

Think Tiny

An Alternative House Design for an Aging Population

A thesis submitted in partial fulfillment of the requirements for graduation with
Departmental Honors in the Program in Environmental Design

By

Molly Kostoff
Program in Environmental Design
University of Colorado Boulder

Examining Committee:

Jade Polizzi | Environmental Design | Primary Advisor
Dr. Georgia Lindsay | Environmental Design | Honors Council Representative
Richard Saxton | Department of Art and Art History | Committee Member

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Abstract

In the near future, the rising number of people aged 55 to 75 is going to impact housing. People are reevaluating current housing options and searching for opportunities that better fit their lifestyles. At the same time, the idea of living in a tiny house is becoming more popular. Considering the growing popularity of tiny houses, a significant question that arises is: can tiny houses be designed as a realistic solution for housing problems, such as accommodating older adults? People want to downsize and live more simply; however, many tiny houses are built on wheels and are limited in design. This research focuses on designing a tiny house that is suitable for people aged 55 to 75, those considered “young-old.” Information used to inform design choices was gathered from literature and through a series of interviews. Observation from visiting tiny houses also influenced the final design. This modified tiny house design is less than 400 square feet and is built on a foundation. Louisville, Colorado was used as a general site in this research due to its environment qualities and the number of people who will soon be within the selected age bracket. Although research does not extend beyond Louisville’s zoning regulations, concepts could be applied in other cities. Ultimately, the purpose of this thesis is to provide an alternative housing option that addresses the needs of older adults. The final design is a solution for young-old adults that could be implemented now or in the coming years.

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“Home should be the setting for life, not the measure of it.” –James Gauer¹

Introduction

When considering the American dream, a picture of a big house with a manicured front yard usually comes to mind. A person living in a tiny house would be considered eccentric by most people. But the American dream is changing.² People are reevaluating current housing options and searching for opportunities that better fit their lifestyles.³ For some, the idea of living in a tiny house might still be unconventional; however, there is a growing appeal to downsize and live more simply.⁴ The burgeoning popularity of tiny houses makes them a relevant topic in architecture and housing today. Tiny houses have the potential to solve some problems, such as the housing demand for people aged 55 to 75, those considered “young-old.”⁵ Currently, tiny houses are limited in design and accessibility. Thus, to meet the needs of older adults, a modified tiny house design is necessary.

This research uses Louisville, Colorado as the target area due to the temperate climate and the openness of the city to consider alternative housing solutions. In addition, a large percent of the population fits the young-old category.⁶ Distinct from those in adulthood, young-old adults are approximately 55 to 75 years old, generally defined as people who are retired, living with a reduced family size, and have excess leisure time.⁷ The scope of this project is limited to people who live alone or with one other person. The age 75 is used as an upper limit, though any elderly person with good health would fit the target group. It is assumed that eventually a person becomes “old-old,”

¹ James Gauer, *The New American Dream: Living Well in Small Homes* (New York: Monacelli Press, 2004).

² Ibid.

³ Alex Wilson and Jessica Boehland, “Small Is Beautiful U.S. House Size, Resource Use, and the Environment,” *Journal of Industrial Ecology* 9, no. 1–2 (2005): 277–87.

⁴ Mary Murphy, “Tiny Houses as Appropriate Technology,” *Communities*, no. 165 (2014): 54.

⁵ Deane Simpson, *Young-Old: Urban Utopias of an Aging Society* (Zürich, Switzerland: Lars Müller Publishers, 2015).

⁶ U.S. Census Bureau, 2010 Census, “Population and Housing, Demographic Profile Data” [tp://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF)

⁷ Deane Simpson, *Young-Old: Urban Utopias of an Aging Society*.

and loses physical ability and independence,⁸ at which point he or she would need to have assisted care or live in a nursing home. For this reason, “old-old” people, generally over the age of 75, are not included as part of this research.

In the near future, the young-old age bracket is going to impact a demand for alternative housing options. Because there is a scarcity of developable land in Louisville, tiny houses could be a way to increase infill without changing the “livable small town feel.”⁹ A tiny house is defined as any permanent, detached dwelling unit less than 400 square feet. It is distinct from a small house, which can range from 400 to 1,000 square feet.¹⁰ While many tiny houses are built on wheels, this research focuses on designing a tiny house built on a foundation. Building on a foundation provides more design flexibility than a house on wheels, while ensuring that the house meets local building codes.

The purpose of this research was to design a realistic tiny house that better accommodates young-old people. Initial information was gathered from literature about young-old people and the tiny house movement. Further investigation was conducted through a series of interviews and visits to tiny houses. The interview findings, in addition to design analysis, shaped the final proposal of a tiny house designed specifically for young-old people. This proposal addresses the needs of the young-old by providing a housing solution that is accessible, affordable, and gives people the ability to age in place.

⁸ Ibid.

⁹ City of Louisville, “Comprehensive Plan,” 2013, <http://www.louisvilleco.gov/home/showdocument?id=358>.

¹⁰ Ryan Mitchell, *Tiny House Living: Ideas for Building & Living Well in Less than 400 Square Feet* (Cincinnati, Ohio: Betterway Home, 2014).

An Aging Population

Studies show that people are living longer and birth rates are declining, resulting in an older population. In the next decade, the baby-boom generation (born 1946-64) will be in their late 70's.¹¹ By 2030, one in five people will be at least aged 65, with a projection of 73 million people.¹² In Louisville, this generation is slightly more than 9,000 people, or 30 percent of the population.¹³ Figure 1 highlights those who will be in the category of young-old, aged 55 to 75, by 2030. Based off the 2010 census data, approximately 35 percent of the population in Louisville will fit the young-old category.¹⁴ Whether out of preference, or necessity, older adults may need to relocate. Some reasons adults choose to move include: retirement, children moving from home, acquiring a disability, death of a spouse.¹⁵ Some might be forced to move due to lack of affordability, accessibility, or supportive services.¹⁶ The rising number of people who will soon reach the common retirement age of 65 will likely drive up demand for alternative housing arrangements that offer these three components.

¹¹ Joint Center for Housing Studies of Harvard University, "Housing America's Older Adults: Meeting the Needs of an Aging Population" (Harvard University, 2014).

¹² Ibid.

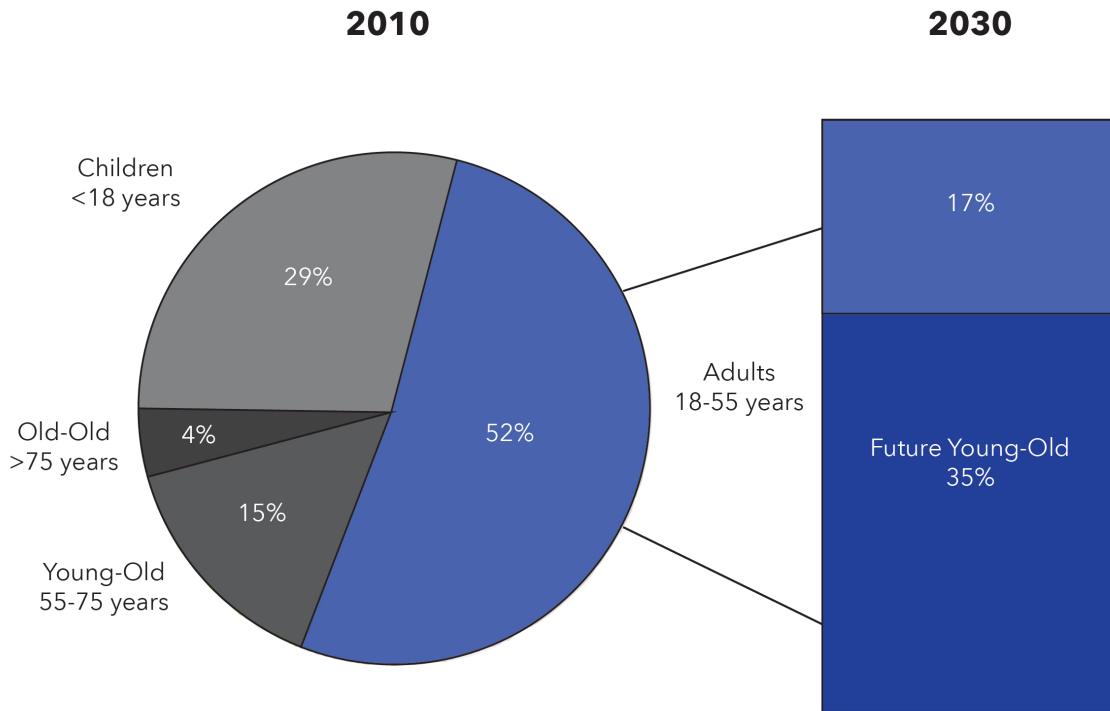
¹³ U.S. Census Bureau, 2010 Census, "Population and Housing."

