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ABSTRACT

PORTABLE HOUSING FOR MEXICAN MIGRANT WORKERS

by
Janet Corzo

A capable migrant labor force is critical in sustaining the United States' agriculture industry. Yet, migrant farm workers are among the most economically disadvantaged people in the United States (NCFH). The housing available to migrant workers in the United States is typically substandard and subject to other factors, such as local availability, social stigmas and legal status. While housing is usually provided by a grower (on-the-farm) or acquired by the migrant worker himself (off-the-farm), there seem to exist no examples of portable housing that a worker can transport from job to job. This study seeks to explore the viability of portable dwellings as a housing typology for migrant farm workers. Portable housing would readily seem to be the best suited form of housing for a demographic whose livelihood depends on being mobile.

This study is divided into three parts. The first part will summarize the migrant experience. By analyzing existing research across various fields, including anthropology, economics and sociology, this research will establish an understanding of a typical migrant worker's lifestyle and career outlook. The second part will survey the scope of migrant housing in the United States. Illustrating both typical housing conditions and exceptional examples will help to reveal the problems associated with migrant housing, as well as to identify the successes. The third part will present a design for a portable dwelling based on the lessons learned from the first two parts.

PORTABLE HOUSING FOR MEXICAN MIGRANT WORKERS

**by
Janet Corzo**

**A Thesis
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To Chris

“It's ironic that those who till the soil, cultivate and harvest the fruits, vegetables, and other foods that fill your tables with abundance have nothing left for themselves.”

Cesar Chavez

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TABLE OF CONTENTS

Chapter	Page
1 INTRODUCTION	1
1.1 Overview	1
1.2 Objective	2
2 THE MIGRANT LIFESTYLE	4
2.1 Introduction	4
2.2 A Brief History of Migration From Mexico to the United States	4
2.3 The Three Phases in a Migrant Worker’s Career	5
2.4 Migrant Social Networks	7
2.5 Migrant Streams	10
2.6 The Cultural and Social Implications of Migration	13
3 THE HOUSING DIALECTIC	15
3.1 The State of Existing Housing	15
3.2 On-the-Farm Housing	16
3.3 Off-the-Farm Housing	19
3.4 Case Studies	22
3.4.1 Participatory Design – Design Corps in Adams County	22
3.4.2 Esperanza – Mattawa, Washington	25
3.4.3 Las Mañanitas – Coachella Valley	27
4 THE HOUSING SOLUTION	30
4.1 Why Portable Housing?	30
4.2 Design Intent	34

TABLE OF CONTENTS
(Continued)

Chapter	Page
4.3 Concept	35
4.4 The Proposed Housing Unit: Program, Structure, Systems and Ideologies	37
5 CONCLUSION	45
APPENDIX A AGRICULTURAL SEASONS BY STATE	47
APPENDIX B SELECTED AIRSTREAM SPECIFICATIONS	48
APPENDIX C SELECTED ARCHITECTURAL DRAWINGS	51
REFERENCES	58

LIST OF TABLES

Table		Page
2.1	Composition of Migrant Streams: A Historical Perspective	11
2.2	Weeks of Activity by Legal Status (Excluding Foreign-Born Newcomers) ..	13
A.1	Agricultural Seasons By Stream and By State	47

LIST OF FIGURES

Figure		Page
2.1	Propensity for migrant settlement	7
2.2	Map of migrant streams in the United States	10
3.1	Adams County migrant housing unit in context	23
3.2	Adams County migrant housing unit plan	24
3.3	Esperanza site showing arrangement of housing units	26
3.4	Covered outdoor court shared by four units	27
3.5	Las Mañanitas housing units	28
4.1	A compilation of lowrider images	36
4.2	Airstream chassis	39
4.3	A rural Mexican house sited in the fields near a village	42
4.4	A rural Mexican house sited in the village center	43
B.1	Freshwater distribution	48
B.2	Waste water distribution	49
B.3	LPG distribution	50
C.1	Plan view of hard space	51
C.2	Side views of portable unit (hard space)	52
C.3	Soft space pallet	52
C.4	Assembly sequence of soft space	53
C.5	Hard space structure	54
C.6	View showing pallets stacked inside hard space	54

CHAPTER 1

INTRODUCTION

1.1 Overview

A capable migrant labor force is critical in sustaining the United States' \$28 billion per year fruit and vegetable industry (NCFH). The jobs available for migrant workers include planting, weeding, trimming, harvesting, sorting and packing, all of which are extremely labor intensive. Although harvesting can be done mechanically, there is no substitute for human hands in many facets of agriculture. These tasks are time sensitive and only allow for limited periods of employment. Large-scale and corporate farming in the U.S. was founded on the premise that migrant labor was cheap, plentiful and reliable (Mitchell 113-114). U.S. agriculture, in its current state, would become a crippled industry without migrant labor. Yet, migrant farm workers are among the most economically disadvantaged people in the United States (NCFH). With a median income of \$7,500 per year and a median household income of less than \$10,000 per year, 61% of migrant workers live in extreme poverty (Finoki).

Migrant workers tend to live in isolation from the rest of American society and are "often invisible even to the residents of the towns where they come to work" (Embrey). Lorraine Stuart describes the dichotomy between the two worlds that exist in California's Napa Valley as a decadent playground for the rich and an underground world of migrant workers that sustains the entire economy of the area. She says:

'There's another world here, but you have to seek it out... It's the world that supports the world we're seeing now, and it's almost invisible. It's in the vineyards. In little shacks behind some of the commercial buildings, where guys may be living. Along the Napa River where others are

camped out. Down in [the city of] Napa, where eight or nine guys are sharing a one-bedroom apartment' (Martin).

This brief, but revealing, description summarizes the housing prospects for migrant workers throughout the country's agribusiness landscape.

1.2 Objective

This study seeks to explore the viability of portable dwellings as a housing typology for migrant farm workers. Portable housing would readily seem to be the best suited form of housing for a demographic whose livelihood depends on being mobile. Bryan Finoki poses these questions which are important to consider in migrant housing discourse:

1. How can design help to preserve the cultural identities of immigrants, or even help in some way to secure their political status here in the U.S.?
2. How can future migrant structures suture the dismal and widespread labor-scapes of poor rural America?
3. How can [architecture] help manage the increasing sprawl of the destitute *colonias* (See Section 2.5 for definition.) swelling between the two countries?
4. Can architecture help leverage migrant needs in the harsh marketplace of exploited global labor?

This thesis proposes that mobile housing can address these issues better than the more conventional types of housing that migrant workers typically encounter.

This study is divided into three parts. The first part will summarize the migrant experience. By analyzing existing research across various fields, including anthropology, economics and sociology, this research will establish an understanding of a typical migrant worker's lifestyle and career outlook. The second part will survey the scope of

migrant housing in the United States. Illustrating both typical housing conditions and exceptional examples will help to reveal the problems associated with migrant housing, as well as to identify the successes. The third part will present a design for a portable dwelling based on the lessons learned from the first two parts.

CHAPTER 2

THE MIGRANT LIFESTYLE

2.1 Introduction

In order to adequately assess the housing needs of migrant farm workers, it is first important to understand the conditions of their lifestyle. This section will examine the typical career of a migrant worker. Migration patterns will be established based on temporal, social and geographical conditions.

2.2 A Brief History of Migration From Mexico to the United States

Migratory farm labor is a well-established practice in the United States, dating back to the post-Civil War era when family-owned farms could no longer sustain themselves and yielded to large business enterprises (Finoki). Although Mexican labor has been a fixture in the U.S. agriculture industry since that time, it was not until the introduction of the *Bracero* guest-worker program of 1942 that Mexicans became the majority in the migrant farm worker demographic (Massey, Sept 1986:106). Under the *Bracero* program, which lasted until 1964, work was acquired directly through “government channels” (Massey, Sept 1986: 106). However, as the *Bracero* program matured and Mexican laborers developed relationships with their U.S. employers, both parties began to bypass *Bracero* recruitment centers and arrange work directly through a labor contractor (often a former *Bracero* who obtained permanent legal status in the U.S.), in either case without the government as a liaison (Massey, Sept 1986: 107). By “[drawing] upon their kin and friendship connections,” these contractor-laborer relationships spawned extensive

binational social networks that have made migration a “self-perpetuating” phenomenon (Mines and Massey 105).

2.3 The Three Phases in a Migrant Worker’s Career

According to Douglas Massey (Oct 1986: 671), the migration process can be described in three phases: the “sojourner” phase, the “transition” phase and the “settlement” phase. Migration in the “sojourner” phase is typically initiated by a young male with a modest income, meaning that he must have adequate financial resources to fund his first trip, but not enough to prevent him from taking the huge risk involved in international migration (Mines and Massey 105). During this first phase in his migrant career, he is a “target earner” with a set financial goal and intentions to return home once that goal has been met (Mines and Massey 105). Massey (Oct 1986) offers the following description of this first phase:

The jobs they hold are unstable, and often seasonal. Most earnings are repatriated in the form of savings or remittances. They live a spartan existence, often sharing living quarters with other men and sleeping in shifts to save money. They work long hours and have little interest in social activities. They see themselves as members of their home communities and not as participants in the receiving society. Most of their contacts are restricted to other townspeople living and working nearby, and their lives are spent largely within the confines of an immigrant enclave, with no real ties – personal, institutional, or economic – to the host society. At this stage the vast majority of Mexican migrants are undocumented... However, migration has a way of perpetuating itself. Satisfaction of the wants that originally led to migration tends to create new wants, and poverty is not erased by a single trip. Once migration has been experienced, it becomes a familiar resource that can be employed again as needs arise.

The onset of the “transition” phase is difficult to pinpoint, since a migratory career develops continuously as a migrant’s aspirations evolve. But there are specific

indicators that can signify that the “transition” phase has started. These include repeated and extended trips, more stable and better paying jobs, the development of stronger social ties in the United States, increased interaction with people outside the initial realm of contact, and remittance replaced by increased expenditure of earnings in the United States (Massey, Oct 1986: 671). As the cycle progresses, he becomes a “professional” migrant, “shuttling back and forth regularly between sending and receiving societies or spending longer periods of time in the host country” (Mines and Massey 105). In the early stages of this phase, he might be joined by male relatives in order to “maximize family income,” but eventually he may face mounting pressure to bring along his wife and children on the migrant stream (Mines and Massey 105). During this stage, the migrant worker is likely to acquire legal status in the United States (Massey, Oct 1986: 671).

