

Case Study House

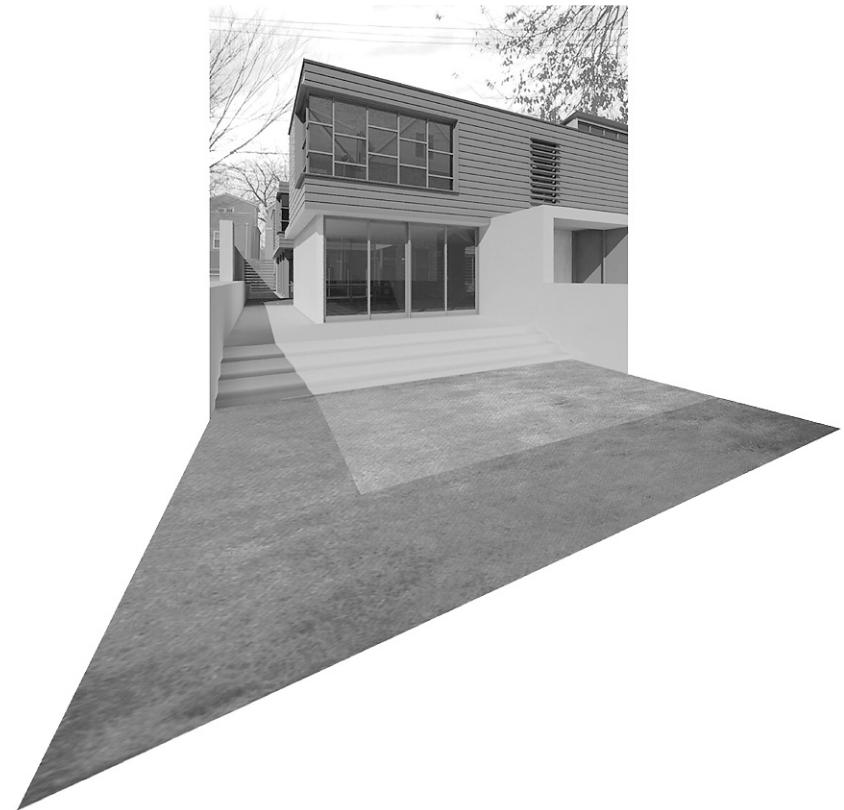
Ply Architecture

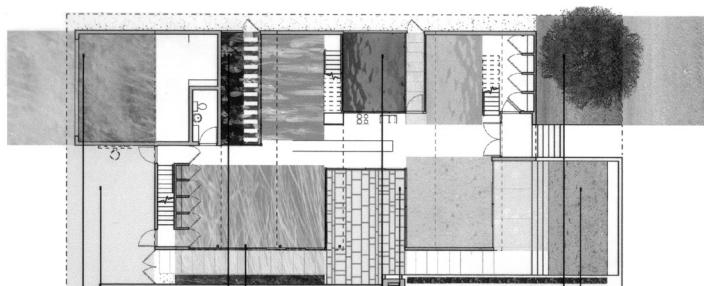
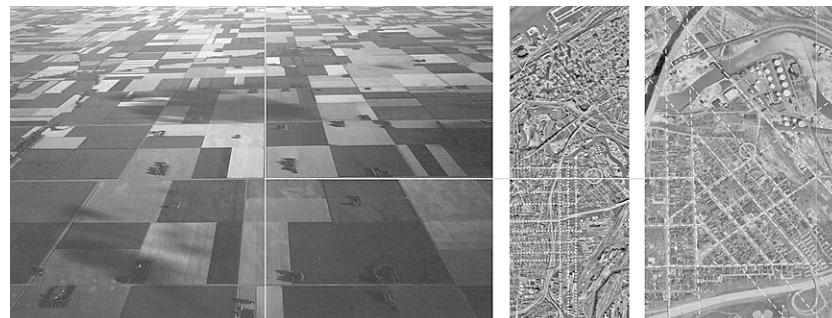
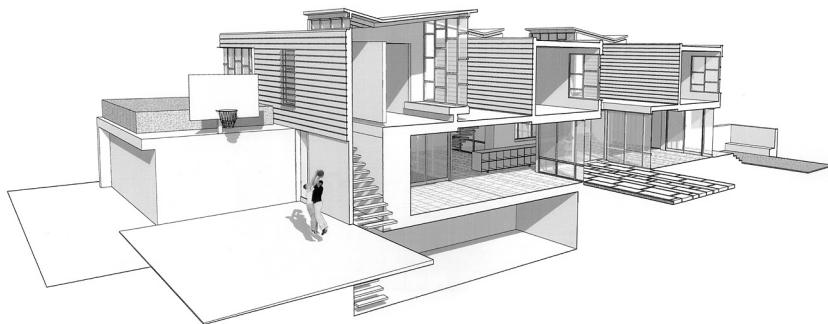
Domestic Situations