¹⁴ Ibid.

¹⁵ Joint Center for Housing Studies of Harvard University, "Housing America's Older Adults: Meeting the Needs of an Aging Population."

¹⁶ Deane Simpson, *Young-Old: Urban Utopias of an Aging Society*.

Figure 1: Age distribution of people living in Louisville, CO in 2010 vs. projected young-old adults in 2030¹⁷



Affordability is essential for older adults because many people are living on fixed incomes. In order to live without over-burdening housing costs, housing options need to accommodate people’s income. Currently, one-third of adults aged 50 and over (nearly 20 million households) pay excessive amounts, or more than 30 percent, of their income on housing.¹⁸ Nationwide, more than 70 percent of homeowners aged 50–64 were still paying off their mortgages in 2010.¹⁹ In Louisville, only about 1,300 housing units are owned free and clear, which is about 11 percent of the total number of occupied housing units.²⁰ Of the people who live in owner-occupied units, roughly 56% will fit the category of young-old in the next 15 years. Assuming that all houses owned free and clear are

¹⁷ U.S. Census Bureau, 2010 Census, “Population and Housing.”

¹⁸ Joint Center for Housing Studies of Harvard University, “Housing America’s Older Adults: Meeting the Needs of an Aging Population.”

¹⁹ Ibid.

²⁰ U.S. Census Bureau, 2010 Census, “Tenure, Household Size, and Age of Householder,” Summary File 1, Tables H4, H16, and H17.

occupied by people over the age of 55, more than half of that population would still be paying off their mortgages.

Accessibility is also important because people have varying levels of ability, which tend to decrease with time. Many older adults live independently and have at least one type of disability.²¹ Reduced mobility is the most common age-related disability, with more than 17 million older adults reporting having serious difficulty walking or climbing stairs.²² By age 85, more than two-thirds of individuals have some type of disability, no matter what their race/ethnicity, income, or housing tenure.²³ Accessible features lacking from many houses include: no-step entry, single-floor living, extra-wide doorways and halls, accessible electrical controls and switches, lever-style door and faucet handles.²⁴ Unfortunately, with many inaccessible houses and an increase of housing cost, the ability for people to remain in their houses becomes difficult.

Supportive services are necessary so that older adults have access to resources they need and feel integrated within the surrounding community. In general, people prefer to “age in place,” which the Centers for Disease Control and Prevention (CDC) defines as “the ability to live in one’s home and community safely, independently, and comfortably, regardless of age, income, or ability level.”²⁵ In a survey conducted by AARP, 73 percent of people aged 45 and older strongly agreed that they would like to stay in their current residences as long as possible, while 67 percent strongly agreed that they would like to remain in their communities as long as possible.²⁶

Overall, the number of older adults is increasing and many housing options are not equipped to meet the needs of older people. Typical senior living options include: independent living

²¹ Joint Center for Housing Studies of Harvard University, “The State of the Nation’s Housing 2015” (Harvard University, 2015).

²² Ibid.

²³ Joint Center for Housing Studies of Harvard University, “Housing America’s Older Adults: Meeting the Needs of an Aging Population.”

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

communities, assisted living, nursing homes, specialized care. Generally, young-old people are capable of living independently, which is addressed in this proposal. If a person needs additional care, from a caregiver, that person could be living in the other dwelling unit on the lot. If a person requires a higher level of care, the person would have to move to an assisted living place or somewhere with specialized care.

General Housing Trends

According to the U.S. Census report, the average house size continues to grow larger. In 2014 the average square feet of floor area in new single-family houses built in the United States was 2,657 square feet.²⁷ In 2000, the average size was 2,266 square feet and in 1985 the average was 1,785 square feet.²⁸ While this shows a general trend of living in larger spaces, the U.S. Census report also revealed the homeownership rate to be at 64.5 percent in 2014,²⁹ and it is likely to continue decreasing. In Colorado, the 2014 homeownership rate was 65.0 percent, a 6.3 decrease from a rate of 71.3 percent in 2003.³⁰ This trend matches the regional decline of homeownership in the West. For the first quarter of 2015, homeownership in the West was at 58.5 percent. The homeownership for the west had not been this low since 1991.³¹ In the past decade, the number of homeowners has decreased each year.³² Based on this trend, it appears as though people desire bigger spaces; yet, a lot of people do not have the means or desire to be homeowners. If homeownership continues to drop, more people will be in need of rental houses and alternative housing options rather than typical housing units, such as single family homes and apartments.

²⁷ U.S. Department of Commerce, “Median and Average Square Feet of Floor Area in New Single-Family Houses Completed by Location,” *2014 Characteristics of New Housing* (2014): 345. <http://www.census.gov/construction/chars/pdf/c25ann2014.pdf>

²⁸ Ibid.

²⁹ U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates Selected Housing Characteristics.

³⁰ Ibid.

³¹ Ibid.

³² Ibid.

Different housing types include: multi-family dwellings (apartments, condominiums, lofts, co-ops), single family dwelling, manufactured/mobile home, boarding homes, shared housing, motor homes, trailers, RVs, tiny houses (see Appendix A for Definitions). In 2014, the median value of owner-occupied housing units in Louisville was \$385,300.³³ The median selected monthly owner costs, with a mortgage was \$1860 and \$455 without a mortgage.³⁴ Nearly 3,800 units are renter occupied, making a total of 32 percent of the total units. Of the renter-occupied units, 37 percent are in the young-old age group.

As people make the transition of being young-old, they might desire a change in their housing situation. For a person who owns her house free and clear, she would likely not want to move; however, a person still paying off a mortgage would be more likely to move. When considering the different housing options, accessibility, affordability, and availability to services are all important for the young-old. Certainly, there are some multi-family dwellings and single-family dwellings that would suffice. But the rising number of young-old people will likely influence a demand for alternative housing options. For a city that wishes to increase density without changing the small-scale character of place, tiny houses are an option that has great potential.

The Tiny House Movement

In the last 20 years, several people have contributed to the idea of living simply by promoting a different kind of housing option that opposes the cultural trends occurring in the US. In the early 2000s the Tiny House Movement emerged and piqued the interest of a small audience. Some people looked back on Thoreau's publication of Walden as inspiration for the movement.³⁵ Similar to Thoreau's desire to be connected to nature, some people use tiny houses as a way to

³³ U.S. Census Bureau, 2010 Census, "Tenure, Household Size, and Age of Householder."

³⁴ Ibid.

³⁵ Nancy Mitchell, "Tiny Houses: Are We Missing the Point?," *Apartment Therapy*, November 24, 2014, <http://www.apartmenttherapy.com/tiny-houses-are-we-missing-the-point-213307>.

prioritize what is meaningful in their lives. Many people accredit Jay Shafer with pioneering this movement; he built his first tiny house on wheels in 1999 and wrote an article about living small. However, Shafer was not the first to invent this idea. In 1979, Jane Lidz wrote Rolling Homes: Handmade Houses on Wheels. In this book, Lidz showcases mobile handcrafted homes that provide alternative aesthetics to RV's and mobile homes.³⁶ While many of the examples are converted buses and other mobile homes, the inspiration of the book is about the quality of living space. In 1987, Les Walker published Tiny, Tiny Houses. Walker's book is another early publication that influenced current tiny house enthusiasts. Sarah Susanka's Not So Big House (1998) stimulated the desire to design smaller, well-crafted homes rather than large placeless houses. Although Susanka does not specifically focus on tiny houses, her book contributed to ideas about using space more efficiently and emphasizing the importance of high quality, small homes.³⁷ These leading figures contributed ideas that would later be embraced by the tiny house movement, which has gained much popularity in the last 5 years.

