

### **TrailerWrap**

TrailerWrap is a collaborative, design + build project that addresses issues of sustainable and affordable design in the context of the ubiquitous American trailer park. At the scale of an individual building the project explores the potential for augmenting this affordable housing typology with outdoor living space, improved, energy efficient construction and high volume, light-filled interiors. At the urban scale the project reexamines the mobile home park as a model for equitable, high-density alternatives to suburban sprawl. In pushing the envelope of adaptable reuse, the TrailerWrap project seeks to create exciting, small scale, high density, and affordable architecture with a social and environmental conscience.

TrailerWrap is part of Prof. Hughes' ongoing *Design Outreach Initiative*. This work is focused on small, unremarkable, and often forgotten places adjacent to the lives of underserved people. Located in the boundary between architecture and landscape the projects seek to create experiential delight out of small-scale design opportunities. Through the adaptive re-use and recycling of leftover urban spaces the resulting projects augment and enhance existing building infrastructures with new, primarily outdoor, spaces That provide pragmatic functions, promote play, and exhibit a social and environmental conscience.

### **Typology of Despair**

Often overlooked or looked down upon, the mobile home constitutes an important but under- appreciated housing typology that serves wide range of citizens. Since the mid-1900's mobile homes and manufactured housing have been mass produced in an attempt to provide a solution to low cost housing; however, in doing so, several important factors that make a house a home have been overlooked. Unimaginative aesthetic and spatial design combined with inefficient energy strategies and poor construction techniques define the major shortcomings common in the industry. Such conditions make these homes difficult to maintain leading to extreme conditions of disrepair and often abandonment. In response to common misconceptions related to trailers and the clichéd stereotypes associated with the people that occupy them, TrailerWrap strives to provide simple and affordable solutions to improve both the spatial quality and energy efficiency typically found in conventional manufactured housing. A tangible outcome is a completed housing unit, meeting local building codes and standards, which will be made available to a low-income household.

### **Alternative Urbanism**

Beyond the individual housing unit, land use patterns found in the familiar trailer park provide a uniquely American urban planning model combining relatively high density with individual land ownership. As such, the urban mobile home park constitutes a rare opportunity for people of minimal or modest income to live in the center of town, close to jobs, retail, and entertainment. In terms of both scale and cost, the trailer park fills an underserved niche in spectrum of contemporary housing options. Slotted between the typical suburban ¼ acre lot and the multi-unit condominium/apartment complex, the standard 25ftx75ft mobile home lot offers a single-family option, complete with it's own

plot of land, at an affordable price.

### **Re-FAB VS PREFAB**

Diverted on its way to the landfill a cramped, 10'-4" x 47'-0", two bedroom donor trailer was transformed into an open, expansive example of small-scale architecture. Conceived as a single, loft-like volume oriented toward a new outdoor living room, the project privileges experiential conditions that affect the immediate scale of human occupation. The Re-Fabricated trailer measures 12'-4" x 47'-0", but it feels much larger and more gracious. The high ceiling of the interior extends out to define and incorporate a New, outdoor space that combines aspects of a front porch and a patio. Programmatically, this extension takes advantage of the, surprisingly, temperate local climate as it expands the visual and functional limits of public space in the house.

The project incorporates a site strategy that links indoor and outdoor space through placement and circulation. The resulting Interwoven sensibility mixes the linear character of the trailer with a processional sequence more common in a traditional house with a large yard and spacious front porch. This unobstructed path celebrates the relationship between the interior and exterior while a series of subtle thresholds mark transitions and modulate the formal procession from the more public character on the front, west side to the relatively private space of the rear, east side.

The new interior organization compresses functional utility into dense, multifunctional zones that dissolve boundaries typically associated with specific, partitioned rooms. The large, freestanding structure located in the center of the interior volume defines the four main spaces of the interior: Living Room/Dining Room, Kitchen/Office, Bedroom, and Bathroom. The mono-pitched roof slopes to the south allowing for indirect lighting through the expanse of clerestory windows on the North elevation. The roof slope also provides advantageous solar orientation for a future, passive hot-water heating system.

