visually, aurally, olfactorily, sensorily – the whole *process*, and not just the end result. As a highly visible structure in the city, FoodSpace would instantly reveal the state of food production to passers-by on foot, freeways, buses and trains. Consumers could move throughout the building, picking their own tomatoes, or filling bottles with honey. Visitors to the restaurant would munch on goat cheese as goats cavort past them. FoodSpace could become an approach to food consumption (and production) with a variety of shapes, sizes and materials, depending on regional weather, species produced, and consumption patterns. In San Francisco, FoodSpace would be a highly visible high-rise food production centre, run by a non-profit cooperative of at least 18 full-time workers, and house five organisms at a variety of scales – honeybees, tomatoes, dairy goats, mushrooms and snails.

SITING FOODSPACE

Shaping the North American discourse

on food origins, seasonal and local fresh foods, food justice issues, as well as obsessions with flavour, pleasure, and taste for the past 30 years, chef and restaurant-owner Alice Waters and her compatriots in the San Francisco Bay Area have articulated with much acclaim the importance of being connected to one’s food. Alice Waters’ simple ideas about fresh and seasonal produce in the 1970s gave rise to a “California cuisine”, led by her famous restaurant Chez Panisse, and have enabled the San Francisco area to become ground zero for North American forays into “authentic” and “artisanal” foods and cafes. The concentration of affluence and education, immigration, and the willingness to engage in thinking about issues of the origins of food make it an ideal testing ground for a project such as FoodSpace. The Bay Area’s mild climate and the year-round availability of locally grown produce, as well as geographical access to a variety of nearby food-growing regions, have contributed to this regional identity based in large part on food. FoodSpace would be sited on the south-eastern edge of San Francisco’s Financial District, a half block from a major transportation hub, and with increasing residential and mixed-use projects underway nearby. FoodSpace would intersect the paths of commuters and residents, as well as visitors from throughout the city, with a variety of food consumption options. In an area where consumers are already active and engaged in food origins, FoodSpace would generate discussion and interest, as well as fresh local foods.

FOODSPACE TAKES SHAPE

FoodSpace has been designed by analysing the spatial characteristics, including basic biology and resource needs, of five organisms – honey bees, tomatoes, dairy goats, mushrooms, and snails. The various species were initially researched individually, and then analysed for overlapping resource needs. While a snail can thrive in low to medium levels of light, tomatoes need bright light. High humidity is required for mushrooms, but honey bees need dry air

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	FOODSPACE	CONVENTIONAL FARMLAND CENTRAL VALLEY, CALIFORNIA
Land value (12 acres)	\$8,781,703 (based on current assessed value from the City and County of San Francisco)	\$240,000
Structures and materials	\$3,900,000	\$3,120,000
Infrastructure (water, sewer connections)	0 (connections to existing infrastructure easy and cheap)	\$200,000
Transportation	0 (minimal – surplus produce transported 0.76 miles to Ferry Building Market)	\$1,148 per truckload (frequency of truckloads depends on product)
Environmental impacts	minimal and transparent	high and opaque (invisible to consumers)
Labour practices	\$720,000 (18 full-time staff at \$40,000/yr, including benefits)	exploited – especially immigrants and poor
Inputs (water and hay)	8,580 gallons water/day \$20,800 hay/yr	\$200 – 400/acre for water \$20,800 hay/yr (same)
Restaurant	\$1,314,000 annual profit	\$0

and access to running water. With such varied needs, especially also considering the complex biology, lifespan, behaviour, social perceptions and productivity of each species, analysis focused on the two most basic resources for design – light and water.

The necessary types and amounts of light would vary with the five species living in FoodSpace, and would form the basic organising relationships for the building, as coordinated with the varying light levels on the site due to adjacent buildings and solar geometry. Water would move throughout the building in a variety of forms, depending on the organisms’ needs – standing water in troughs, foggy mist for mushrooms and snails, running water for the restaurant and dairy.

Four main routes, each including freight elevators and stairs, would be used throughout the building for the movement of water and hay, manure, people, and foods ready for consumption. The two major inputs to FoodSpace would be water and hay. The 1,000 goats of FoodSpace would produce about 5,000 lbs of manure and used bedding each day. This manure would be transported down from the goat floors onto the first level, where it would be autoclaved for sterilisation, and subsequently used as growing medium for the mushrooms and snails.

New roles for consumers are made possible with the third route for circulation, focused on public access. Consumers could move up through the

building along a series of ramps, stairs, and an elevator to consume (see, taste, listen, smell) different parts of the food production process. The marketplace on the ground floor, easily accessible to passers-by and pedestrians going about their everyday downtown activities, would sell food produced in FoodSpace. By providing a spectrum of consumption modes, the purely didactic nature of the project – showing people where their food comes from – fits into a larger experience of both food production and consumption.

The project could be described as a giant vending machine – as foods are made ready for consumption, they would move (generally down) through the consumption core to the various points of consumption – from the growing areas, to the goat milk dairy, or honey extraction rooms, or mushroom sorting areas, to the restaurant, cafe, and market areas. The fourth core would be devoted to these foods, intersecting with the four dairy areas, and located adjacent to the loading dock. Foods not consumed in FoodSpace would travel by truck 0.71 miles to the nearby Ferry Building, a redevelopment project housing a variety of local food markets and cafes.

TWELVE ACRES DOWNTOWN

In terms of square footage, FoodSpace would equal twelve acres (about 4.8 ha). Conventional agriculture in the Central Valley of California remains relatively inexpensive, despite the hidden costs of pollution, irrigation, and exploited human labour. To compare this “cheap” land use with FoodSpace, land values and

productive outputs for twelve acres of Central Valley farmland were compared with the twelve acres of FoodSpace. Because of the high land value of downtown San Francisco real estate, the economic costs of FoodSpace are significant, but not insurmountable. Urban agriculture can benefit from accessing directly the existing infrastructure for water and waste of the city, and with this asset, in addition to almost no transportation costs and relatively little pollution, FoodSpace could become an entirely feasible project (see table).

CONCLUSION

FoodSpace aims to generate discussion amongst those involved with urban agriculture of all kinds. While the form of a high-rise building devoted entirely to urban agriculture may not be the best solution to each city and region’s emerging foodways, this example tries to highlight new ways of imagining the powerful arguments for more local, fresh, seasonal foods incorporated into our urban architecture. I hope to further investigate urban spaces that are inclusive of agricultural activity at all scales.