Because there is no official census tracking the number of people living in tiny houses, it would be nearly impossible to know exactly how the movement has influenced other people. Even the number of people living in tiny houses is unknown. Based off the Tiny House Map,³⁸ an interactive web-based map displaying locations of people involved in the movement (See Figure 2), one could estimate how many people live in tiny houses and how many are interested in the idea. Counting all of the entries within the United States, there are 136 people who have listed themselves as living in tiny houses, 114 people listed as currently building tiny houses, and 319 people interested in building or still in the planning stage (see Appendix B for full list of entries). Because there are people who choose to keep their location private and people who have not posted to this website,

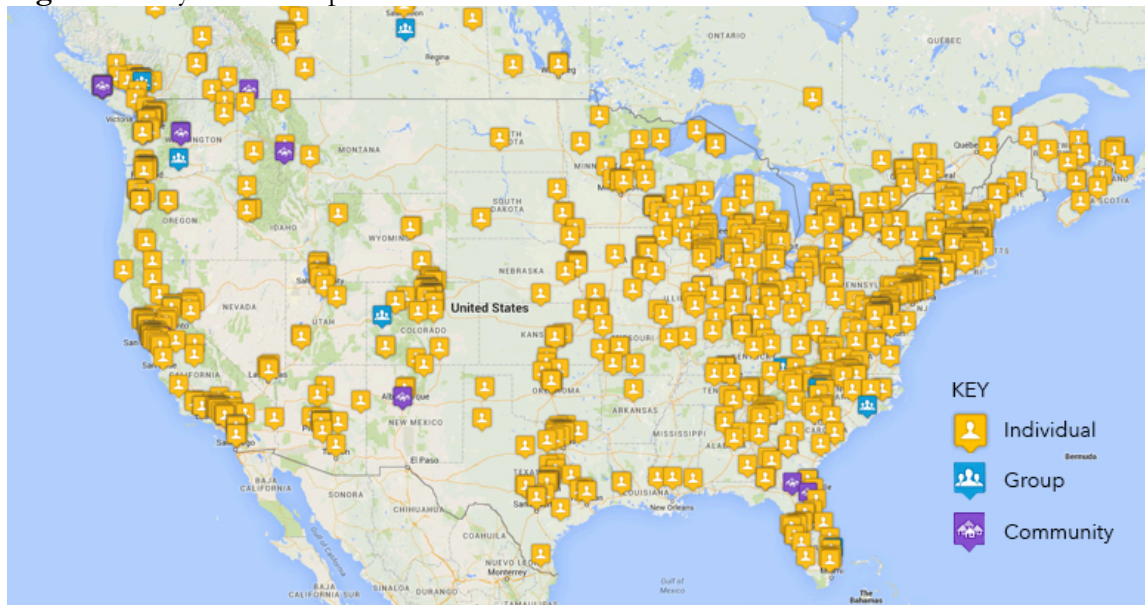
³⁶ Jane Lidz, *Rolling Homes: Handmade Houses on Wheels* (A&W, 1979).

³⁷ Sarah Susanka and Marc Vassallo, *Inside the Not So Big House* (Newtown, Connecticut: The Taunton Press, 2005).

³⁸ <https://www.tinyhomebuilders.com/map>

this count is an estimate that could have high levels of inaccuracy. Another limitation is that the website is not regularly updated or checked. Anyone can make an entry and entries might not always be updated.

Figure 2: Tiny House Map

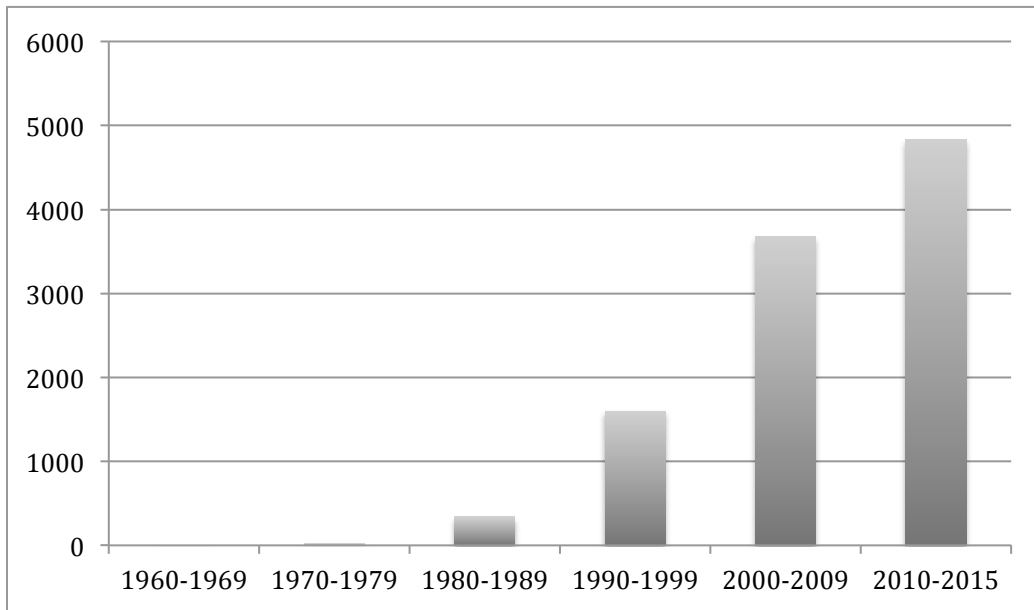


At the same time, it is obvious that the tiny house movement is gaining popularity based off the growing number of TV shows, documentaries, articles and online presence of tiny houses. Since 2014, FYI TV and HGTV have produced five different TV shows that have been popular enough to create multiple seasons. “Tiny House Nation,” for example, is an FYI show that has three seasons with at least 28 episodes. Around the same time, multiple documentaries were produced, illustrating the tiny house lifestyle. “We the Tiny House People” and “Tiny: A Story about Living Small” are two examples released in 2012 and 2013, respectively. The number of online blogs, websites and MeetUp groups relating to tiny houses is also growing. The Tiny House Enthusiasts group in Denver is an online group that was initiated this year and currently has 820 members. Groups like this did not exist 10 years ago and would not likely have been very big 5 years ago. The recent attraction to documentaries, tiny house festivals, and tiny house support groups proves that tiny house movement has gained popularity, especially in recent years. However, this does not indicate a

growing number of people living in tiny houses, instead it shows a growing awareness and interest in tiny houses.

After conducting a LexisNexis Academic search, the growing popularity of tiny houses was confirmed by searching the number of newspaper articles associated with the phrases “Tiny Houses” or “Tiny Homes.” Using the same terms, multiple searches were conducted limiting the settings each time to focus on specific decades. Figure 3 illustrates the results of this search. The number of articles in the past five years alone is 4835, which is three times as many as there were between 1990 and 1999. 20 years ago, a limited amount of people were talking about tiny houses, or even using “tiny houses” as a phrase in articles. Now, the term is used more frequently, and people are having discussions about tiny houses.