The “settlement” phase occurs when a migrant worker begins to consider himself a resident of the United States (Massey, Oct 1986: 671). At this point he most likely has legal status in the United States and has been joined by his wife and children (Massey, Oct 1986: 671). Now a migrant *family*, they have extensive social ties and “links with formal institutions in the host society, such as banks, branches of government, and schools” (Massey, Oct 1986: 671). During the “settlement” phase, a migrant worker or family can either continue to move from place to place within the United States to find work, or settle in one area permanently. The propensity for a Mexican migrant worker to settle permanently in the United States is illustrated in Figure 2.1

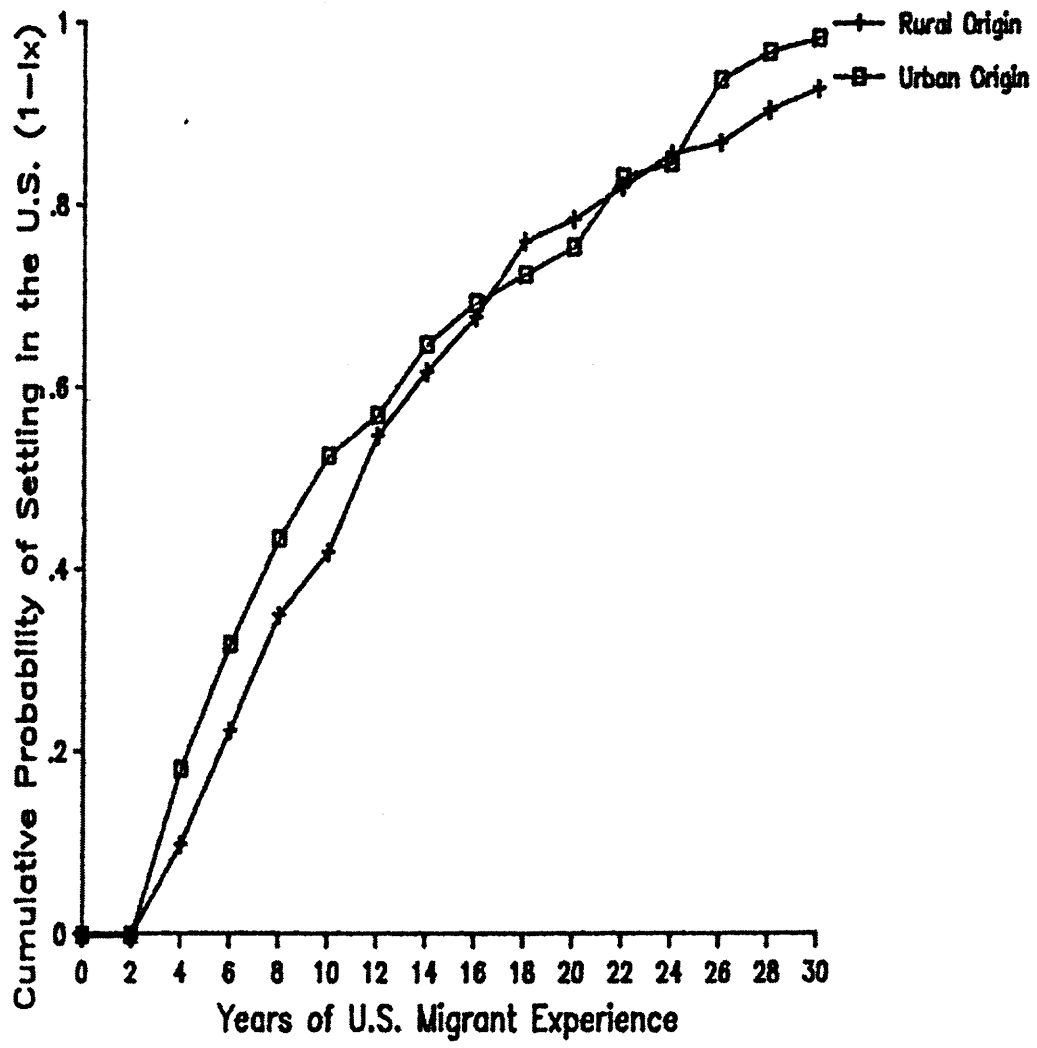


Figure 2.1 Propensity for migrant settlement.
(Source: Massey, Oct 1986)

2.4 Migrant Social Networks

Throughout his career, a migrant worker's most important tools are the social networks that he belongs to. Massey (Sept 1986) identifies four major networks in descending order of importance: kinship, friendship, *paisanaje* or shared "community of origin," and "voluntary organization." Kinship is the principal network because "family connections provide the most secure network connections" (Massey, Sept 1986: 104). The bond between male relatives, especially migrant fathers and sons, is the strongest (Massey,

Sept 1986: 104). “Long after they have grown up to form their own families, fathers and sons migrate together. Out of this common experience, the paternal bond is strengthened... Throughout their lives, migrant fathers and sons are more likely to offer help, information, and services to one another, both at home and abroad” (Massey, Sept 1986: 104). Migrant brothers share a similar relationship. Meeting up with a brother who has already arrived in the United States, a migrant can expect to find “a place to stay, help in finding work, a loan of money, and the payment of trip expenses” (Massey, Sept 1986: 104). This system of mutual support extends to secondary relatives linked by common male relatives including nephews and cousins (Massey, Sept 1986: 104).

“The closest bonds outside of the family are those formed by people as they grow up together” (Massey, Sept 1986: 104). This is the basis for “friendship,” the second social network that migrant workers depend on. These are ties between two peers who may have been childhood friends. “A lifetime of shared experiences creates a disposition to exchange favors and to provide mutual assistance, and friends who find themselves sharing another formative experience – international migration – assist one another in a variety of ways: finding an apartment in the United States, sharing information about jobs, pooling resources, [and] borrowing or loaning money” (Massey, Sept 1986: 104). As the “friendship” structure matures, migrants of varying ages will be drawn into this network, allowing for a greater overlap “with circles of friends from other communities” (Massey, Sept 1986: 105).

The third network, *paisanaje*, or shared “community of origin” is mostly symbolic, but has practical uses. *Paisanaje* “strengthens the network by facilitating contact between active migrants and prospective migrants at home” (Massey, Sept 1986:

105). The patron saint is the key manifestation of *paisanaje* since it is what links migrant workers back to their hometown (Massey, Sept 1986: 105). Massey (Sept 1986) describes its cultural implications as follows:

Every Mexican town holds an annual fiesta in honor of its benefactor. This celebration represents a reaffirmation of the community and its people, and it has traditionally been an important integrative mechanism in rural Mexico. With the advent of U.S. migration, however, the symbolic value of the patron saint has been shaped to the new reality of a migrant community, and the traditional importance of the fiesta has been greatly augmented. The saint's fiesta provides a practical framework within which to reunite families and friends. It is now more a celebration of the return of *los ausentes*, the absent ones, than a ceremony in honor of a saint.

On these occasions, returning migrants pay for the “music, church decorations, fireworks displays and other diversions” and in return, they are “featured in the processions and liturgic acts” (Massey, Sept 1986: 105). Through the fiesta, not only are returning migrants reintegrated into the community, but there is also the opportunity for “active migrants” to connect with “prospective migrants” (Massey, Sept 1986: 105).

The fourth network, “voluntary organization,” is an institutional or social group a migrant worker may join in the United States. Massey (Sept 1986: 106) identifies a Los Angeles soccer club as an example of one of these organizations. This particular club was formed “to support a team of hometown players competing in a California soccer league.” Every Sunday, the playing field becomes a social networking forum where migrant workers can find new jobs and friends, welcome new arrivals, and exchange local news. “By sponsoring the regular interaction of townspeople, the soccer club serves as a clearinghouse for jobs, housing, and other information” (Massey, Sept 1986: 106).

2.5 Migrant Streams

Historically, migrant workers have followed one of three travel routes, or streams, which have remained mostly unchanged as well (Figure 2.2). The Eastern Stream begins in Florida and continues up the East coast, terminating in Pennsylvania, upstate New York and Maine. The Central Stream begins in the southern part of Texas and fans out in the Midwestern states, ending in Michigan, Ohio, Minnesota and the Dakotas. The Western Stream begins in northern Mexico and southern California and continues north through California and into Oregon and Washington.

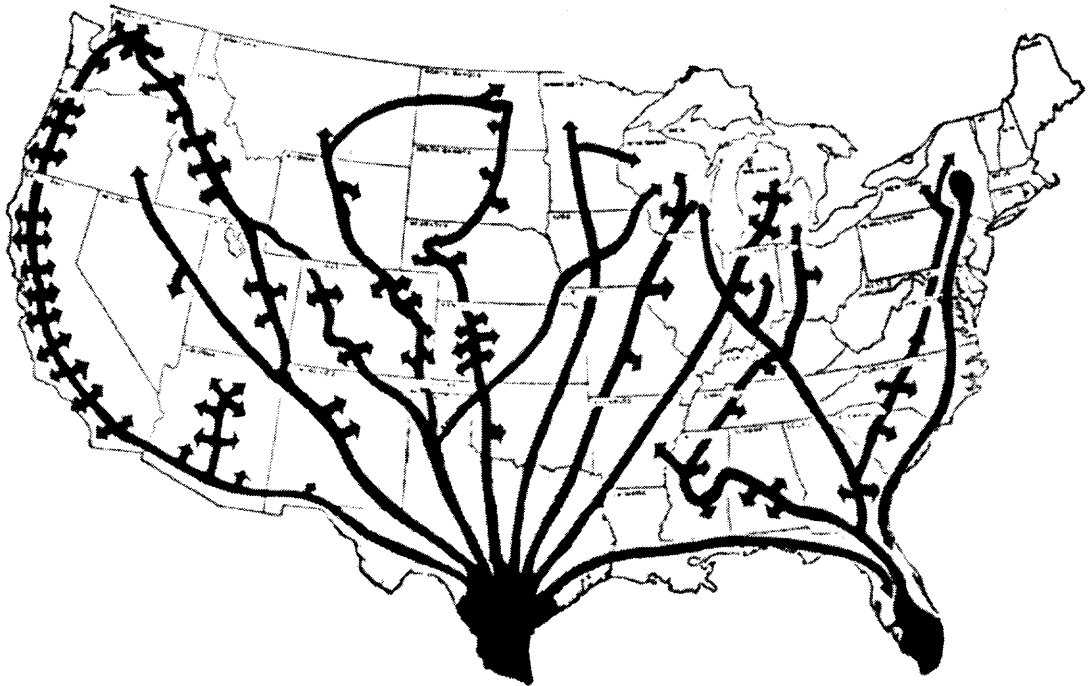


Figure 2.2 Map of migrant streams in the United States.
(Source: Embrey)

Table 2.1 illustrates the composition of the three migrant streams from the late 1800s to the present day. There has been an acute shift in the migrant labor demographics across all streams. Today, most migrant workers in the United States are Mexican or of Mexican descent.

Table 2.1 Composition of Migrant Streams: A Historical Perspective

	Late 1800s – Early 1900s	1930s - 1980	1980 - 2000
Eastern Stream	<ul style="list-style-type: none"> - African Americans who were once sharecroppers in the South - Italian, Finnish and Portuguese immigrants - Native Canadian Indians - local white laborers - unemployed men and women from nearby cities 	<ul style="list-style-type: none"> - Italian immigrants - coal miners from Appalachia - transient workers who traveled freight trains - African Americans - German prisoners of war during WWII - Jamaicans and other Caribbean islanders recruited for the H-2 guest worker program - Puerto Ricans - Native Canadian Indians 	<ul style="list-style-type: none"> - Haitians - Mexicans - Mexican Americans - Guatemalans - Southeast Asian immigrants - Mexican and Jamaican workers recruited for the H-2A guest worker program
Central Stream	<ul style="list-style-type: none"> - immigrants from Europe 	<ul style="list-style-type: none"> - African Americans - Puerto Ricans - Native Americans - Canadians - German prisoners of war during WWII - Mexican Americans - local white residents who were recent immigrants 	<ul style="list-style-type: none"> - Mexicans - Mexican Americans - Guatemalans
Western Stream	<ul style="list-style-type: none"> - native-born whites - Native Americans impressed into labor by vagrancy laws - Chinese and Japanese immigrants - local women and children from cities during WWI - Mexicans recruited as temporary workers during WWI - Dust Bowl white farmers and their families 	<ul style="list-style-type: none"> - Mexican "Bracero" workers (1944-1964) - Mexican Americans - Filipino immigrants 	<ul style="list-style-type: none"> - Mexicans - Mexican Americans

(Source: Embrey, with modifications)

The beginning point of any migrant stream is the “home base,” which is the community where a migrant worker lives while not migrating, usually located in California, Texas, Florida or Mexico (Holden, et al. 6). Most migrant workers entering the United States from Mexico come from one of four established “sending states” in Western Mexico: Michoacán, Jalisco, Zacatecas and Guanajuato. Often, the “home base” communities in the United States are *colonias*, which HUD defines as “rural communities

located within 150 miles of the U.S. – Mexican border” that lack adequate infrastructure and were founded originally as squatter settlements.