The house is a primary indicator of social, economic and political conditions beyond the broader context of simply “dwelling.” As a cultural symbol, the house incorporates technological and industrial developments and reflects attitudes toward space, time, and mobility. The evolution of the concept of home reveals changing demographic patterns such as marital status, birth rate, mortality, and cohabitation. Population trends from the past fifty years in the United States, for example, indicate that the percentage of married couples in the adult population is dropping, the average size of a household (family and non-family) is reducing, and the occurrence of non-family households (unrelated roommates) is growing.¹ These shifting demographics, combined with the fact that Americans move every two to three years on average, suggest that the house must be flexible enough to accommodate a variety of living arrangements, domestic situations, and economic conditions.² The notion of a “traditional family” perpetuated in the domestic sitcoms of the 1950s is increasingly impossible to define, if it ever existed at all. The changing demographics portrayed through television domesticity are reinforced by statistics of the U.S. Census and suggest that a household adapts and shifts, grows and shrinks.

for domestic diversity and flexibility of the household. In accounting for the forty-three million Americans who move every year and the growing percentage of non-family households (47.2% in 2000 up from 29.4% in 1970), the Case Study House can be occupied efficiently by a single family, an extended family, or even multiple family and rental situations.³ Building on the original Case Study House program, initiated by John Entenza in 1945, the proposal also stresses the idea of prototype, integrating manufactured and custom-built components to address the various needs of the house. The custom-built ground floor provides an open and flexible living space for public activities, while the second-floor “lofts” provide space for more private functions. The lofts are designed as manufactured housing components that are constructed off-site and shipped to the site, at which point they can be built-out and customized for the owner/occupant. The design allows for phased construction, being complete as either a one-story house or with one, two, or three of the second-floor lofts.

As there is no “traditional” family, there is also no traditional “house.” The requirements of specific clients transform the house, whether in the form of owner, landlord, or tenant, for a duration of one, ten, or fifty years. The Cleveland Case Study House provides for the future of the domestic condition as a receptacle for the people and





<p>Yard (back) Roof Garden Sustainable Landscape Visual Filter</p>	<p>Garden Wall Garden Year-Round Growth Climbing Vines</p>	<p>Pool Water Storage Light Transmitter Reflection Sources</p>	<p>Yard (front) Civic Responsibility Fruit Tree Seasonal Harvest</p>
<p>Court Play Court Service Yard Workshop</p>	<p>Border Vegetable Garden Deciduous Hedge Fall Color</p>	<p>Terrace Living, Dining and Cooking Space Kitchen Garden</p>	<p>Lawn Private Green Play Lawn Growing Beds</p>

objects that are brought to it, enabling spaces to be defined by actions and activities as opposed to constructed limitations.

The Democratic Landscape

Thomas Jefferson's Ordinances of 1784 and 1785 created the regulations for surveying and land acquisition for the territory west of the Appalachian Mountains. The Ordinance established a one-square-mile grid oriented along the cardinal axes, within which each six-square-mile section of the grid constituted a township. For Jefferson, the grid was not simply a formal geometric system it was the armature that would give shape and structure to the complex relationships between individuals and society. Through the form of the grid, simple and accurate descriptions of individual properties would facilitate the private acquisition of land that would, in turn, guarantee the rights of citizenship in the new agrarian society.