Figure 3: Number of articles found on LexisNexis with keywords "Tiny House" or "Tiny Home"



Zoning Limitations

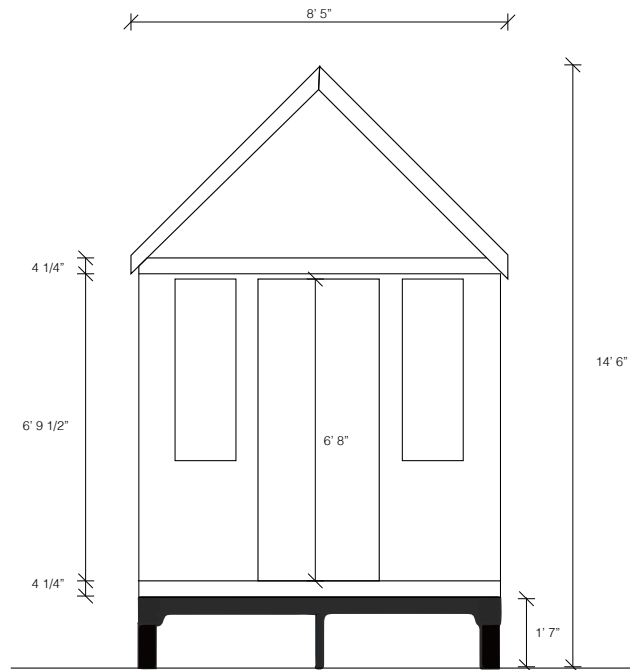
Most zoning regulations prevent people from building houses smaller than 200 square feet.³⁹ For this reason, many tiny houses are built on wheels (often referred to as THOWs) and are technically put under the same classification as RVs for regulatory purposes.⁴⁰ While this seems like a way around the law, THOWs must comply with laws regulated by state DMVs. This causes most tiny houses to have the same dimensions as each other, as they adhere to the same height requirements for interstate laws. For Colorado, the maximum dimensions for a trailer are illustrated in Figure 4. Having mobility can be advantageous because people have the freedom to move their home as they desire.⁴¹ On the other hand, these restrictions can really limit tiny houses. They do not have a sense of permanence and by not following local building codes, the house may be at risk due to snow loads, wind loads, and heating and cooling requirements. A house that is built by someone and relocated to a place with different weather conditions might encounter problems with functionality and safety of the house. To ensure that the building is safe and equipped to endure elements of nature, tiny houses should consider local building codes.

³⁹ Patricia Foreman and Andy Lee, *A Tiny Home to Call Your Own* (Good Earth Publications, 2005).

⁴⁰ Ibid.

⁴¹ Dee Williams, *The Big Tiny: A Build-It-Myself Memoir*. (New York: Penguin Group, 2014).

Figure 4: Trailer limits that affect tiny house dimensions



This research uses the Municipal Code for the City of Louisville as an example for zoning regulations that influence tiny houses. According to Section 10.20.050, motor homes and recreational vehicles cannot be used for living, sleeping, or residing, for more than 14 nights within any six month period.⁴² This would also apply to tiny houses on wheels, as it would fall under the category of a motor home. Tiny houses built on foundations are allowed as long as they meet the same planning and building requirements of any other house. Because building requirements are applicable to any house regardless of size, the regulations prevent many tiny house designs from being built on foundations. Rules relating to minimum dimensions are one of the biggest hindrances

⁴²Louisville, Colorado Code of Ordinances, Chapter 10.20, Vehicle Parking, Municode Library https://www.municode.com/library/co/louisville/codes/code_of_ordinances?nodeId=TTT10VETR_CH10.20VEPA

for tiny houses.⁴³ Building in Louisville requires compliance with the 2012 International Residential Code (“IRC”). Sections R304, R305, R306, and R307 are listed below along with their implications for tiny houses. The 2012 code does not permit many tiny houses; however, 2015 code modifications seem to be more accepting of smaller houses. As Louisville updates its codes to reflect the updated IRC, the possibility of building legal tiny houses increases.

Table 1: Implications of IRC for tiny houses

R304	Implication for Tiny Houses
R304.1 Minimum area. Every dwelling unit shall have at least one habitable room that shall have not less than 120 square feet (11 m ²) of gross floor area.	Tiny houses, such as Jay Shafer’s, which are less than 100 square feet, would not meet code. If one room has to be at least 120 square feet, the overall floor area might be more than what people desire. Although this is the code for 2012, the 2015 code changes the minimum area in R304.1 to be 70 square feet.
R304.2 Other rooms. Other habitable rooms shall have a floor area of not less than 70 square feet (6.5 m ²). (Exception: Kitchens.)	Any additional room must be more than 70 square feet. Although this is the code for 2012, the 2015 code eliminates this component.
R304.3 Minimum dimensions. Habitable rooms shall not be less than 7 feet (2134 mm) in an horizontal dimension. (Exception: Kitchens.)	Aside from kitchens, rooms cannot be very narrow.
R304.4 Height effect on room area. Portions of a room with a sloping ceiling measuring less than 5 feet (1524 mm) or a furred ceiling measuring less than 7 feet (2134 mm) from the finished floor to the finished ceiling shall not be considered as contributing to the minimum required habitable area for that room	Lofted areas are not considered “habitable” and would not contribute to minimum area requirements. This means bedrooms put in the loft space would not count toward the minimum area for a room.
R305.1 Minimum height. Habitable space, hallways, bathrooms, toilet rooms, laundry rooms and portions of basements containing	If a loft were desired, it would have to be above 7 feet in order to meet this code requirement.

⁴³ Todd Krainin, “Washington’s Beautiful, Illegal Tiny Houses,” *Reason* 46, no. 7 (December 2014): 60–61.

these spaces shall have a ceiling height of not less than 7 feet (2134 mm).	
R306.1 Toilet facilities. Every dwelling unit shall be provided with a water closet, lavatory, and a bathtub or shower.	Tiny house bathrooms need to have the same requirements as any other house. People who choose not to have sinks would need to make modifications.
R306.2 Kitchen. Each dwelling unit shall be provided with a kitchen area and every kitchen area shall be provided with a sink.	Tiny houses built without kitchen areas are not allowed. Tiny houses require at least two sinks in order to comply with this rule.
R306.3 Sewage disposal. All plumbing fixtures shall be connected to a sanitary sewer or to an approved private sewage disposal system.	Tiny houses cannot be autonomous structures, as they must be connected to sewage.
R306.4 Water supply to fixtures. All plumbing fixtures shall be connected to an approved water supply. Kitchen sinks, lavatories, bathtubs, showers, bidets, laundry tubs and washing machine outlets shall be provided with hot and cold water.	The house needs to supply of both hot and cold water and be connected to a permitted well or water service, and connection to the sewer. Tiny houses cannot be “off grid,” as some people prefer.
R307.1 Space required. Fixtures shall be spaced in accordance with Figure R307.1	There needs to be a 21” clearance in front of sinks. Showers need to be a minimum of 30”x30”, with a 24” clearance in front of opening. There is a 21” clearance in front of toilets.

Figure R307.1

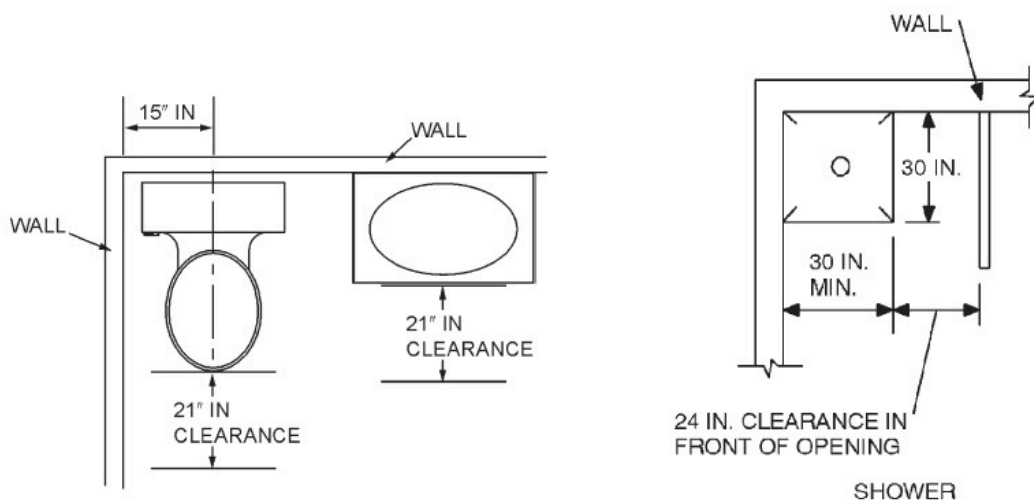
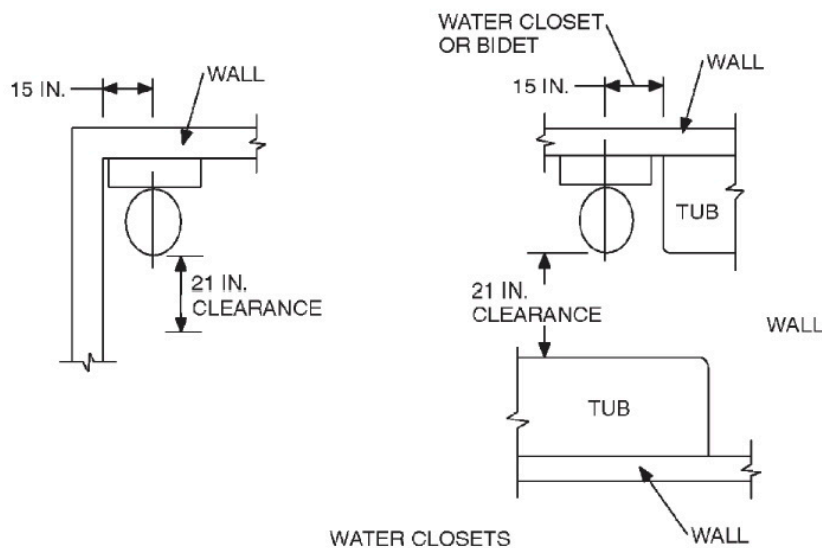