It is difficult to determine migrant worker periods of employment because they can range from sporadic to steady, although stability is usually commensurate with location and experience. Agricultural seasons also vary depending on location. The U.S. Department of Health published an *Atlas of State Profiles* in 1990 which identifies agricultural seasons by state (see Appendix A). States in the southern U.S., especially those considered “home base” states have year-round agricultural seasons. Moving north, the seasons get shorter, lasting mostly from early spring to late fall or early winter. The northernmost states have the shortest seasons, running from late spring to early fall. A migrant worker’s length of stay in an area is “generally consistent with the growing seasons within each migrant stream” (Holden, et al. 11). In addition, there are pockets of short-season harvest crops and specialized crops throughout the United States that affect a migrant worker’s mobility, such as “cherry growing areas in Washington or Oregon where the harvest can be as short as two weeks” (Holden, et al. 34).

According to the Housing Assistance Council study, the mean length of stay in one location is 7.6 months (Holden, et al. 11). However, the same study shows a wider range broken down by state. Central states such as Missouri and Michigan, have a short range of about 3.2 months, while western states such as California, Oregon and Washington have a range of about 10 months (Holden, et al. 29). The longer range in some states suggests that workers may be in the “settlement” phase in their careers (Holden, et al. 11). This implies that these workers are also more experienced and have been migrating for a long time.

Typically, migrant workers are not employed year-round. Table 2.2 shows periods of employment according to legal status. Regardless of legal status, it shows that migrant workers only spend about 8-9 months in agricultural activity. In addition, most farm workers (72%) interviewed by the U.S. Department of Labor “expect to remain in farm jobs more than five years,” while many citizens (21%) expect to “leave farmwork within three years.” As migrant workers become more experienced and begin to settle in the United States, there is a tendency to leave farm work and enter a more stable job market.

Table 2.2 Weeks of Activity by Legal Status (Excluding Foreign-Born Newcomers)

Activity	Unauthorized	Legal Permanent Resident	Citizen
Farm Work	36	35	32
Non-farm work	4	4	8
In U.S. not working	6	9	12
Outside U.S.	6	4	0

(Source: NAWS 2001-2002, U.S. Department of Labor)

2.6 The Cultural and Social Implications of Migration

International migration has had tremendous cultural and social implications on both migrants and their home communities in Mexico. The use of social networks as a resource has reduced the cost and risk of migration, and the more mature the networks, the more substantial the savings (Mines and Massey 105). In established Mexican sending communities, migration has become so indoctrinated into the popular lifestyle that it has even become a “rite of passage” for young men, “and those who do not attempt it are seen as lazy, unenterprising, and undesirable as potential mates” (Kandel and Massey 982). Also, the traditional roles of women, as dictated by Mexican culture,

change dramatically as women join their husbands in migration. In the United States, migrant women “encounter new opportunities for employment and autonomy, and new avenues of mobility for themselves and especially their daughters,” and gain “control over budgeting and domestic decision making, leverage for shared housework, and access to economic resources outside of the household” (Kandel and Massey 984).

The economic impact of migration also affects a migrant worker’s social status in his home community in Mexico. Most migrant workers remit their earnings to family members they have left behind in Mexico, which in turn, sustains a sizable portion of Mexico’s economy. In 2005, Mexico received \$20 billion in remittances from migrant workers in the United States, rivaling Mexico’s annual income from oil exports and far exceeding its revenue from tourism (Lochhead). “Given a greater ability to purchase both consumer and capital goods, migrants come to evince a widely admired lifestyle that others seek to emulate, and international migration comes to be seen as a tractable and accessible strategy of upward social mobility” (Kandel and Massey 982). Remittances and “foreign savings” also serve as an economic insurance policy, providing “a source of investment capital that can raise household productivity as well as income” (Kandel and Massey 982). Migrant workers returning to Mexico are forming, in essence, a *nouveau riche* class.

CHAPTER 3

THE HOUSING DIALECTIC

3.1 The State of Existing Housing

International migration is a lifestyle entrenched in a dichotomy of forces, including binationalism, opposing and competing cultures, and socioeconomic standing in two disparate worlds. By the very nature of their work, migrant workers thrive on being mobile. However, the more mobile they are, the more difficult it becomes to acquire adequate housing. The housing available to migrant workers is inherently tied to location, income and, to a slightly lesser degree, legal status. It is difficult for them to find short-term housing because many rural areas lack available housing (Ziebarth 344). These agricultural regions throughout the U.S. become overburdened with the sudden, but necessary, surge in population caused by the arrival of migrant workers (Ziebarth 336). (Refer to Subsection 3.4.2 for an example of this issue.) Not only does this affect the housing market and local infrastructure, but also the regional environment as workers are forced to set up makeshift camps and use local rivers to bathe (Feenstra). Quantifying migrant worker households is difficult because of their transient lifestyle, however, “a significant number of farmworkers and their families live in overcrowded, overpriced, substandard dwellings, or make do in cars, tents, or under trees” (Pacheco 9).

Substandard housing is a catalyst for poor health among migrant workers. Unsanitary and overcrowded housing contributes to the spread of communicable infectious diseases, “such as tuberculosis and influenza” (Pacheco 9). Older and poorly maintained housing can present the risk of exposure to mold and pests that contribute to asthma and other respiratory conditions (Pacheco 9). Children are especially susceptible

to these conditions, as well as the “risk of exposure to lead” (Pacheco 9). The lack of adequate showering facilities compounded with exposure to pesticides in the fields also presents adverse health effects.

The Migrant Legal Action Program identifies two general housing options available to migrant workers: on-the-farm housing and off-the-farm housing. The following sections will examine both housing options and will include case studies that serve as examples of the best designs that each category has to offer.

3.2 On-the-Farm Housing

On-the-farm housing refers to housing that is provided by an employer for a fee, or as part of a total compensation package. Often referred to as “camps” because of their barracks-style housing and communal bathing and cooking facilities, employer-provided housing accounts for only about 21 percent of all migrant housing (U.S. Dept. of Labor 43). Of that 21 percent, 17 percent received housing free of charge as part of a total compensation package and the remaining four percent paid rent either in cash or via payroll deduction (U.S. Dept. of Labor 43). Yet, historically, this has been the most prevalent type of housing for migrant workers, and because of this, employer provided housing has acquired notoriety for being severely substandard.

In *The Lie of the Land*, Don Mitchell vividly describes early twentieth-century migrant camps as places of destitution and a source of growers’ power over the masses:

The hundreds of thousands of agricultural workers necessary to the economic survival of the agricultural system...lived, to a large degree, in a series of private labor camps maintained by private growers as a means of assuring the return of labor power to their fields every day it was needed during the harvest season – and for assuring that workers did not stay on in the area after their labor was no longer needed (42-43).

That is, the provision of housing entices migrant workers to work for a particular grower, but the poor conditions of the same housing ensures that the workers will not want to remain there once the work is completed. Thus, growers can use the housing they provide as a tool for leveraging power over their labor force. Additionally, employers often provide housing only for “unaccompanied single” males in large “barracks-like dormitory units” (Ziebarth 354). Otherwise, there are separate units for men and women, forcing families to live apart for the season (Ziebarth 345). This is discouraging to migrant families and “sends a message that workers, but not their families, are welcome in the community” (Ziebarth 354). It reinforces the power that growers have over their workers and alienates migrants from the local community by fostering NIMBY (Not In My Back Yard) attitudes.

Social stigmas associated with a foreign workforce, fueled by racist undertones, have been used to justify the poor conditions of migrant worker housing. An early twentieth century grower in California candidly explained this phenomenon:

‘We want Mexicans because we can treat them as we cannot treat any other living men... We can control them at night behind bolted gates, within a stockade eight feet high, surmounted by barbed wire... We make them work under armed guards in the fields’ (Mitchell 88).

Although this viewpoint is quite severe, it represented the general consensus among growers as Mexican laborers began to enter the migrant workforce. Yet, it is not far from general perceptions today that are used to justify poor housing conditions. It is an ongoing cycle that “focuses on a characterization of migrant laborers as ‘naturally inferior’ with evidence based on the poor quality of their living conditions” (Ziebarth 354). There is a prevailing sentiment that “the housing available here is ‘better than the way they live back home,’” making substandard housing excusable (Ziebarth 351). In

fact, a large percentage of migrant workers own homes in Mexico, which are typically in better condition than their homes in the United States (Ziebarth 351). As illustrated in Section 2.6, migrant workers make up an elite social class in rural Mexico.

There are other, less subversive problems with on-the-farm housing, as well. The mass-housing and large-scale bathing and cooking facilities make it “difficult for the individual to assume an equal share of cleaning responsibilities; understandably, no single person [wants to] clean a bathroom that sixty people shared” (Bell 179). Migrant workers can also be victims of price gouging at the hands of growers. This practice is more common in the sale of tools, transportation and prepared food, but can also extend to overcharging or excessively garnishing pay for housing (Feenstra).

The purpose of this survey is not to demonize growers, but to present a broad spectrum of common practices in on-the-farm housing. In recent times, growers have realized that providing adequate housing for migrant workers can help them attract more experienced workers and a more stable labor force (Goodno 11). Despite this, there remains little economic incentive for growers to invest in housing. Some growers feel that investing in migrant housing is unreasonable because it is only used seasonally (Ziebarth 354), while others are hindered by state-level “ultra-stringent farmworker housing law” (Goodno 11). For example, James Goodno cites a California law that requires all bathrooms in farm worker housing to have windows, whereas “even a hotel wouldn’t meet that requirement” (11). Nevertheless, Subsection 3.4.1 illustrates an example of well designed employer provided housing.

3.3 Off-the-Farm Housing

Off-the-farm housing encompasses all other housing that is not employer-provided. This includes private-market housing, subsidized farm worker housing, hotels, trailers, makeshift shelters and even cars. This also includes housing that is provided free of charge by a friend or family member. According to the U.S. Department of Labor, 58 percent of migrant workers rent housing on the private market, 19 percent live in housing “that either they or a family member” own, and the remaining workers live with family or friends, free of charge. Similar to on-the-farm housing, private market housing also confronts migrants with barriers.

As mentioned before, growing regions experience population surges as migrants arrive looking for work, which “puts additional pressure on the existing shortage of affordable rental housing in rural areas” (Ziebarth 336). Ann Ziebarth cites the Minnesota housing market as an example, where the “statewide unmet demand for affordable housing to serve extremely low- and very low-income households is estimated to be 80,000 units,” but similar situations exist in all states with an agricultural industry (344). Additionally, most affordable housing units are not even available to migrant workers.

In some cases, the housing for rent is available for seniors only. Landlords frequently employ lease agreements that require year-long commitments. The unit size and occupancy requirements often prohibit large families from occupying the available units. High rents along with costly entry fees, including application fees, first/last month rent requirements, and damage deposits all work against migrant workers finding housing (Ziebarth 344).

An already saturated housing market and rental restrictions are unforgiving to migrant workers who need only seasonal housing.

When combined with a migrant worker's low income, off-the-farm housing costs can be very high (Ziebarth 337). As a result, groups of migrant workers are sometimes forced to share an apartment in order to offset the cost of rent. Not only does this contribute to overcrowding, but it also helps reinforce common stereotypes and eventually becomes a barrier for subsequent generations of migrants who seek rental housing. In a study by Deborah Bushway involving both Latino and non-Latino focus groups, a migrant woman related her experience, "My daughter speaks good English. Over the phone she was told that a house was available to rent and made an appointment to see the house. When she got there, the landlord wouldn't open the door – he could see that she is Mexican" (13). On the other hand, participants in the non-Latino focus group expressed concern about overcrowding, "The landlord isn't discriminating – he just doesn't want 20 people in his apartment designed for four or five," and "My friend said that he would be happy to rent to Latinos, but he knows that they will just sneak their families in as well" (13). Negative stereotypes also work against migrant workers by helping landlords justify the poor condition of their housing using the same reasoning behind poor conditions in on-the-farm housing. Again, "it is the perception, rather than the reality, that often form barriers to improving seasonal migrant workers' housing" (Ziebarth 352). The view of migrant workers as inferior becomes part of the collective consciousness in rural towns. Therefore, ethnically-driven stereotypes become a barrier even for migrant workers who intend to obey occupancy laws.