This homogeneous division of territory did not, however, render a banal or monotonous landscape. On the contrary, a rich and seemingly boundless tapestry of woodlots, homesteads, and rhythmic patterns of furrowed fields emerged between these lines of measure that stretch to the horizon. At the larger, rural scale, the precision of the demarcated fields produces a distinct reading of three-dimensional volumes (woodlots, homesteads, agricultural buildings) dispersed within

the otherwise open landscape defined by agricultural hedgerows. At the scale of the individual plot, the space is perceived as having a subtractive quality as trees and vegetation are cleared for human occupation. This spatial structure persists even at the scale of twentieth-century urban development. Aerial photographs of the proposed site for the Case Study House, Cleveland (located in the first ring of residential development across the Cuyahoga River from the downtown) show the mile grid subdivided into twenty-five foot by one hundred foot residential lots.

The translation of the spatial conditions of this rich landscape into the design of the Case Study House occurred in two ways. First, by addressing the full site as a potential field of diverse activities. Then, by reversing the typical diagram from one where the house reads as a figure and the land around it as residual "yards," to one where the exterior spaces take on three-dimensional properties. The yards, therefore, act both as exterior, volumetric figures dividing the open space of the first floor and as programmed volumetric spaces accommodating various leisure activities. The intrusion of the courtyards into the otherwise open first floor allows for a simultaneous reading of continuous space flowing unbroken through the glass-walled courtyards and, alternately, clearly-defined pockets of space delineated by the same

exterior volumes. This process results in a fluctuation in the double reading of the Case Study House landscape between figure and void.

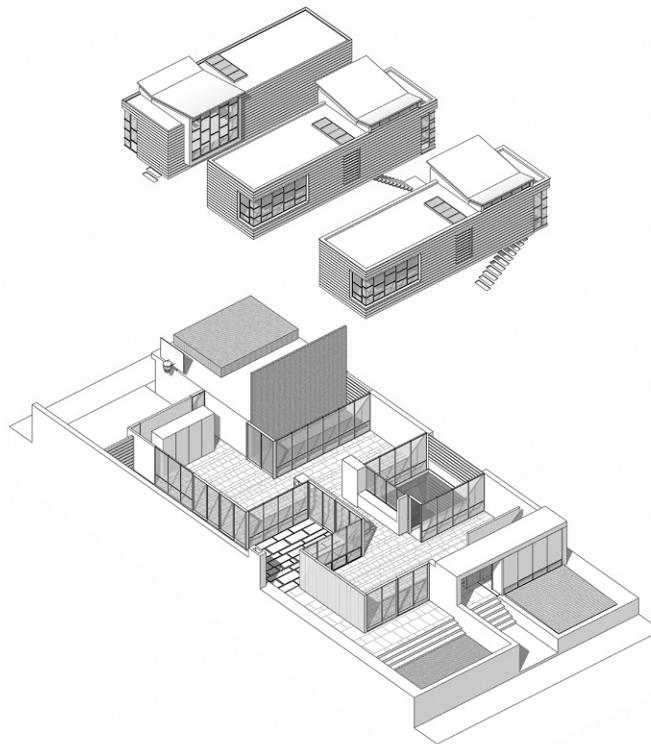
The shifting perceptual boundaries of the first floor promote the ability to re-program the space for various domestic situations. If the prefabricated lofts above take on the characteristics of a “house” within this interior landscape, satisfying the American desire for individual territory, then, the open space of the lower floor combined with the volumetric exterior spaces can be seen to constitute a public landscape within the site.

Production/Fabrication/ Economic Performance

Building on the original case study house program, which stressed the notion of the prototype, our proposal attempts to synthesize issues of the prototypical and the specific integrating both manufactured and custom built components to address the various needs of the house. The strategy for our Case Study House proposes a custom built first floor that provides open and flexible living space with loft-style living units located on the second floor.