Figure R307.1 (continued)



Tiny House Potential

Despite the limitations previously mentioned, tiny houses could be the solution to some of the housing problems this country needs to address. People are discussing ideas on how tiny houses can be utilized for a greater purpose in society. Although not the focus of this study, some people are using tiny houses as a feasible way to house the homeless.⁴⁴ Providing permanent housing to homeless individuals reduces legal costs, saves municipalities money, and functions better than apartment-style options or less permanent ones.⁴⁵ Tiny houses are also applicable to discussions about affordable housing because they can be cheaper than average sized houses. Although the price per square foot of a tiny house is generally more expensive than an average house, the overall cost is less due to a small square footage, which can make them affordable options.

⁴⁴ Catherine Mingoya, "Building Together. Tiny House Villages for the Homeless: A Comparative Case Study" (Massachusetts Institute of Technology, 2015), http://dusp.mit.edu/sites/dusp.mit.edu/files/attachments/news/mingoya_2015.pdf.

⁴⁵ Ibid.

Tiny houses have great potential to fit the needs of an aging population. Tiny houses can be affordable and could provide older adults housing that is within their budget. One of the biggest limitations of current tiny houses for an aging population is accessibility (Table 3, Column 2). If local zoning laws allowed and tiny houses could be designed to accommodate an aging population, older adults would have the opportunity to age in place, within a familiar community setting. An accessible tiny house is a suitable housing option for aging adults because they allow an aging population to downsize into a more manageable home while retaining the dignity of independent living.

Table 2: How do tiny houses address the needs of older adults?

Needs of an Aging Population	Current Tiny House Designs (On wheels)	Potential Tiny House Design (On foundation)
Affordability	Yes	Yes
Accessibility		
• No-Step Entry	No	Yes
• Single-floor living	No	Yes
• Extra-wide doorways	No	Yes
• Extra-wide halls	N/A	N/A
• Accessible electrical controls and switches	Sometimes	Yes
• Lever-style door and faucet handles	Sometimes	Yes
Supportive Services	Sometimes	Yes
Ability to Age in Place	No	Yes

Interviews

Before starting the design, a series of interviews were conducted to give insight on how to modify tiny houses, specifically designed for the young-old. This research was approved by the International Review Board for the protection of human subjects (Protocol #15-0696). Most publications about tiny houses focus solely on their advantages. Because the tiny house revolution is still in its infancy, evidence on their disadvantages is not widely publicized. Some books and blogs begin to address tiny house issues, though the amount of scholarly information is limited. For this reason, interviews were an effective way to understand personal experiences living in a tiny house. Information regarding the young-old population is easily available; however, to discover housing needs of people living in Louisville, interviews were necessary. By taking the time to have a conversation, directed by an interview guide, the values and needs of the subject groups were better understood. Conducting interviews also provided the opportunity to view different housing situations of young-old adults and people living in tiny houses.

Methods

The two subject groups interviewed were people aged 55 to 75 and people currently living in tiny houses. The only requirement for young-old interviewees was that they needed to be living in Louisville or a neighboring city. This requirement was necessary in order to focus on people familiar with the city and character of place. For the second group of interviews, people living in tiny houses, the range was anywhere in Colorado or Wyoming. A larger geographic range was allowed for this group because weather and other housing conditions would be similar throughout the region.

In choosing young-old people to interview, an acquaintance gave references of people who would be interested in participating. Of the people who met the age requirement and lived in the selected area, five participants were selected. Two individuals were single (one of each gender), while the rest were living with a spouse. The interview process began by contacting each person, agreeing

upon a location to meet, and then proceeding with the interview. (See Appendix C for a list of interview questions for this group.) For each interview, participants gave consent to answer questions and the conversation was recorded on a digital recording device. The purpose of the interview was to understand current housing situations and design preferences of older adults living in the Louisville area.

Contacts of people living in tiny houses were collected through tiny house gatherings and talking to Tiny House Enthusiast groups located in Boulder and Denver. Over the course of a few months, people living in seven tiny houses were interviewed. Of the seven examples, two were single individuals (one of each gender), four were couples, and one was a couple plus a child. Similar to the interview process for young-old subjects, each individual or couple was contacted and agreed to participate in an interview. (See Appendix E for a list of interview questions for this.) In addition to the interview and recording consent, participants were asked if it was OK to take photographs and make drawings of their tiny house. The purpose of the photographs and drawings was to later create a spatial analysis of their home. Overall, this process was essential in understanding successful aspects of tiny houses and what is lacking from current designs.

Young-Old Findings

After interviews were complete, individual responses were organized in a matrix, based off question categories. For the young-old group, categories included: current housing situation, important design aspects, and living in a tiny house. Responses were coded to analyze the concept of what each person was saying and the overarching theme of each response (See Appendix D). The themes were counted for each question and the most frequent themes for each category are listed in Table 3. Common themes from the young-old interviews were accessibility, efficiency, location and spatial needs.

Table 3: Top themes from young-old interviews

Question Category	Question #	Common Theme Count			
Current Situation	3, 5	Accessibility (7)	Efficiency (6)	Location (0)	Spatial Need (1)
Important Design Aspects	6, 7	Accessibility (6)	Efficiency (3)	Location (5)	Spatial Need (7)
Living in a Tiny House	13	Accessibility (0)	Efficiency (2)	Location (4)	Spatial Need (1)

Confirming what was found in the literature previously mentioned, a big concern of the interviewed young-olds was accessibility. Almost all of the participants living in a single-family detached house would prefer a ranch style house with few or no steps. The only exception was a person whose house was already a singular level. Other accessible issues were not having wide enough doors, difficulty getting in and out of a bathtub, and accessing a crawl space. All of these issues indicate that people become less mobile and less physically abled as they grow older. To adequately address the needs of young-old people, housing needs to accommodate different ranges of accessibility.

Location was another value of many of the young-old interviewees. Two people specifically discussed Louisville as being an ideal place to live. Some reasons they loved the town included: quiet area, neighbors, safety, and cleanness. After living in the town for an extended period of time, two interviewees expressed their desire to stay in the area as long as possible. The other interviewees also mentioned location as something they valued. This confirms the idea that people want to age in place. Even if it is not possible to age in the same house, people generally prefer to remain in the same area or city. Because there are many young-old people living in Louisville, it would be advantageous for the city to consider ways for them to continue living in the area.