Subsidized housing is an alternative option. Typically, these funds are dispersed to not-for-profit agencies, community groups and growers who are involved in the planning and construction of farm worker housing through the USDA Rural

Development Section 514/516 or various HUD channels, including Community Development Block Grants and the Rural Housing and Economic Development initiative (Goodno 12). However, subsidized developments which are funded by government agencies at the federal, state and municipal levels often apply limiting restrictions on both building and occupant. According to the Housing Assistance Council, the availability of funds through Section 514/516 for off-the-farm housing has become very competitive due to regulation changes enacted in 1999. Also, occupants of Section 514/516 housing are limited to legal citizens and permanent residents (HAC). Legally admitted temporary guest workers are excluded. At the local level, land for subsidized developments may be difficult to acquire because rural areas lack adequate zoning provision for multi-family dwelling (Goodno 13).

As with all types of low-income housing developments, subsidized farm worker housing advocates are often met with opposition from the host community. In fact, the Housing Assistance Council states that when migrant farm worker housing is involved, NIMBY attitudes are magnified. A HUD housing specialist describes this point of view as follows, “We ask people to come to pick crops that are worth millions of dollars, but we don’t want them to live in our backyard, we don’t want them in our schools; we want them just to come and go” (Goodno 13). Growers can also be a strong source of opposition to subsidized housing because it limits their hiring power (HAC). Residents of subsidized housing are not required to enter into contractual agreements with any particular grower as a condition of occupancy, as would be common practice with on-the-farm housing (HAC). Although subsidized housing for migrant workers offers financial benefits to growers, it also undermines the potential power they can wield over laborers.

3.4 Case Studies

Although the previous three sections have established the severity of problems with migrant housing, it is also important to examine housing that is exceptional in design and operation. This section will present one example of well-designed on-the-farm housing as well as two examples of successful off-the-farm housing. Each case study exhibits careful consideration of migrant needs; however, each also has an inherent drawback.

3.4.1 Participatory Design – Design Corps in Adams County

Architect and founder of Design Corps, Bryan Bell has taken an alternative approach in creating on-the-farm housing by working directly with migrant workers and their employers. By consulting directly with growers and conducting interviews with the workers, Bell assesses the needs of both employer and employee to design housing that responds to its user and to its context. One of Design Corps' built examples is a prefab housing unit for workers in Adams County, Pennsylvania, who "pick apples, peaches, and cherries from August through October" (Design Corps).

Working with several local farmworker organizations, the design team discovered that although the majority of the workers were from Mexico, there was a small percentage of workers from Puerto Rico, the U.S., Haiti and Jamaica (Bell 178). These workers lived together in "crowded dormitory-style 'bullpens'" conducive to the spread of communicable diseases and the "mixture of many cultures and languages in one large room led to fights" (AFH 136). As a result, Design Corps decided to house the workers in small groups separated by country of origin (Bell 178). However, "the design does not

favor one culture over another, as the occupants vary from year to year, but it does express the value they have in common: mobility” (Bell 180-182) (Figure 3.1).

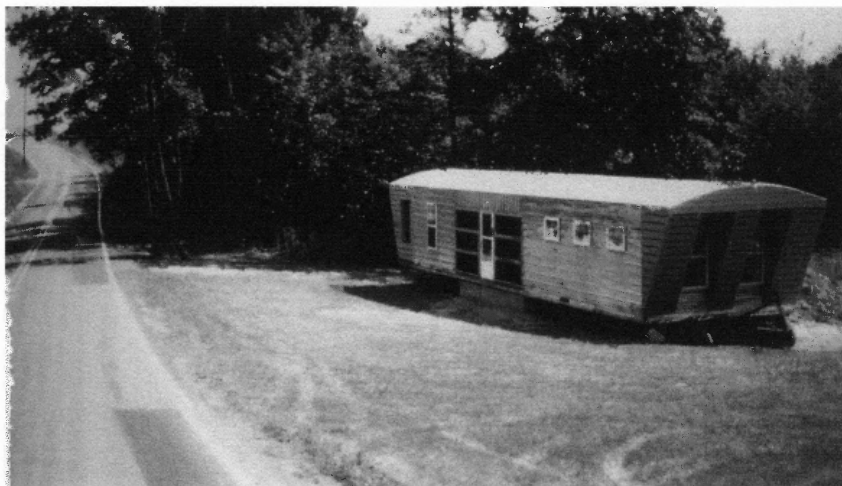


Figure 3.1 Adams County migrant housing unit in context.
(Source: Bell)

Four units were built in 1995 (Bell 180). According to Design Corps, the unit is 650 square feet, 13'-6" wide and designed to be oriented North-South. Each unit includes a full bathroom with a sink, toilet and shower, a kitchen, a semi-covered outdoor porch and areas for sleeping and socializing (Figure 3.2). After the units were occupied, Design Corps used "post-occupancy reviews" and worker suggestions to improve the design (Bell 180). The workers wished to have "a cabinet for the garbage can" which illustrated a heightened sense of pride in their housing (Bell 180). Workers also complained that "the light-colored floors were hard to keep clean" (Bell 180). Members of the design team observed that "each unit put its one television in one of the bedrooms, rather than in the communal dining area. The men from the other room had to come and sit on the floor to watch it" (Bell 180).

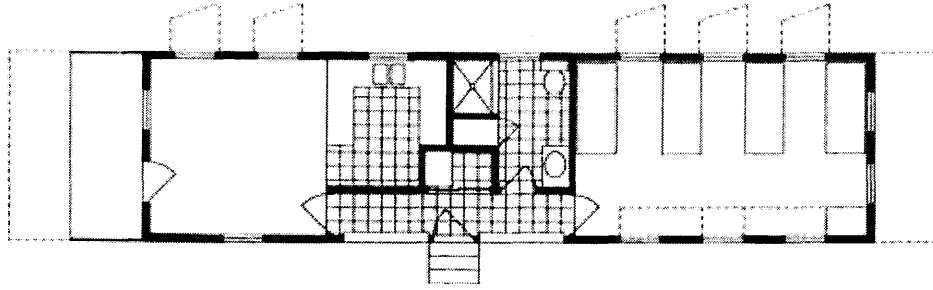


Figure 3.2 Adams County migrant housing unit plan.
(Source: Bell)

According to Bell, a prefabricated unit had one major advantage: pre-approval of housing regulations and of pricing (180). The total price per unit was \$43,000 (AFH 134). The research was funded by grants from the American Institute of Architects and the American Architectural Foundation (AFH 136). Construction costs were covered by HOME funds via the Pennsylvania Department of Community and Economic Development (70%) and by the growers (30%) who also provided land for the units (Design Corps).

Design Corps' Adams County housing units have been highly successful, earning both high marks from workers and growers and additional migrant housing design commissions in other states. It is, undoubtedly, an excellent example of well-designed on-the-farm housing that allows the grower to attract better labor at a relatively low cost. However, mobility is more of a design concept than a design reality. Shipped by truck and installed by crane, it is unlikely that the units will be moved once sited. And while workers can enjoy quality housing while employed, they are faced with the housing dilemma again when they move on to the next job. This is the inherent problem with on-the-farm housing.

3.4.2 Esperanza – Mattawa, Washington

The small community of Mattawa in Washington’s Columbia River Valley is home to a successful example of off-the-farm re-deployable housing. This project, called Esperanza, was initiated by Washington’s Migrant Housing Task Force and designed by the University of Washington Building Sustainable Communities Initiative (UW BASIC), a design collective of students and faculty from UW’s College of Architecture and Urban Planning. Mattawa’s population of 3,000 residents nearly doubles each year during the peak harvest season when migrant workers, most of them from Mexico, fill the town looking for jobs (Rural Migration News). The lack of housing and infrastructure during the population surges forced migrant workers to set up makeshift camps near the Columbia River (WSHFC).

Part of the design challenge was overcoming the assumptions and preconceptions the state had about migrant needs. Previous planning attempts showed that programming was “based on information that did not apply to the specific community the project was trying to serve” (Palleroni 115). In addition, the “state legislature lacked the political will to support a project of a scale appropriate to the crisis” (Palleroni 111). Students participating in UW BASIC collected information from workers, including social and living patterns and short- and long-term goals (Palleroni 115). This information was used to inform the design of a “prototype community for 300 migrants that would be a model for others as additional funding was found” (Palleroni 111).



Figure 3.3 Esperanza site showing arrangement of housing units.
(Source: Google Earth, with modifications)

The housing units are constructed from standard shipping containers arranged in four-unit clusters with a covered outdoor court at the center (Figure 3.3). The clusters are sited in a staggered arrangement to provide secondary outdoor spaces. The small groupings “proved to be more space efficient than larger hubs” recommended by the county and “generated a richer social pattern of use” (Palleroni 115). Each container houses one family or about seven to eight people with on-site parking provided. In order to live at Esperanza, a \$70 security deposit is required and the rates are \$3 per day per single worker or \$10 per day per family (Rural Migration News). The total budget for the project was \$1.5 million in 1998 (Palleroni 111).

Portability was a design constraint imposed by the Federal Emergency Management Agency (FEMA), which partially funded the project (Palleroni 115). FEMA stipulated that the units be movable in case of “regional emergency” (Palleroni 15). This requirement influenced the design of the infrastructure and the interior finishes of the unit (Palleroni 115-116). However, from the outside, the units do not exude an image of mobility. The cementitious exterior finish and the choice of foundation visually

anchor the units to the earth. The concrete slab courts at the center of each cluster also lend permanence to the project (Figure 3.4). It is unlikely that the units will ever be moved.



Figure 3.4 Covered outdoor court shared by four units.
(Source: Palleroni)

3.4.3 Las Mañanitas – Coachella Valley

One of the most successful examples of federally subsidized housing for migrant workers is the Las Mañanitas apartments in Mecca, a poor rural community in California's Coachella Valley (Figure 3.5). Completed in 1999, the \$1.7 million project has room for 88 men in 11 multi-tenant units (Goodno 10). Each fully-furnished unit has four two-

person bedrooms with a shared living room, dining room and kitchen (Goodno 13). The complex also features rare amenities, such as laundry facilities, an outdoor cooking area and common areas (Goodno 13). The 10-acre development was built on land owned by the U.S. Economic Development Administration (EDA) and leased to the Coachella Valley Housing Coalition at no cost (Goodno 13). The project was financed through “debt-service free sources, such as the California Joe Serna, Jr. Farmworker Housing Grant and Farmworker Housing Tax Credits” and operating costs are subsidized by Community Development Block Grants (CDBG) funds (Pacheco 11).



Figure 3.5 Las Mañanitas housing units.
(Source: Pacheco)

The cost of renting at Las Mañanitas is \$25 per week per bed (Goodno 13). Additionally, there are strict rules by which the tenants must abide, including “a ban on alcohol and restrictions on noise” (Goodno 13). The residents generally consider these rules a welcome change from the social disorder of previous experiences. Jesus Ortiz, a

19-year old migrant worker who spent a season with his father in Las Mañanitas said, “Where I stayed before, people would just drink all day. I couldn’t sleep. I feel more secure, more safe here” (Goodno 13).

Following the success of Las Mañanitas, the Coachella Valley Housing Authority built a second complex in 2002, Las Mañanitas II, with room for another 40 men in five multi-tenant units (Goodno 13). Although highly successful and well-received, Las Mañanitas is an anomaly in migrant worker housing solutions. With relatively small housing capacities and painfully bureaucratic financing and planning processes, housing complexes like Las Mañanitas can barely make a dent in the housing shortage for migrant workers. In order to secure a bed in Las Mañanitas, workers must arrive early in the season. According to John Mealy, it is not unusual to turn away 200 people per day during the peak season, and with an average stay of 10 months, once the units are filled up, there is little chance of a space becoming available (Goodno 13).