The lofts have been developed as manufactured housing components that can be constructed off-site and shipped to the site, restricting the size of the lofts to twelve feet wide by forty feet long. The specifications for the manufactured lofts include two by six walls on a two by ten floor with ¾-inch plywood flooring. The walls come insulated with R19 and the roof with R38 batt insulation. These units include plumbing, plumbing fixtures, electrical wiring, and lighting fixtures, cabinets, and all finishes except a finish floor as part of their unit cost.

In addition to the loft’s fabrication, there are other costs, which have also been factored into our cost analysis. These costs include a fabricator’s



engineering fee of \$1,750 (a one-time fee for getting state approval), a craning fee of \$1,000 based on four hours at \$250 per hour for a crane service, and a shipping fee of \$1,250 per loft (varies depending on location of factory and site—estimate is from Marlette, Michigan to Cleveland, Ohio).

Our scheme, when built out with two or three lofts, takes advantage of the existing duplex zoning of the property. In the case of the two and three loft options, the possibility exists for one loft to serve as a rental apartment with private access from the service court. Based on current interest rates, we can assume a capitalization rate between 9 and 10%. This rate takes into account a 5% vacancy rate and all operation costs including taxes maintenance, etc. In the Tremont neighborhood we can assume an average rental rate for a one-bedroom apartment at \$500 per month. This would set the value at \$54,000 for the loft unit designated as an apartment. This is \$32,000 greater than the cost of constructing that

unit, adding value to the property and generating income that can offset the cost of the higher investment.

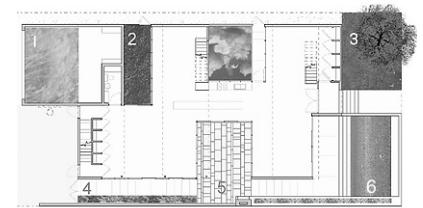
Courtyard Gardens

As an alternative to traditional building and site relationships, a series of courtyard gardens are integrated as positive spaces within the architecture. Garden and building are interlocked, elevating the role of landscape beyond its position as leftover space around a building. The typical frontyard/backyard relationships are extrapolated into a series of landscape spaces providing flexibility and experiential variety from both inside and outside the house.

The courtyards introduce natural light, provide spatial definition and create year-round connections to the environment. The gardens are the permanent fixtures of the project, the constant elements that define the relationships between rooms. Each area of the house has a direct correspondence with an adjoining courtyard garden, creating a distinct character within



Midwest homestead

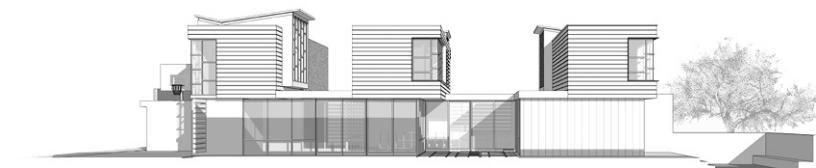


Inversion of Midwest homestead—gardens as positive landscape elements. 1) rooftop meadow, indigenous grasses; 2) vine wall, English ivy and trumpet creeper; 3) grass lawn with crabapple tree; 4) deciduous hedge, flowering viburnum; 5) vine scrim, Virginia creeper and climbing hydrangea; 6) wildflower lawn

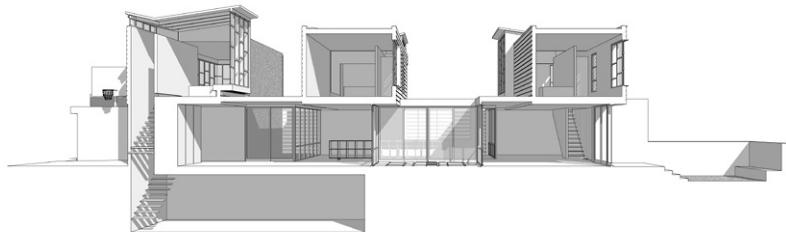
each space regardless of the specific program. The intention is not that the boundaries between inside and outside are blurred, but that the exterior space is instrumental in giving greater specificity and distinction to the interior space.