The majority of the young-old interviewees stated their desire to move to another house. About half of the people wanted to live in a smaller house. One person mentioned her house being

too big for only two people and the overall maintenance was difficult. This interviewee recently had knee surgery, and cleaning the house and keeping up the yard would be impossible without the help of her children. Another person wanted a smaller, less expensive house, expressing a desire for decreased property taxes. The fact that young-old people are considering moving is significant because one may assume that a person living in a house for more than 20 years would want to stay in that location. Contrary to this belief, some young-old are seeking alternative housing.

Tiny House Findings

Interview responses were organized the same way for people living in tiny houses. For this group, question categories included: advantages, disadvantages, and change/future of tiny houses. Again, responses were coded to analyze the concept of what each person was saying and the overarching theme of each response (See Appendix F). Themes from this group were counted for each question and the most frequent themes per category are listed in Table 4. Common themes from this interview set include: lifestyle, well-being, spatial restraints/construction, and legality.

Table 4: Top themes from interviews with people living in tiny houses

Question Category	Question #	Common Theme Count			
		Advantages	3, 5, 10, 15	Lifestyle (18)	Well-being (21)
Disadvantages	6, 7, 9	Spatial Restraints/ Construction (12)	Legality (7)	Transitional (5)	Other (5)
Change/Future	4, 8	Spatial Needs (6)	Lifestyle (5)	Transitional (4)	Construction (4)

One of the most consistent themes discovered by interviewing people living in tiny houses was the ability to fit one’s lifestyle. Each person had different goals and values; however, they shared the desire to live independently and maintain individualization of their house. A major aspect of independence was the feeling that their tiny house was theirs. The feeling of ownership results in the

sense of control and stability in life. One couple noted that before living in a tiny house they were “living to work, not working to live,” which caused much stress. Moving into a tiny house allowed them to reevaluate what is important in life and pursue those desires. Another person stated that his current lifestyle would not be possible without living in a tiny house. For this person, living in a tiny house gave him the opportunity to shift into a career he was passionate about and value things he loved. Overall, tiny houses have the ability to accommodate people’s varying lifestyles and values. Unlike other housing options, such as apartments and multi-family units, tiny houses give people more freedom.

Another theme from interviewing people living in tiny houses was a sense of well being through simplification. The majority of people discussed simplicity in living and how “less is more.” One person discussed having peace of mind letting go of excessive material objects. He expressed how he was more comfortable living with less things to clutter his life. Other advantages of living in a tiny house include: less space to clean and maintain, reduced maintenance, and the ability to downsize one’s footprint. These factors reinforce the idea that simplification is beneficial to one’s life because being mindful is a way to prioritize what is important.

When discussing the disadvantages of living in a tiny house, several people noted slight changes they would make to the design. One person talked about having limited storage, finding it difficult to downsize memorabilia and objects from her children. Two other people found they did not have enough storage and either had a secondary storage unit or rented space elsewhere. Several people also had difficulties with some construction issues. For example, a few people had issues with water set-up and not having consistent water. Another issue related to condensation around windows and experiencing mold buildup, which could be solved with adequate ventilation. Most of these problems could be solved through modifications in design and quality of construction. While tiny houses have a higher building quality than other small dwelling units, such as RVs, some aspects

can be improved. Building on a foundation would eliminate several of these problems, provide storage, and allow for proper plumbing and sewage connections.

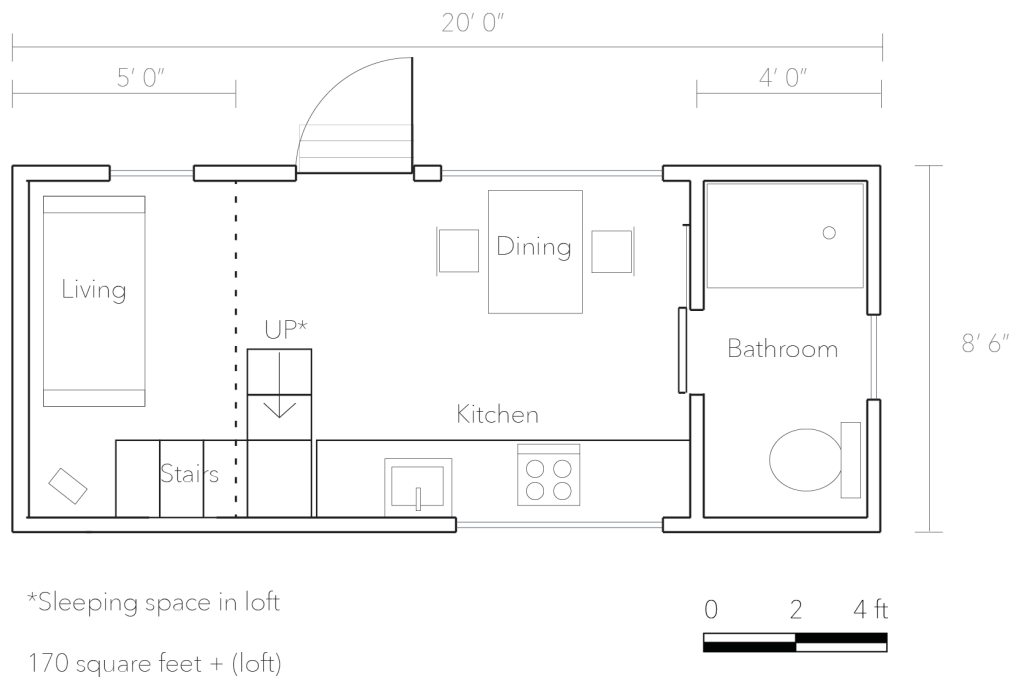
Spatial Analysis

Observation and spatial analysis provided confirmation of some aspects of tiny houses, known from literature reviews, in addition to discovering new aspects of living in a tiny house. All of the tiny houses visited were built on wheels, which limited the diversity of their design and layout. Most used a gabled or shed roof with the use of a loft bed. Loft areas do not count toward total square footage because the space is not “livable” –most people cannot stand up in the area.⁴⁶ Because space is restricted to highway codes, maximizing vertical space is important and a lofted bed is a convenient, private space in a tiny house. While this saves space, people must use ladders or steps to get to the loft. A lofted bed would be highly impractical, if not impossible, for elderly people and some people with disabilities. Certainly, tiny houses are not for everyone, yet even a lofted bed would be difficult for an abled person to use when they have temporary injuries or illnesses. In order to make the house accessible for elderly people, it is important that sleeping space is on the main floor.

Figure 5 depicts a typical layout for a tiny house. They generally have long, narrow designs in order to comply with highway codes. To maximize space and efficiency, sliding doors are common. This is beneficial in the design, but often poorly executed in construction. In one situation, the sliding door to the bathroom fell off the hinge, preventing the door from being able to close with ease. While this was only an issue with a particular tiny house, the craft and quality of how tiny houses are built is something to keep in mind. When designing for an elderly person, the ability to move and operate things is a top priority.

Figure 5: Typical layout for a tiny house on wheels

⁴⁶ Patricia Foreman and Andy Lee, *A Tiny Home to Call Your Own*.



Design Implications

Based off the interview findings from both the young-old and the people living in tiny houses, a list of design rules were created to guide the decisions of the tiny house. The guidelines included:

1. All interior doors will be pocket or barn doors
2. Under 400 square feet
3. Provide outdoor living area
4. Space for guest bed
5. Flexible space between bedroom/living area and kitchen/living area
6. Single Level
7. Minimal to no steps
8. Room to walk around bed
9. Storage in every room
10. Ability to seat 4 for dinner

The first five guidelines were based off interviews with people living in tiny houses. Designing a house under 400 square feet is the defining characteristic of a tiny house. While most of the tiny houses I visited were around 200 square feet, 400 square feet is still significantly smaller than the

average house size. Having outdoor space is also important because it extends the amount of living space and works well in Louisville's temperate climate. The five other guidelines were specifically created based off the findings from young-old people. Accessibility is the biggest necessity in the design, followed by storage and the ability to have some social interactions.