CHAPTER 4

THE HOUSING SOLUTION

4.1 Why Portable Housing?

Portable housing can empower migrant workers in several ways, each affording a degree of freedom that would be impossible through housing that is in a fixed location or owned by a third party. It is critical to note that “where one lives and works are reflections of a complex set of economic conditions and social relationships. Housing provides a visible manifestation of socio-economic realities for seasonal migrant workers and their families” (Ziebarth 335). While professional migrant workers become wealthy homeowners in rural Mexico, they remain indigent in the United States. Carol Burns states that, “Among detached house types for unsubsidized homeownership, manufactured housing typically costs less in terms of purchase price, down payment, and monthly mortgage payments” (52). Since portable housing can be factory produced, the manufacturing process and costs involved can be streamlined (Burns 52). Thus, the prospect of homeownership in the United States can be made accessible to migrant workers. Homeownership can contribute to bridging the gap between a migrant worker’s socioeconomic status in Mexico and the United States. As a pure status symbol, it bestows a more positive image of migrant workers on the eyes of rural Americans by destroying negative stereotypes associated with migrant housing. In addition, the ability to move his home from place to place allows the migrant worker to establish himself in any given community.

A portable dwelling can also offer a sense of place and belonging to a migrant worker. By the very nature of their lifestyle, migrant workers often feel isolated and

disconnected. Once the decision is made to migrate, he becomes stuck between two disparate worlds and cultures, belonging entirely to neither. Therefore, the struggle to establish a sense of place and identity is part of the culture of migration. Robert Kronenburg argues that a sense of place is not geographically-based, but rather defined by “the phenomenological responses to the environment which humankind makes” (133). Kronenburg cites the Bedouin people as an example, noting that no matter how many times a tribe moves their camp, each redeployment of the encampment is identical. “The users of this temporary architecture go through exactly the same process every time it is erected, using important organizational criteria to determine the place, orientation, and site arrangement, creating a ‘sense of place’ no matter where that place is” (Kronenburg 135). In effect, a sense of place is not tied to a physical location, but rather to the normalizing quality of the architecture and the rituals associated with it because they are both constants against a backdrop of change. This place-making is impossible for migrant workers to achieve in fixed housing because the successive movement from one place to another requires a constant adjustment to the rituals of everyday life in order to accommodate for differences between dwellings. This is especially true for migrant workers who are in the transition phase of their career, when the frequency of visits to their home community lessens. Where the rituals, celebrations and family reunions associated with *paisanaje* would normally serve to recreate a sense of place and belonging, seasoned migrants are likely become more dissociated with that custom, especially if they have taken up off-season residence in a borderland *colonia*.

A high degree of mobility is intrinsic to the success and livelihood of a migrant worker, not only economically, but politically as well. Don Mitchell describes mobility

as “a double-edged sword, both for the workers themselves and for agribusiness. By dint of their mobility, many agricultural workers [remain] individually invisible to the powers of exploitation and domination” (60). One chapter in the history of labor relations in California illustrates this fact well: the influence of the Industrial Workers of the World (IWW) on pre-World War I migrant workers. The IWW, a militant labor union encompassing all industries where wage-pay prevails, birthed a short-lived branch, the Agricultural Workers Organization (AWO), which specifically organized migrant laborers (Nef). Although their ultimate goal was “the destruction of capitalism,” the battles they fought, in the form of strikes and the occasional sabotaging of crops, were often over issues with immediate implications, such as higher wages or improved conditions in labor camps (Mitchell 65). One of the methods employed by the IWW and the AWO was “free speech battles” where workers organized talks and rallies on public streets in between jobs (Mitchell 68). These were displays of resistance against the established order of meant to show that “they could take possession of the streets even if they could not yet take possession of the means of production” (Mitchell 68). Migrant workers played a critical role in these meetings because their ability to move quickly from one event to the next allowed them to bolster support, seemingly, in many places at once (Mitchell 68). This guerrilla tactic was a great source of power and influence, artificially inflating the number of IWW members and helping to spread their doctrines to the far reaches of the agricultural empires of the U.S.

In California, particularly, the IWW and AWO became mobile organizations (Mitchell 69). The IWW operated physical union chapters established to serve workers in various locations throughout the U.S. However, mobile union locals were a

phenomenon that was unique to migrant workers and proved to be highly effective. This was possible through the appointment of migrant “camp delegates” who held the authority to organize locally and spontaneously on any job in any given location (Mitchell 70). “The camp...delegates literally carried a union local under their hats... If a job gave out, or if a worker left a job, that did not imply the end of organizing. The local was no longer simply local. It was instead a means of spreading power across expansive spaces” (Mitchell 70). The effect of mobile locals was similar to that of the free speech battles, in that they created the illusion of mass uprising and bolstered the apparent membership numbers of the IWW and AWO. “Subversive mobility” allowed workers to be everywhere and yet nowhere in particular at once (Mitchell 70).

By 1917, the AWO was dismantled and the IWW lost considerable influence as a result of mechanisms that were put in place by the state in order to affix individuals to specific locations and make them visible once again (Mitchell 80). The first step in diffusing the IWW was accomplished through “highly publicized official raids” of the physical IWW branches (Mitchell 80). Second, the California Commission of Immigration and Housing (CCIH), an agency established under the premise of improving labor camp conditions, “engaged in labor espionage in conjunction with its inspectional tours” (Mitchell 74). This was further justified under the guise of investigating collusion between migrant workers and the Germans after the U.S. declared war (Mitchell 75). By exploiting the nature of grower-operated migrant housing, the CCIH was able to gather information about workers that tied them to IWW and AWO activity, therefore undermining the anonymity that was critical in sustaining the migrant workers’ power.

Mobile housing, when owned by the migrant worker himself, can be a great source of political power. A dwelling that is easily transportable keeps a migrant worker highly mobile and independent. By negating the dependence on grower provided housing while maintaining a high degree of mobility, migrant workers gain a sense of power and autonomy. When the anonymity, mobility and independence afforded by portable housing are layered with the deep-rooted migrant social networks established by the Mexican migrant community, these results are potentially magnified. The combination can prove to be a powerful mechanism for leveraging higher wages and better working conditions, as well as organization in order to gain a better political foothold in issues of immigration. This can also be an effective tool at the disposal of undocumented workers for whom anonymity and subversiveness are paramount.

4.2 Design Intent

The intent of the design presented in this study is to explore a possible design solution to address the needs of migrant workers from Mexico. Since migrant lifestyles vary greatly over time, it is necessary to narrow the scope of the proposal to a specific migrant population. The intended owner of the proposed unit is a migrant worker who is in the transition phase of his career and accompanied by family members. The proposal also assumes that the migrant worker owns a car, which is reasonable expectation for a worker who has been migrating for several years (Refer to Section 4.3). This cross-section of the migrant population offers the best demographic to begin exploring design possibilities because migrants in the transition phase are the most likely to be involved in consistent migratory work. Migrant workers in the sojourner phase have more sporadic migration

patterns and are likely to lack the resources to support home ownership, even on a small scale, whereas migrant workers in the settlement phase tend to migrate less often as they begin to establish permanent households.

By drawing from various sources, including Mexican culture, existing technology in mobile architecture and research on the migrant lifestyle, it is possible to begin putting together a schematic design for portable housing based on the needs of a transition-stage migrant worker.

4.3 Concept

The design concept and inspiration for this proposal is the lowrider, an object that beautifully embodies the culture and aspirations of Mexican migrant workers. According to Rebecca Cuevas-De Caissie, the origin of the lowrider lies with migrant families packing into their cars, causing them to ride very low to the ground. The old cars, cast off by Americans in favor of the newest models, became not only a migrant worker's livelihood, but also an expression of their migrant culture. Lowriding, as an art form, flourished with Chicano zoot-suiters in Southern California in the early twentieth century (Lowrider Magazine). They restored old American cars, adding lots of chrome, custom paint jobs and elaborate interiors to match their ostentatious style of dress. They placed sandbags in the trunk or cut the suspension coils in order to make the car ride low to the ground (Lowrider Magazine). By cruising slowly through the streets, they flaunted their unique creations.

Ultimately, lowriding remains a unique cultural expression that manifests a newfound socioeconomic status and cultural identity. It is not only the livelihood of a

migrant worker, but also a means of showing off the fruits of his labor. Because of this, lowriders become family heirlooms, passed down from father to son (Bright 592). Ruben Martinez describes the importance of the car to one migrant family, where a portion of the family earnings is devoted to customizing an '89 Chevy pickup truck. He says, "Roberto bought his truck unmodified and started adding on accessories paycheck by paycheck. That was the one luxury [his] father allowed; the rest of their pay was conscientiously saved" (115). Similarly, Janet Jarman recounts a young migrant girl's aspiration of owning a car: "'One day, I would like to have a beautiful car...then I could keep all of my things in it and drive it to and from my job'" (165).



Figure 4.1 A compilation of lowrider images.
(Source: Lowrider Magazine, with modifications)

According to the U.S. Department of Labor, 42% of all migrants drive a car to work and 35% ride in a car with others. Since the majority of migrant workers have access to a car, it is reasonable to expect that the owner of the proposed living unit owns

a car as well. In this case, the mobile unit becomes an extension of the car and an extension of the migrant worker's livelihood. Like the car, the portable house is conducive to customization. "The mobile home is expedient in that it is instant and affordable, but it is also flexible in that it can be fully appropriated by the owner for the expression of his own understanding of a home" (Kronenburg 84).

4.4 The Proposed Housing Unit: Program, Structure, Systems and Ideologies

The proposed unit is composed of two spaces, hard space and soft space. The hard space is a fixed unit that houses infrastructure and fulfills the need for two spaces which are often substandard in alternative types of housing: spaces for hygiene and for food preparation. The space for hygiene is a wet-cell bathroom with shower and toilet. A shower is a critical need for farm workers who are usually exposed to pesticides on the job, yet showers provided by growers are notorious for being substandard or ill-maintained. The shower has its own water supply with an electric pump, as well an independent waste-water holding tank. The toilet is a composting toilet, and therefore needs no black water holding tank. The entire bathroom can be manufactured in fiberglass and installed as a single piece with no seams to create a space that is water-tight and mold resistant. The space is vented and day lit by an operable skylight. At night, the space is lit electrically.

The space for food preparation consists of a fixed cooking area and a collapsible food preparation surface. The cooking area has two electric burners as well as a sink that is fed by a separate, potable water supply that is gravity-fed. The work surface is a stainless steel counter that is supported from the walls of the structure. The space

underneath this fixed counter has an electrical hookup to receive a small refrigerator to store perishable food items. The vertical space adjacent to the cooking area houses the potable water supply and waste-water holding tank, as well as a small storage area for cooking and eating utensils, as well as non-perishable food items. Across from this is the collapsible, stainless steel food preparation surface that folds down against the wall when not in use. The entire space is naturally ventilated and daylit by two windows and a skylight above. Little provision has been made for the storage of personal items because migrant workers typically travel only with essential possessions (Bechtel, et al. 16). Therefore, whatever minimal possessions they may have can be stored in the car, where the trunk can serve as storage space.

The hard space employs several technologies and methods that already exist. By drawing from well engineered examples, it is possible to eliminate potential development costs that would be involved in designing custom infrastructures. The structure is based on the design of the Airstream trailer chassis (Figure 4.2). While Airstream trailers are typically considered to be luxury products, they are iconic and enduring, both symbolically and physically. They represent a design tradition of successive improvement, resulting in systems that are well engineered and that can be adapted to suit portable dwelling for migrant workers. The structure of the hard space consists of steel tube members, as used in Airstreams. According to Airstream, this adds strength, while the hollow sections reduce weight. While Airstream uses a high-grade aluminum monocoque construction which is left unfinished, the proposed unit uses a lower grade sheet metal finished with primer and automotive paint to protect it from the elements. This also serves as a primed canvas for the custom paint jobs and artwork that, inevitably,

will be added to the exterior by the owner. The interstitial space between the exterior and interior shells can be filled with insulation.



Figure 4.2 Airstream chassis.
(Source: Banham)

The water distribution system in the proposed unit is similar to that used in Airstreams, where conventional plumbing connects fixtures to individual tanks for fresh water and waste water (Refer to Appendix B). However, in the proposed unit, potable water has been separated from water used for bathing so that rainwater may be potentially

collected and used for showering. Fuel for cooking is provided by a Liquid Petroleum Gas (LPG) system and power is provided by a 12-volt deep cycle lead acid battery, as used in Airstreams (Refer to Appendix B).