### **Community Partnerships**

This project required a lot of creative thinking. According to the City Zoning Code a "Mobile Home" is defined as, "a transportable, single-family dwelling unit, suitable for year-round occupancy that contains the same water supply, waste disposal, and electrical conveniences as immobile housing, that has no foundation other than wheels, tie-downs, or removable jacks for conveyance on highways, and that may be transported to a site, but the zoning governing mobile homes does not allow for "modular homes designed to be placed on a foundation." This project conforms to the code governing mobile homes because it doesn't require traditional foundations and the unit retains a functioning chassis. Substantial concrete piers and demountable steel connections serve as wind tie-downs, but those tie-downs are permissible because they do not emerge above the ground plane and they can be disconnected from the chassis. Also, per code, the unit must remain mobile; it must be able to go down the road. The student team invested the extra effort, time and expense to make the project conform to the code through extensive engineering, structural reinforcement, and the incredible mentorship of Dave Transue of Transue Engineering Associates in Boulder, CO.

### **Reclaim + Reuse**

Following the adaptive reuse principles at work in the overall project, the interior was designed to utilize partitions framed with salvaged solid core doors and clad with scrap veneer plywood donated by a local cabinet shop. The counters and dining table are made of reclaimed butcher block. Similarly, The redwood slats and deck used in the outdoor room were reclaimed from old deck material and culled wood from Straight Lumber in Aurora, CO and Resource 2000 in Boulder, CO. Similarly, remnants of “utility” grade oak was purchased at scrap prices, trimmed to avoid the knots and blemishes, and installed for less than \$1.00 per square foot.

### **Hands-On Education**

Over the course of 24 months a group of over 50 undergraduate and graduate architecture students and 3 professors undertook all aspects related to the design, planning, coordination, material specification, and re-construction of this mobile home. The students were immersed in the complexities of a small, but complex project from the initial conceptual stage through construction details and finally to the full-scale construction. The participating students learned various construction methods and developed relationships with the building trades in order to augment their professional design education. Students worked with skilled craftsmen/mentors in the electrical, plumbing, and metal working trades to gain hands-on experience in construction. Working in the field, meeting with the city building and zoning officials, interacting with the trades, and learning to confront/overcome logistical hurdles in real time, students encountered both the agony and ecstasy of making architecture at full-scale. This unique educational opportunity exposed students to the act of construction as a fundamental component of critical design practice and civic engagement.

### **Community Outreach**

TrailerWrap is a collaboration between Thistle Community Housing, the Mapleton Home Owner’s Association, Tradesmen from the Department of Facilities management at the University of Colorado, the Children, Youth and Environments Center, and an interdisciplinary team of faculty and students from the College of Architecture & Planning. Thistle Community Housing purchased the Mapleton Mobile Home Park in 2002 to ensure the long-term viability of permanently affordable housing in one of America’s most expensive communities, where the average home price is just under \$500,000. While Thistle owns the Land, individual households own the 132 trailers and lease their lot at subsidized rates. The completed project will provide a dignified, permanently affordable, urban home for a low-income household.

The project received significant financial support from a wide variety of Community and University sources. The previous owner donated a 1965 mobile home and Thistle pledged \$20,000 toward the construction. Four grants supporting both the construction and project evaluation have been received from the Outreach Committee, Service Learning Committee, the Office of Diversity + Excellence, and the Institute for Ethical and Civic Engagement at the University. These funds, along with support from the Dean

of the College of Architecture & Planning totaled approximately \$36,000 for construction materials. All of the student's labor and many of the materials were donated by our sponsors.

### **Pedagogy**

Engaging architectural education as an integrated, full-scale endeavor provides the basis for a wide range of explorations into tectonic materiality, formal gymnastics, spatial landscapes, sustainable technologies, and community outreach. The pedagogy offers a unique opportunity for students interested in a comprehensive, project-based approach to architectural education. The goal is to augment traditional design education with a curriculum based on collaborative, firsthand, full-scale, tactile immersion in a specific, cultural environment. The program utilizes a cross-disciplinary, research/design/build model designed to teach civic responsibility through culturally specific, environmentally responsible, and socially empowering lessons that engage underserved communities. In addition to construction knowledge, we expect that this course will increase students' awareness of unmet basic needs among the clients they serve and strengthen their sense of social responsibility, deepening their motivation for further civic engagement in their future professional development.