Design Response

The design guidelines shaped several initial plan drawings that could work for young-old people. After making numerous design iterations, the final design is the best solution that would appeal to the most people. The intent of design is to give people the opportunity to focus on things in life beyond possessions and pursue what matters to each individual. The design (Plate 1) has a large deck that leads into the living room. Each door is slightly wider than normal for easy use. Large barn doors separate the private areas of the house (bedroom, bathroom) from the public areas (living area, kitchen). When no spatial division is necessary, the barn doors can remain open to give a larger sense of space. If a person desires more privacy, when sleeping for example, the doors can easily be shut. Many features of the house are multifunctional. The kitchen peninsula can be used for food preparation, as well as a place to eat. The refrigerator is below counter height to maximize counter surface area. Additionally, there is enough room for the couch to become a guest bed, while allowing enough space to enter the bedroom. Overall, the design is adaptable to individual needs through slight modifications and the space is customizable to allow for individualization.

One intention of this design is to have the flexibility to be implemented in various situations (See Figure 6). Scenario 1 is the layout of a tiny house built on the lot of an existing house, as an accessory dwelling unit. Currently, this is a possible solution for people living in Louisville. According to the municipal code, in a residential zone with medium density, the minimum lot area is 7,000 square feet, but the minimum lot area per dwelling unit is 3,500 square feet (See Table 5,

column R-M). This means that a lot could have two dwelling units. The restriction on lot coverage limits the size of the dwelling units. In a medium density area, the lot coverage is 35 percent.

Assuming the existing house is not already at 35 percent, a tiny house could easily be built on the lot without going over the maximum lot area.

Table 5: Adaptation of Zoning Districts and Requirements from Sec. 17.12.040 of Louisville’s Municipal Code

	R-R	R-E	R-L	R-M	R-H	C-N	C-C
Minimum lot area (sq. ft.)	20,000	12,000	7,000	7,000	7,000	7,000	7,000
Minimum lot area per dwelling unit (sq. ft.)	20,000	12,000	7,000	3,500	2,500	1,750	1,750
Maximum lot coverage (% of lot area)	20	20	30	35	40	40	40
Potential number of dwelling units per lot (based off minimum lot size)	1	1	1	2	2	4	4

Note:

Residential Rural = R-R

Residential Estate = R-E

Residential Low Density = R-L

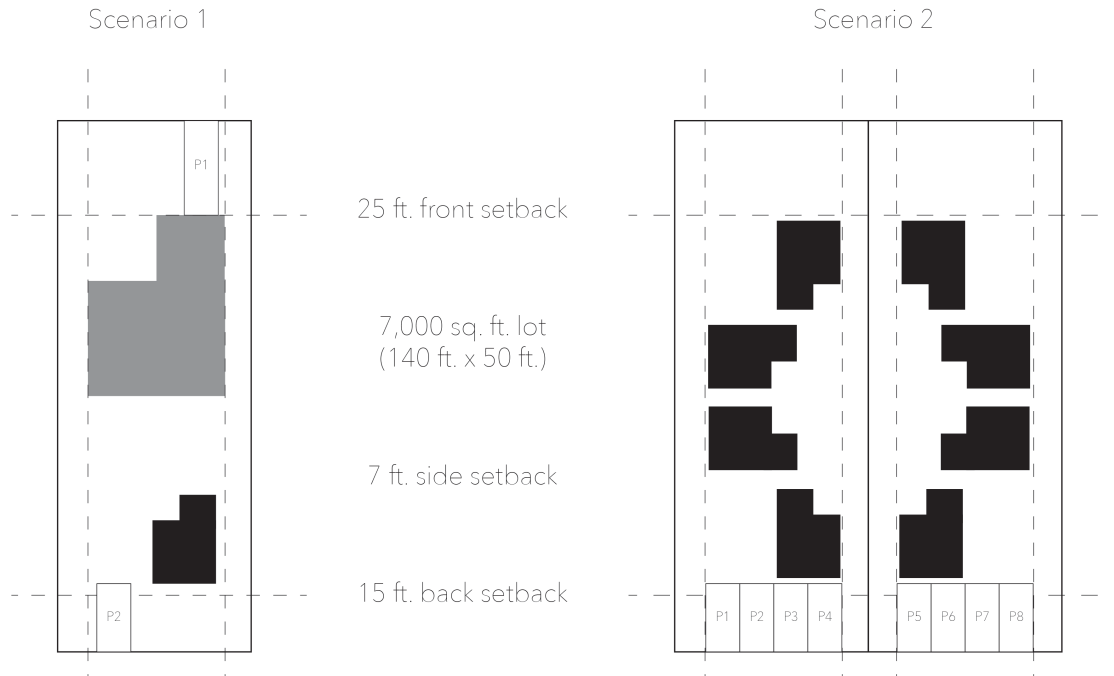
Residential Medium Density = R-M

Residential High Density = R-H

Commercial Neighborhood = C-N

Commercial Community = C-C

Figure 6: Scenario 1 (left) shows tiny house on existing lot, scenario 2 (right) shows a potential layout for a community of tiny houses.



Scenario 2 is a series of tiny houses that could be placed on a few adjacent lots. For this to be realistic, Louisville would have to adapt the current zoning laws. This would be beneficial to the city because it would add density to the area without changing the small town feel of Louisville. Additionally, community of tiny houses would give people the opportunity to share certain amenities and communal areas. Similar to a co-housing neighborhood, the community could have a building with laundry facilities, a larger kitchen, or even a guest room for visitors.

Design Limitations

One limitation of this research is the small sample size of interviewees. Due to the high number of young-old people in Louisville, additional interviews would need to be conducted to gain a full understanding of their housing situations and needs. Further investigation would also be

beneficial in evaluating how tiny houses could be designed to accommodate various abilities and lifestyles of young-old people.

Another limitation is that the design is not fully ADA accessible. A person in a wheelchair could get around inside, but mobility would be difficult. While this may prevent some people from living in a tiny house, the majority of this demographic would not have any problems. In general, the design accommodates people up until the point when they are dependent on other people or need additional assistance.