The soft space is a modular, demountable fabric structure for sleeping and socializing. It is designed to comfortably accommodate six people for sleeping. The foundation of the soft space is a palletized system consisting of interlocking pieces that can be stacked and stored in the hard space for transport. Each pallet is a square with crossed ribs underneath to serve as structural reinforcement and to elevate the pallet off the ground. On the top surface of the pallet, the ribs are slotted so that the pallets can interlock vertically for stacking. Each side of the pallet is notched to interlock. The square shape makes it multi-directional for ease of installation; they can be installed in any direction.

The structure of the soft-space consists of modular fiberglass pole sections that can be screwed together to create larger spans, as in camping tents. Three pole sections are used to create one of the six arches that form the structure. One arch supported on another and clipped at the center creates one set of self-supporting arches. The ends of the poles are anchored to the pallets, which have holes in the corners to receive the poles. This is repeated threefold to achieve the full structure. The skin of the space is a single fabric piece which is hung from the poles and stretched taut to the ends of the poles. The skin has alternating panels with two layers, where a solid panel is pulled back to reveal a mesh panel for ventilation. The structure is accessed via the two ends. The soft space has a secondary structure that can be mounted on the main structure to support a canopy that serves as shading from the sun and rain. In addition, there is a transition space

between the soft space and the hard space where two more sleeping structures can be attached at right angles to the first, expanding the space to accommodate more people.

The program is informed by domestic architecture in rural Mexico, which above all, emphasizes “familism” and “physical proximity among household members” (Pader 121). The typical rural house, sited in the fields near a village center, consists of a few simple rooms arranged around an open patio surrounded by a high, windowless wall (Figure 4.3) (Pader 121). The patio, an outdoor room, is the centerpiece of the home where children play and adults socialize and partake in routine domestic activities (Pader 121). The patio door is typically left open during the day, inviting neighbors to enter the space both visually and physically. The *recámara* is a multipurpose room that combines the functions of a bedroom, family room and living room (Pader 123). In the *recámara*, household members sleep, dress, play and entertain guests. The *cocina*, or kitchen, and bathroom are placed at the back of the house and accessed from the patio (Pader 124). A house located in the village center has a similar arrangement of rooms, but reconfigured to fit a more restricted footprint (Figure 4.4). In both instances, rooms are typically arranged without hallways so that in order to get to a particular room, one has to walk through the other rooms. Doorways often feature blankets or curtains rather than actual doors, or they may be left completely open, including the bathroom (Pader 125). Conceptually, the distribution of the rooms allows them to “‘communicate’ with one another” (Pader 121).

Since a rural house has only one or two *recámaras*, sleeping becomes a communal activity. When there is a single *recámara*, the entire family sleeps in it.

‘A single bed may be used simultaneously by four or five people of various ages... [It] is a source of comfort and security... Sleeping alone

may be an unpleasant, lonely, and therefore frightening experience. The warmth of other bodies in bed, the sounds of breathing, the turnings and stirrings of others, are all reassuring' (Pader 126).

When a house has two *recámaras*, one is reserved for adults and the other for children, or girls will share a room with their parents while boys will have their own *recámara* (Pader 126).

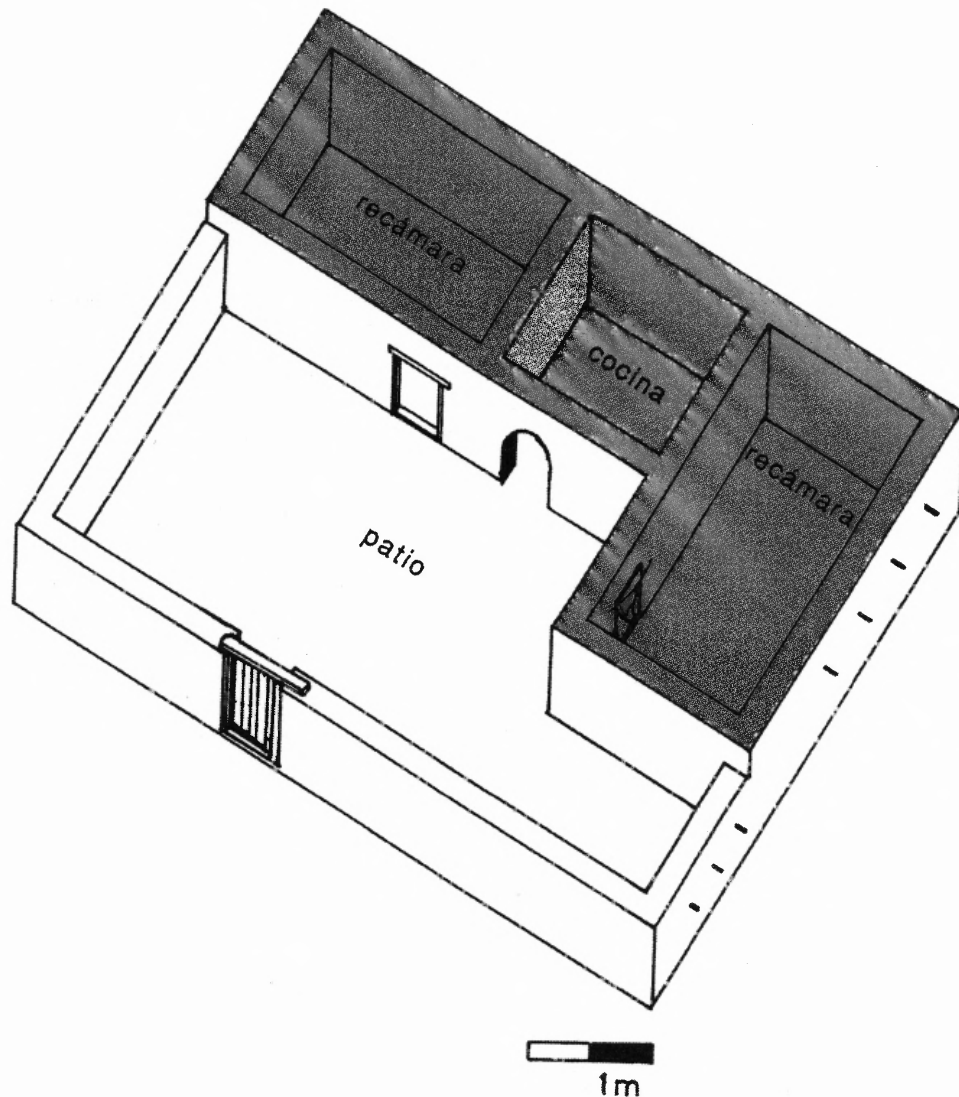


Figure 4.3 A rural Mexican house sited in the fields near a village.
(Source: Pader)

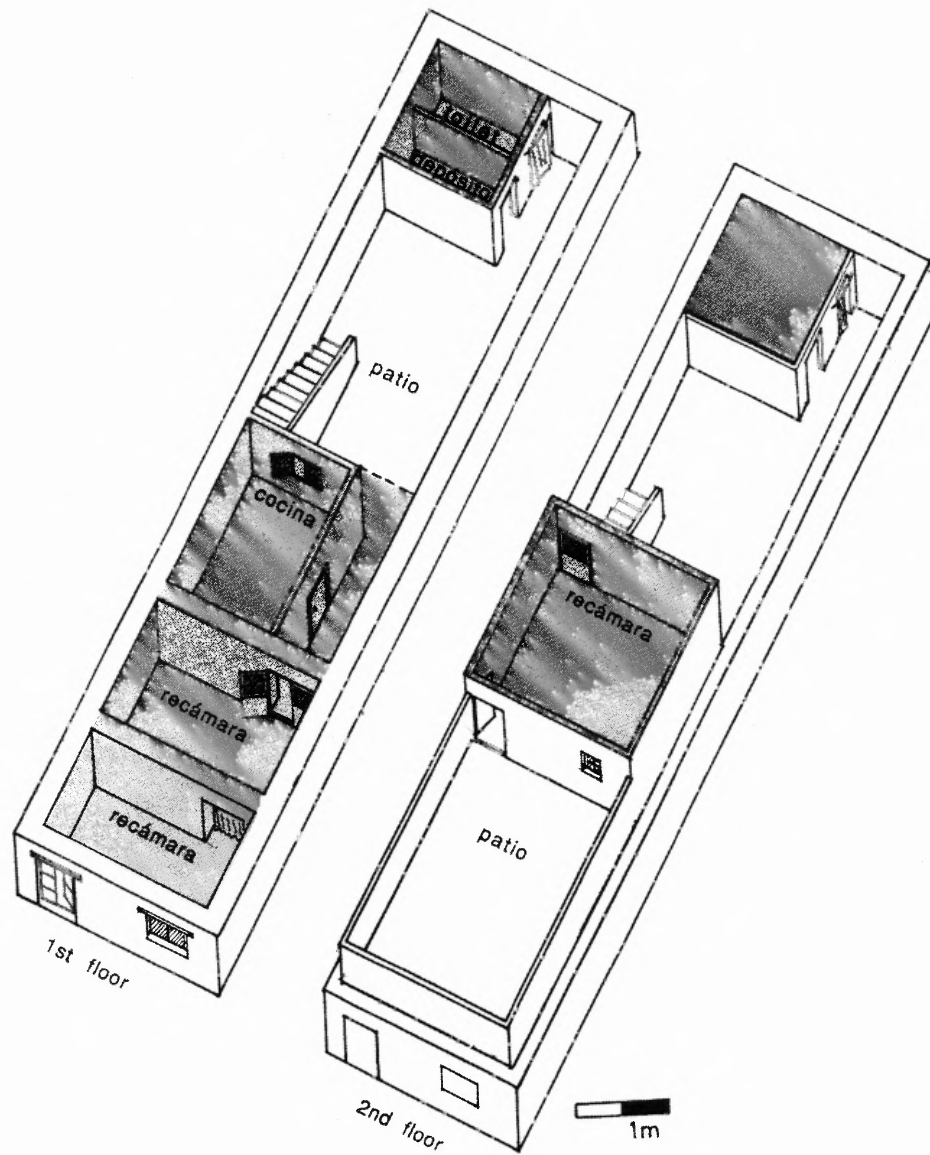


Figure 4.4 A rural Mexican house sited in the village center.
(Source: Pader)

The spatial functions of the rural Mexican house can be translated to those of the portable housing unit. The soft space serves as a *recámara*, which can be expanded to suit various spatial needs. The hard space serves the auxiliary functions of cooking,

bathing and eliminating. The patio is determined by the context in which the unit is deployed, where the owner has free reign to determine its location and surroundings.

CHAPTER 5

CONCLUSION

The findings of the research and the proposal presented in this study reveal that portable housing is a viable way of housing migrant workers in a way that is responsive to their culture and to practical considerations. It also has the added benefit of providing social and political empowerment. Whereas fixed housing typically costs about \$20,000 per bed (Goodno 13), portable housing holds the potential to be manufactured at a substantially lower cost. This way, funds and grants allotted for migrant housing can be used to fund other resources that are not easily transportable, such as laundry facilities and recreational spaces. A precedent for this already exists with Washington State's "Rent-A-Tent" program where licensed growers provide sanitary facilities and other resources for workers who can provide their own tent or rent a large six-person tent for a nominal fee (Pacheco 11).

As the proposal presented here is designed for a selected cross-section of the migrant worker population, the Housing Assistance Council suggests that it is necessary to tailor design to "the unique housing needs of distinct farmworker subgroups" (39). By using the design proposal as a springboard for discourse, it is possible to engage in participatory design, as Design Corps has done. The flexible nature of the design makes it conducive to alteration based on more niche needs attributed to differences in migrant streams, work with specific crops and sources of funding.

