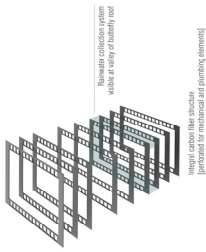


**design thesis [ 6 th year graduate] Spring 08 : "biodynamic dwelling" Amber Ellett, 2. place [ 130 entries from international graduate and recently graduated students ] : "In the Pursuit of Housing 2009" / International Design Competition co sponsored by the Boston Society of Architects and Architectural Record ) / University of Nebraska USA**

The biodynamic (bioclimatic + dynamic) dwelling evokes the prosaic "trailer home," a ubiquitous typology which currently houses 8% of the US population. This proposal rejects the current proliferation of static and inefficiency in housing, while embracing an adaptive, flexible alternative.

In this proposal, a lightweight dwelling rests effortlessly on a rotation mechanism modeled after a swing bridge, which may rotate in accordance to solar orientation, or manually according to resident's personal preference. This affords the residents the ability to personally adapt their dwellings to interact with their neighbors, by rotating towards one another to create semi-private courtyards, or towards a large group of neighbors in order to create a large communal space. In this way, the biodynamic dwelling creates a variety of social and environmental interaction.

The interior of the dwelling is as much adaptive and flexible as the exterior. The interior space is left largely open, responsive to varying programmatic conditions, or to personal preference. Thus, the wall and floor capsules (with also highly-rotating) exist as spatial propositions, serving to store various transformable furniture elements, which may be unfolded and utilized at will. Through maximizing efficiency and minimizing space, the highly-adaptive dwelling contains less embodied energy and demands less external energy. A geothermal heat pump system serves much as the roots of a tree, physically connecting the unit to the ground. The resultant biodynamic dwelling proves applicable in variety of socioeconomic and geographic situations, ultimately responsibly elevating one of the lower tiers in society.

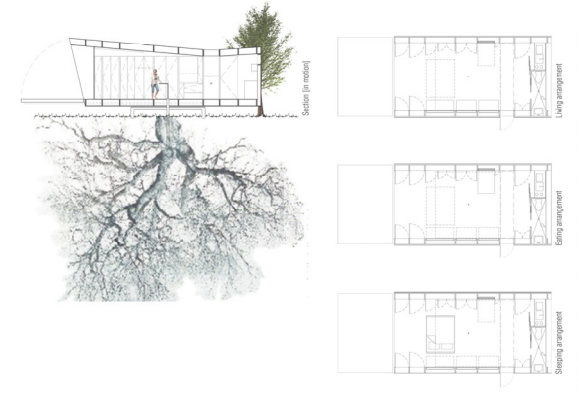
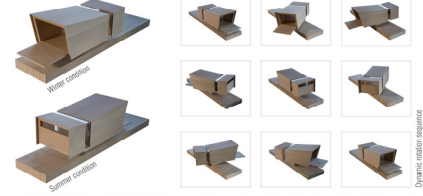
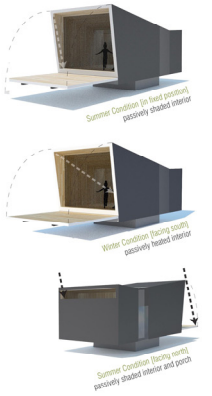


**BIODYNAMIC DWELLINGS**

Mobile dwelling units, constructed of carbon fiber, rotate to exist passively with the sun, ultimately offering the user a greater cognizance of natural cycles and a deeper engagement with a piece of architecture.

It has been estimated that as many as 200 million people will be displaced worldwide due to the effects of climate change by mid-century. Further, it has been estimated that the vast majority of FEMA temporary housing administered during the Gulf Coast disaster relief in 2004 contained levels far exceeding the CDC's maximum recommendation for long-term exposure to formaldehyde. These populations, coupled with the 20 million Americans who currently reside in "trailer homes," represent a typology which has long been overlooked by the architectural community.

Though these aforementioned dwellings are often referred to as "mobile homes," it has been shown that 95% of trailers, once placed on a site, are never moved again. This proposal offers a new take on the prospect of mobility, offering rather than a dwelling which "moves," one that is physically "moving." As a further research initiative, it would be beneficial to consider the possibility of high-density or multi-family biodynamic dwellings, though certainly the dynamic aspect would present more of a challenge. As presenting architecture as physically engaging and environmentally conscious and reactive, the dwelling serves the unique purpose to inform and uplift society, and as such manifests a responsible humanitarian position through built form.



**AWARDS PROGRAM/2009**

Established in 2005, In the Pursuit of Housing is an ideas competition that seeks to promote excellence in housing design by young designers. The response to the BSA's 2009 call for entries was astounding. The jury examined 130 submissions for this biennial awards program, which was cosponsored by the Boston Society of Architects (BSA) and *Architectural Record*.

**The Jury**

- Mark Pasnik, RA, principal of over,under, co-director of pinkcomma gallery and assistant professor at Wentworth Institute of Technology
- Tiffany Lin, principal of LinOldham Office and assistant professor at Northeastern University
- Hansy Better Barraza AIA, LEED AP, principal of Studio Luz Architects and assistant professor at the Rhode Island School of Design
- Beth Broome, managing editor of *Architectural Record*

**SECOND PLACE**

*"Biodynamic Dwelling" designed by Amber Ellett Associate AIA (University of Nebraska – Lincoln*

This upwardly mobile solution to the American doublewide problem takes a serious and critical look at a prolific housing type's contemporary and future issues. The proposed design offers an adaptable, flexible alternative to the static and inefficient design of traditional trailer homes. In this case, the lightweight dwelling rests on a rotating mechanism modeled after a swing bridge. Units rotate according to solar orientation for passive heating/cooling, and residents also can manually rotate the housing to accommodate personal preferences—for example, swinging units to face toward or away from each other, or to create large communal spaces or semi-private courtyards. A geothermal unit anchors each unit to the ground. The proposal also includes a ramp, making this a rare example of a trailer home that is accessible by design. While the jury had reservations about awarding a housing prize to single-family structures, this project represents a prototype strategy for improving housing across broad economic and social strata. In the context of a trailer park, this careful and creative re-reading of the building type serves as a housing solution, not just a one-off project. We wanted to learn more about the rotation, and some on the jury saw this feature as unnecessary. Its impact on use and maintenance (would it have a composting toilet or hinging plumbing?) seemed overly fussy in light of the project's strong conception and level of resolution. The project was convincingly represented not only as an object, but also in the way it could form communities.