The functions of the courtyards are flexible, but the plantings and materials are specific to the site orientation and climate. Gardens on the north side of the site are elevated allowing light and color to permeate the space: meadow grasses provide a roof-top alternative to the typical back yard; evergreen vines climb a two-story wall creating a vertical garden visually accessible on both floors; a pool of water reflects light into an adjacent room; a green lawn and an apple tree contribute to the neighborhood street.

Courtyards with optimal southern light have a flexible palette of seasonal activities and vegetation: a basketball court doubles as a service area as needed; a dining terrace supports



South elevation



Longitudinal section

kitchen gardening and outdoor cooking; a defined lawn panel provides an enclosed play area and relaxation zone surrounded by perennial plantings.

Notes

1. "America's Families and Living Arrangements," U.S. Census Bureau, U.S. Department of Commerce, 2000.
2. Hennessey, James. *Nomadic Furniture*. New York: Pantheon Books, 1973, 1.
3. "America's Families and Living Arrangements," U.S. Census Bureau, U.S. Department of Commerce, 2000.

Project Data

The House: Case Study Cleveland Competition, 2002, was the winning entry to an invited

exhibition and competition sponsored by SPACES Gallery, Cleveland, Ohio, funded by the National Endowment for the Arts, among others. With the goal of promoting architect-designed housing for the typical American family, the 1945 Case Study House program became a point of departure to re-examine the house in a twenty-first-century, Midwestern, post-industrial city. The competition jury included Jeffrey Stream, Robert Bostwick, Julie Langsam, and John C. Williams, and was headed by New York architect Rafael Vinoly
 Location: Cleveland, Ohio
 Construction Systems: masonry load-bearing walls with prefabricated wood frame
 Area: 3,000 square feet
 Construction Cost: \$ 210,000
 Materials include: masonry, storefront glazing system, Andersen windows, prefabricated frame system

Design Team

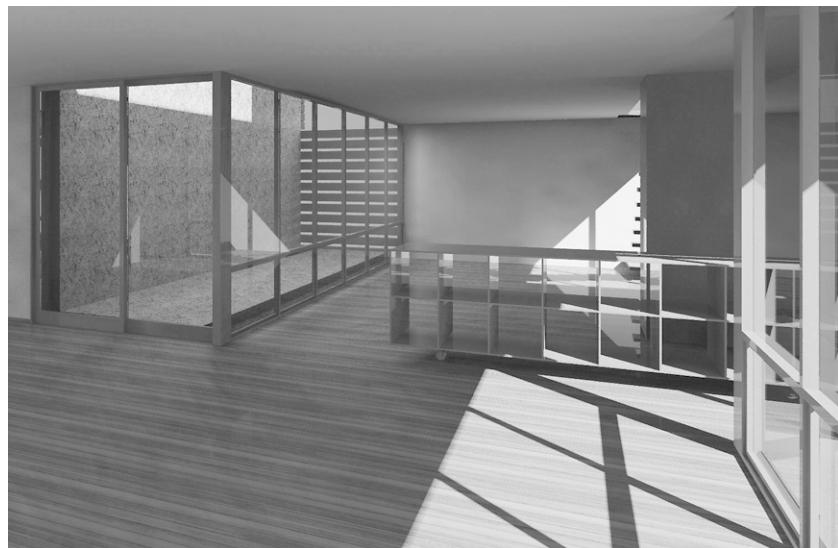
PLY Architecture
 Craig Borum, Karl Daubmann, Gretchen Wilkins and John Comazzi
 Landscape Architect: Elise Shelley
 Assistants: Katherine Borum, Kevin Conway, John Fleming, Wei Hu, Randy Knight, Jen Maigret and Erin Ray

With generous support from the University of

Michigan College of Architecture and Urban Planning.



Cross section



Vertical courtyard



Loft interior



Water courtyard