It is the author's hope that this research contributes to the expansion of ideas beyond conventional thought about housing migrant workers. Housing is not only a roof over one's head or a place to sleep. It is a source of pride and dignity and the quality and

character of migrant housing must reflect that. As Cesar Chavez said, “Do not romanticize the poor...We are all people, human beings subject to the same temptations and faults as all others. Our poverty damages our dignity.”¹

¹ Used by permission of the César E. Chávez Foundation.

APPENDIX A
AGRICULTURAL SEASONS BY STATE

Table A.1 Agricultural Seasons by Stream and by State

Eastern Stream	FL	Jan – Dec	PA	Apr – Nov
	GA	Apr – Nov	MD	Apr – Nov
	AL	May – Oct	DE	Apr – Nov
	MS	n/a	NJ	Apr – Dec
	SC	May – Nov	NY	Jun – Nov
	NC	May – Dec	CT	Apr – Oct
	TN	May – Dec	MA	May – Nov
	KY	n/a	VT	n/a
	VA	Apr – Dec	NH	Sep – Oct
	WV	Jul – Nov	RI	n/a
	OH	Mar – Nov	ME	Jul – Oct
	Central Stream	TX	Jan – Dec	IL
LA		n/a	IN	Apr – Nov
AR		n/a	MI	Apr – Oct
OK		n/a	WI	May – Oct
KS		Mar – Nov	MN	May – Oct
MO		May – Nov	SD	n/a
NE		May – Aug	ND	n/a
IA		Mar – Dec		
Western Stream	AZ	Jan – Dec	WY	May – Sep
	NM	May – Dec	MT	Mar – Dec
	CA	Jan – Dec	ID	Mar – Nov
	NV	n/a	OR	Apr – Nov
	UT	May – Nov	WA	Feb – Nov
	CO	Jan – Nov		

(Source: U.S. Department of Health and Human Services, with modifications)

APPENDIX B

SELECTED AIRSTREAM SPECIFICATIONS

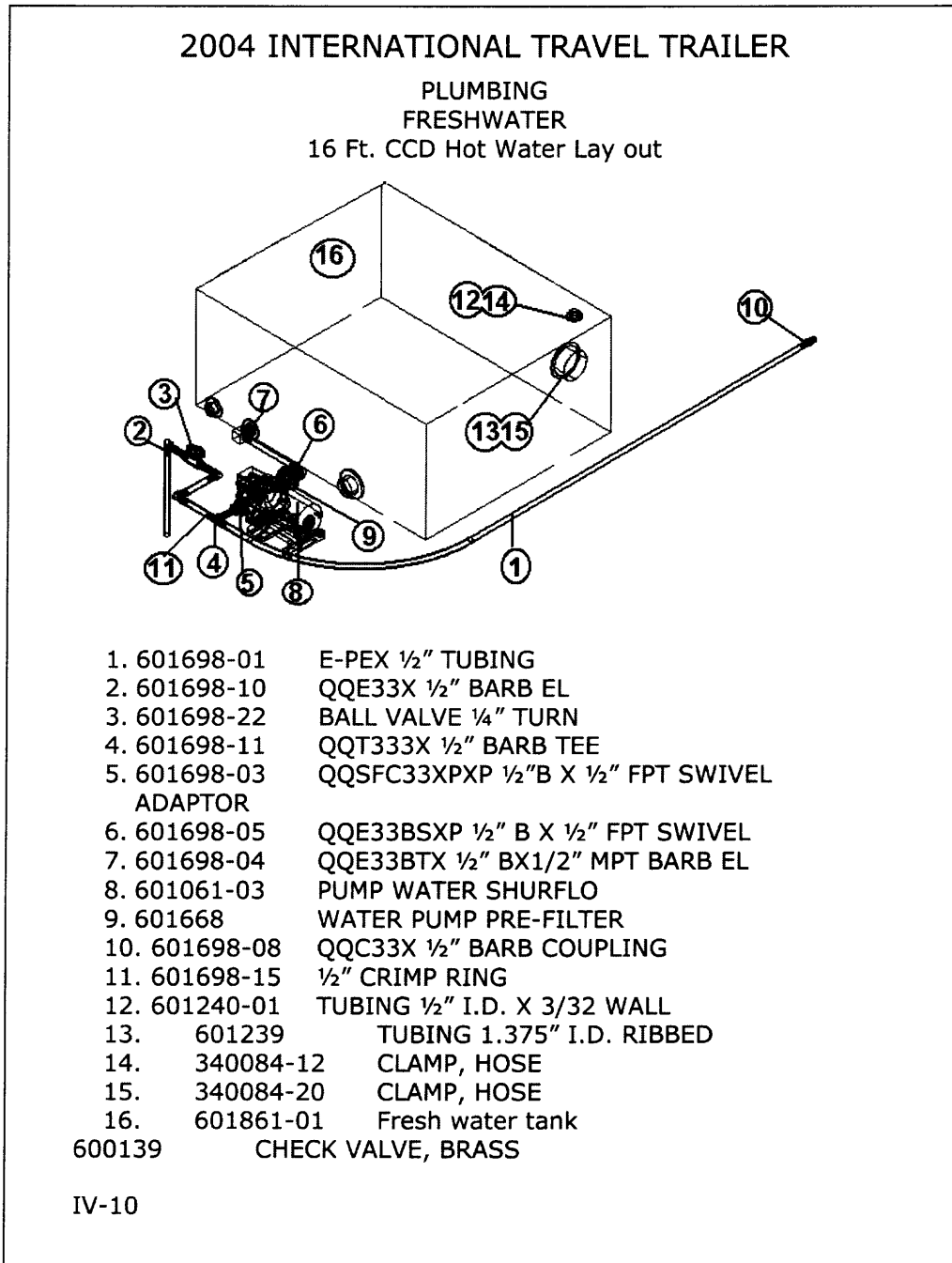
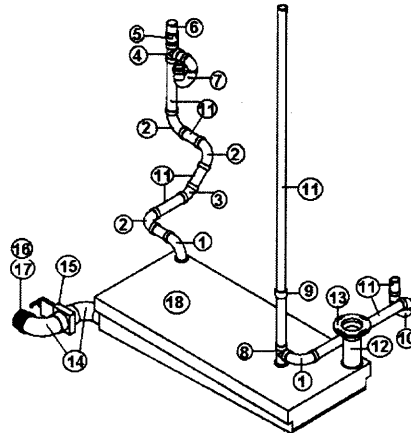


Figure B.1 Freshwater distribution.

(Source: Airstream, Inc – 2004 International Travel Trailer Parts Book)

2004 INTERNATIONAL TRAVEL TRAILER

PLUMBING 16 Ft. International CCD



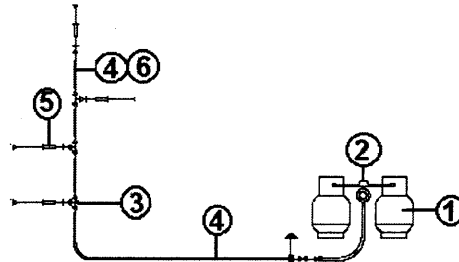
- | | | |
|--------|-----------|--------------------------------------|
| 1. | 600431 | Elbow, 90, 1.5" |
| 2. | 600035 | Ell, ABS, Long sweep, 1.5" |
| 3. | 600030 | Ell. 45 degrees, long turn |
| 4. | 600156 | Tee, sanitary |
| 5. | 600308 | Adaptor, ABS, female, Sloan #2891 |
| 6. | 600538 | Vent, V-200 automatic |
| 7. | 600622 | P-trap, 1.5" w/slip nut & washer |
| 8. | 601868 | Sanitary tee, spig x hub x hub |
| 9. | 600227 | Plastic couplings |
| 10. | 600144 | P-trap, ABS DVW, 1.5" |
| 11. | 601160-02 | Pipe, ABS, DVW, 1.5" |
| 12. | 601267-04 | Nipple, 3" Dia. THD one, 10" long |
| 13. | 601266 | Flange, closet, 3' x4", slip fit |
| 14. | 600820 | 3" single socket, 90 degree |
| 15. | 601607-14 | Dump valve, 3" |
| 16. | 601607-06 | Termination adaptor, 3" hub x 3" bay |
| 17. | 601607-18 | Termination cap, 3" bay |
| 18. | 601844-05 | Tank, black/gray combination |
| 601588 | | Drain cock, radiator, brass |
| 453945 | | Close off, plumbing, black |
| 601869 | | Tank pan |
| IV-24 | | |

Figure B.2 Waste water distribution.

(Source: Aistream, Inc – 2004 International Travel Trailer Parts Book)

2004 INTERNATIONAL TRAVEL TRAILER

PLUMBING
16 Ft. AS, CCD
LPG System



- | | |
|--------------|---------------------------------|
| 1. 601781 | LP TANK-20LB STEEL |
| a. -01 | CSA |
| 2. 601731 | LP REGULATOR W/MTG. BRACKET |
| 3. 600000 | TEE BRASS 5/8 X 5/8 X 3/8 |
| 4. 600004 | TUBING COPPER 5/8 OD |
| 5. 600008 | TUBING COPPER 3/8OD |
| 6. 601159-02 | TUBING, .50IN,POLY. CSA APPROVE |

- | | |
|-----------|--------------------------------|
| 601687 | HOLD DOWN KIT - LP TANK SAFARI |
| 601685-01 | LP HOSE-1/2"FPT X 3/8F-36" #19 |
| 381613 | PLASTISOL COVER-LP WING HANDLE |
| 600003 | TEE 5/8 X 3/8 X 3/8 |
| 600436 | FORGED FLARE NUTS 5/8IN |
| 600435 | FORGED FLARE NUTS 3/8IN |
| 380887 | GROMMET, FLOOR |
| 380886 | GROMMET, FLOOR |
| 600661 | GROUNDING CLAMP 1/2 TO 1 SIZE |
| 500839 | WIRE, BARE COPPER 8 GA. |
| 500038 | LUG GROUND |
| 340085-05 | CLAMP #COY 1109 5/8 IN. |
| 601734 | FITTING-BRASS 5/8 OD FLARE X 1 |
| 600000 | TEE BRASS 5/8 X 5/8 X 3/8 |
| 201649 | ACCESS COVER LP REGULATOR |

IV-4

Figure B.3 LPG distribution.

(Source: Aistream, Inc – 2004 International Travel Trailer Parts Book)

APPENDIX C
SELECTED ARCHITECTURAL DRAWINGS

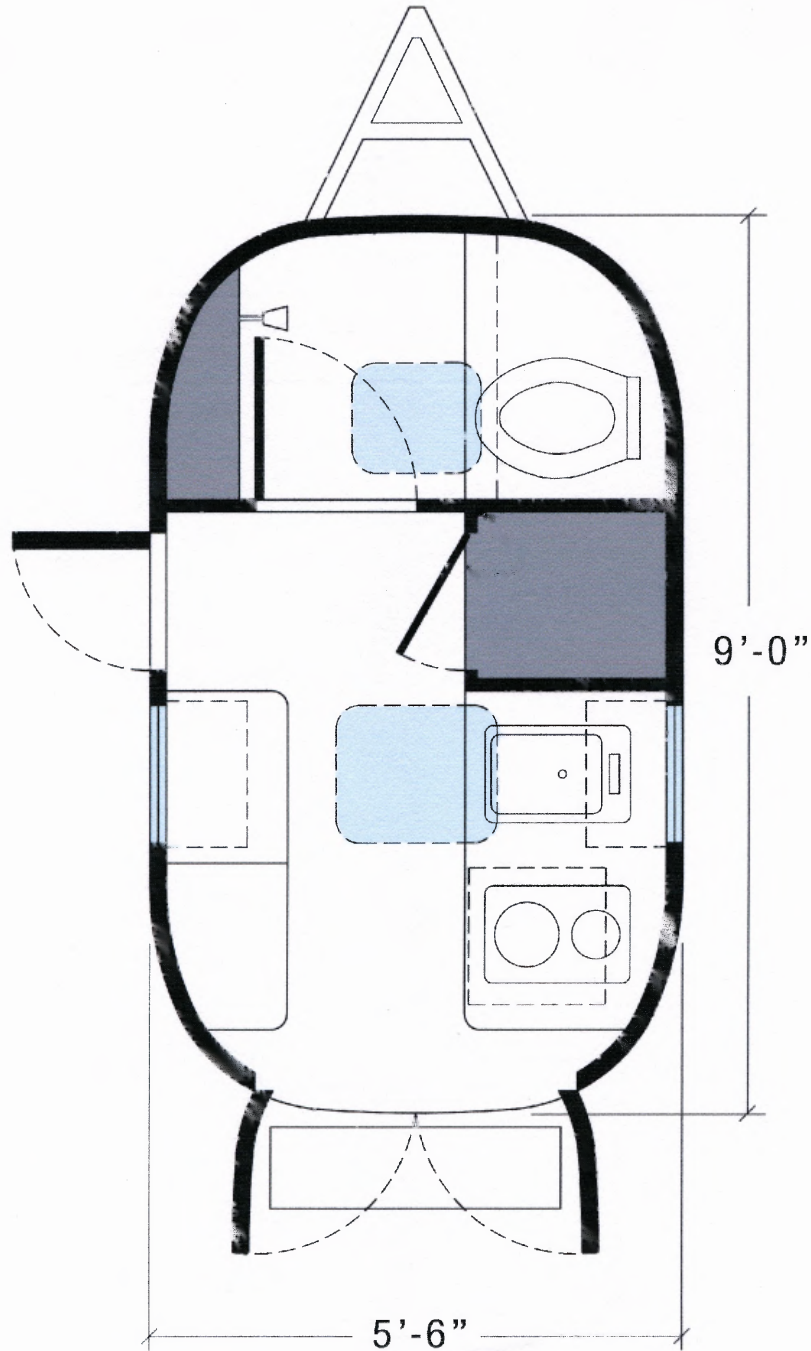


Figure C.1 Plan view of hard space.
(Source: Author's rendering)

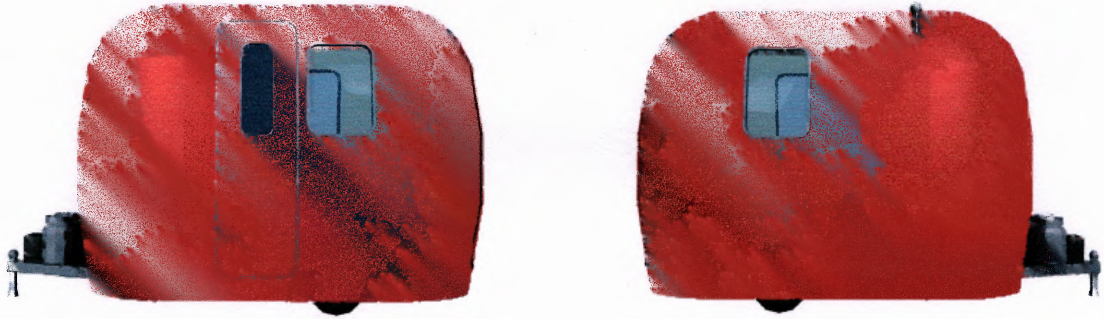


Figure C.2 Side views of portable unit (hard space).
(Source: Author's rendering)

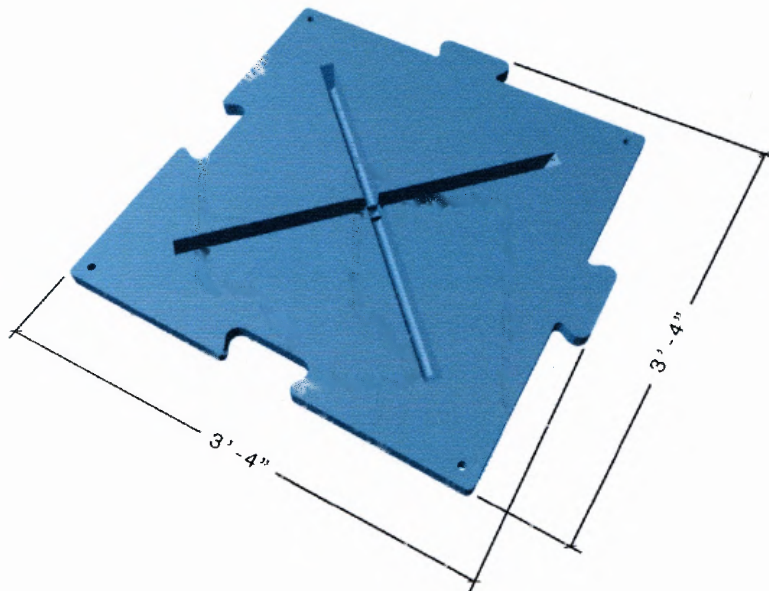


Figure C.3 Soft space pallet.
(Source: Author's rendering)



Figure C.4 Assembly sequence of soft space.
(Source: Author's rendering)



Figure C.5 Hard space structure.
(Source: Author's rendering)



Figure C.6 View showing pallets stacked inside hard space.
(Source: Author's rendering)

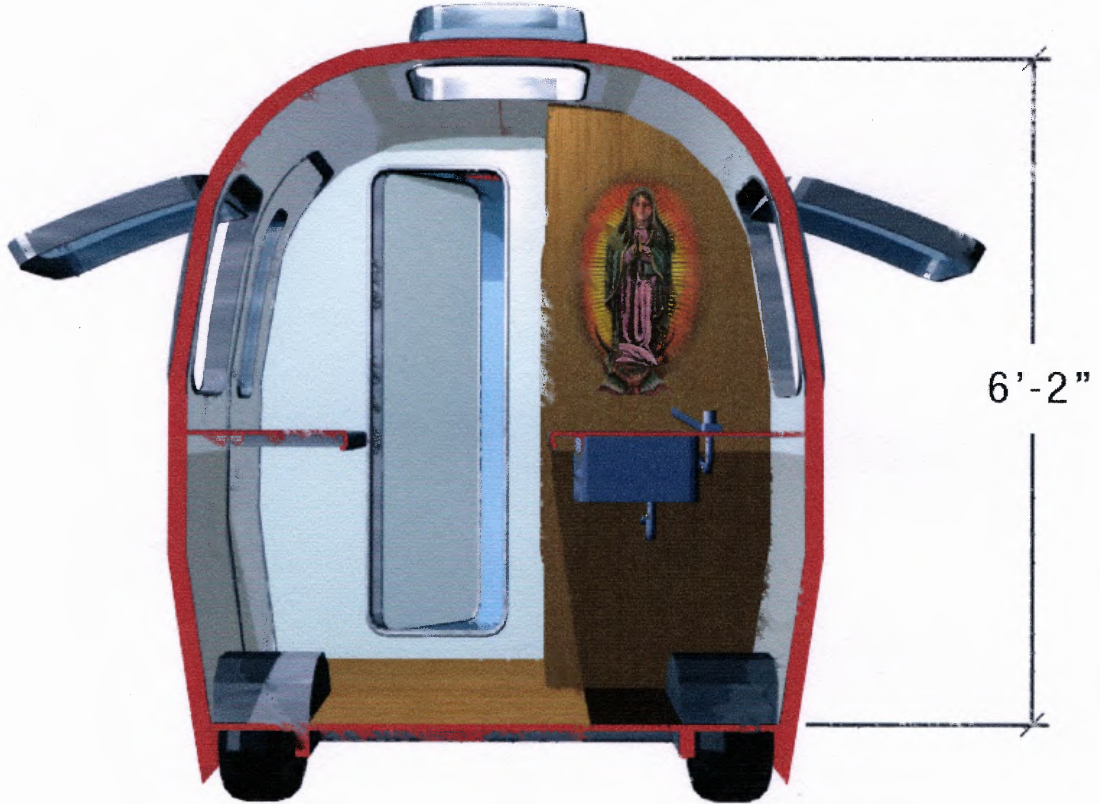


Figure C.7 Section through hard space.
(Source: Author's rendering)



Figure C.8 Exterior view showing fully deployed unit.
(Source: Author's rendering)

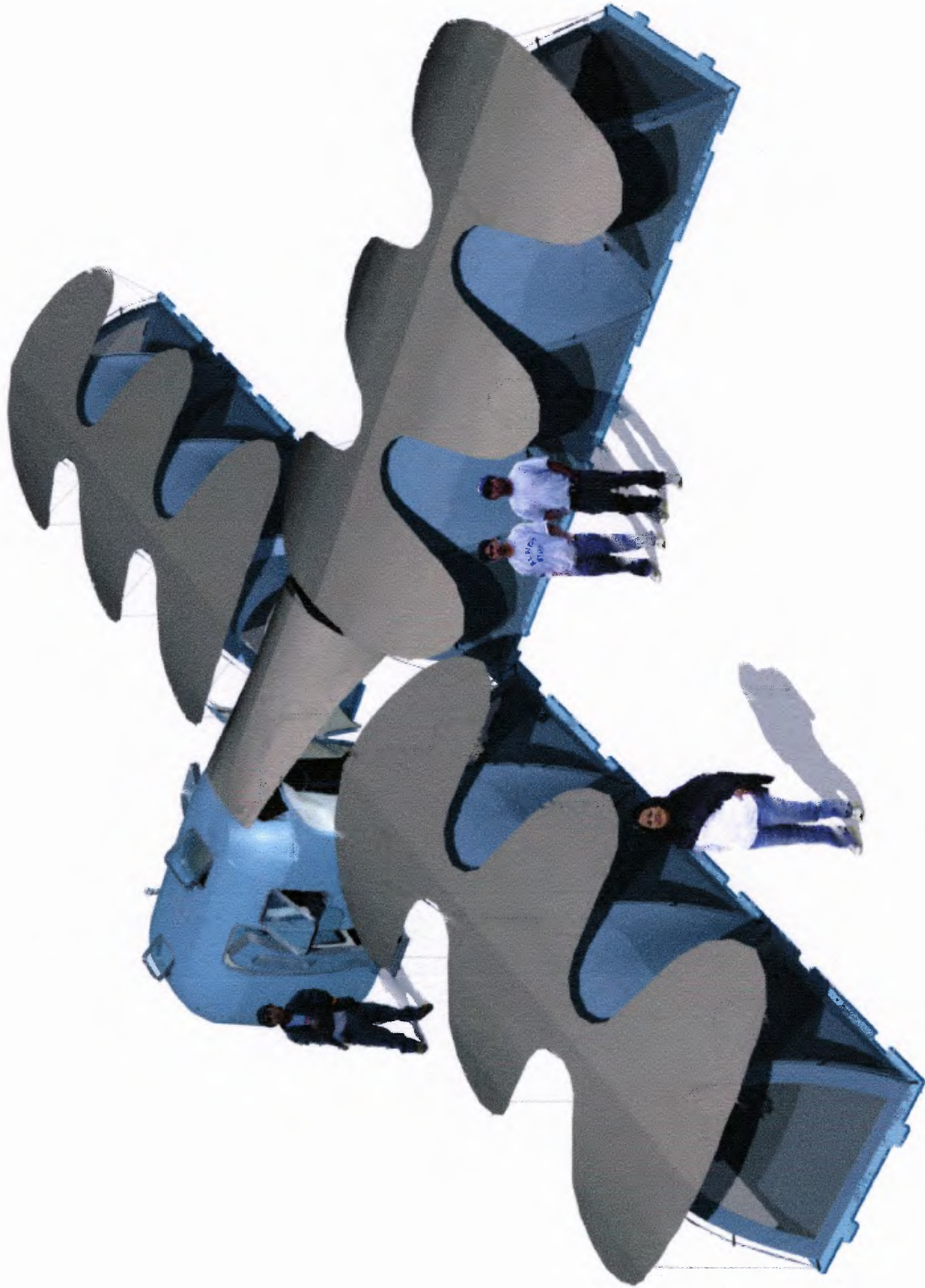


Figure C.9 View showing potential unit additions.
(Source: Author's rendering)

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