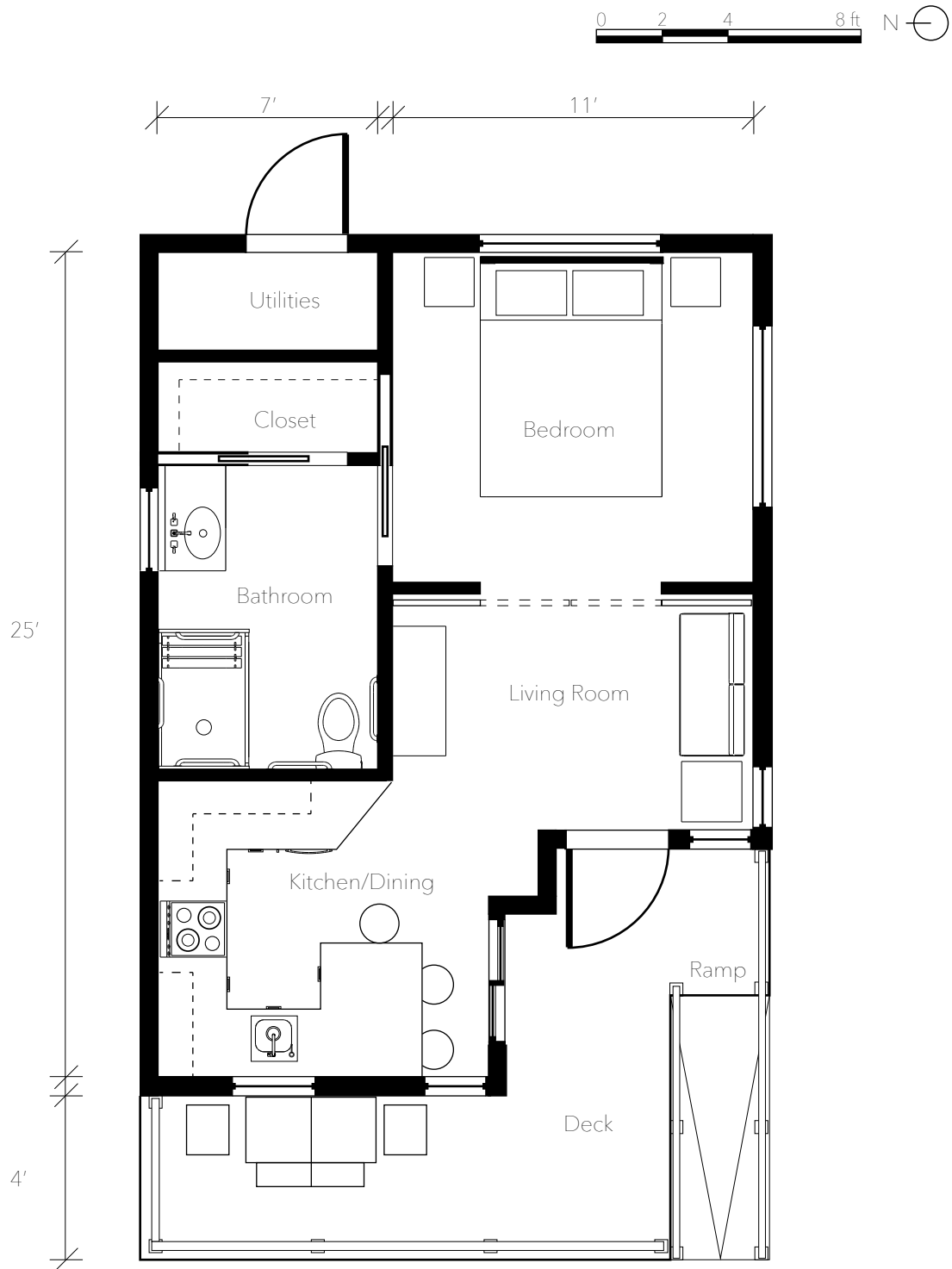
Conclusion

This tiny house design could be used as a prototype for the improvement of tiny houses, specifically designed for young-old people. An accessible tiny house, such as the one designed, is a solution that addresses a problem the aging population will face in the near future. A redesigned tiny house is a suitable housing option for the young-old because it allows them to live independently, while being near support systems such as family and community. As the number of young-old adults increases, cities will need to rethink current housing. If cities change zoning laws to make tiny houses a practical option for people, then tiny houses can provide an alternative housing option for young-old adults and can be designed to better accommodate their needs.

Plate 1: Exterior View #1



Plate 2: Plan Diagram



Total square footage = 382 sq. ft.
 Outdoor space = 123 sq. ft.
 (Indoor + Outdoor) = 505 sq. ft.

Plate 3: Section A

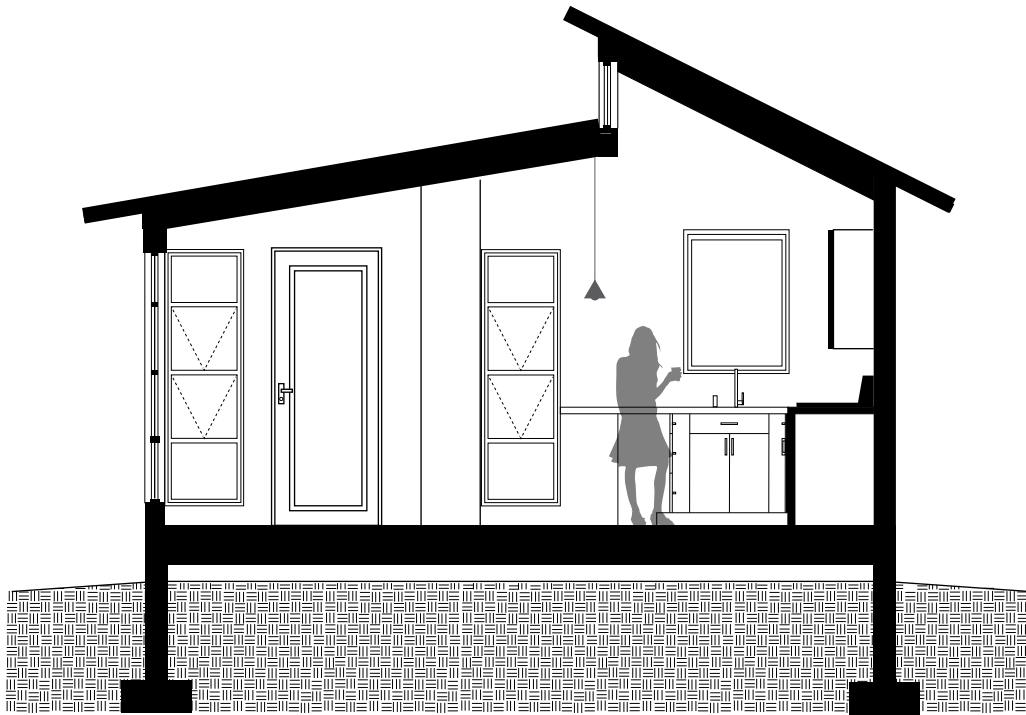
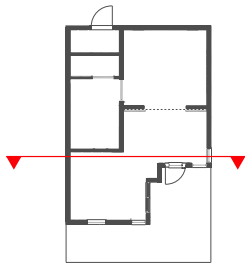


Plate 4: Section B

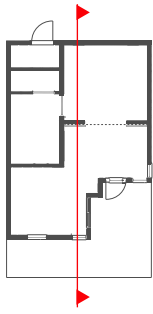


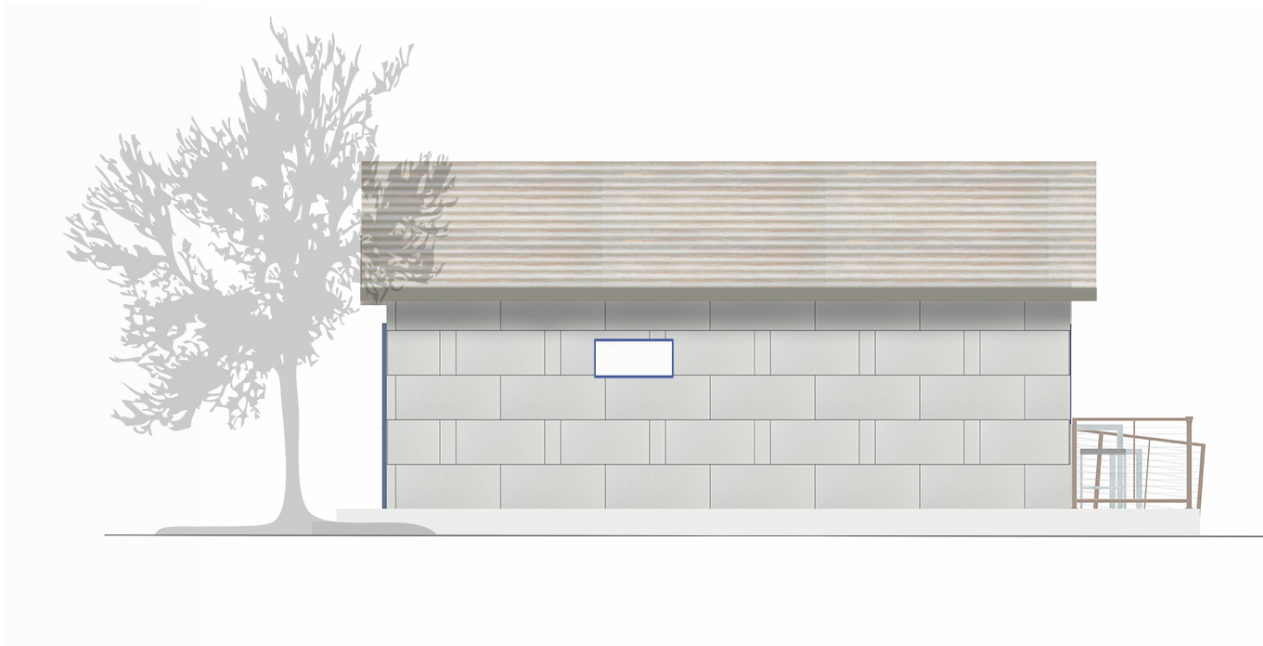
Plate 5:
South Elevation



East Elevation



Plate 6:
North Elevation



West Elevation



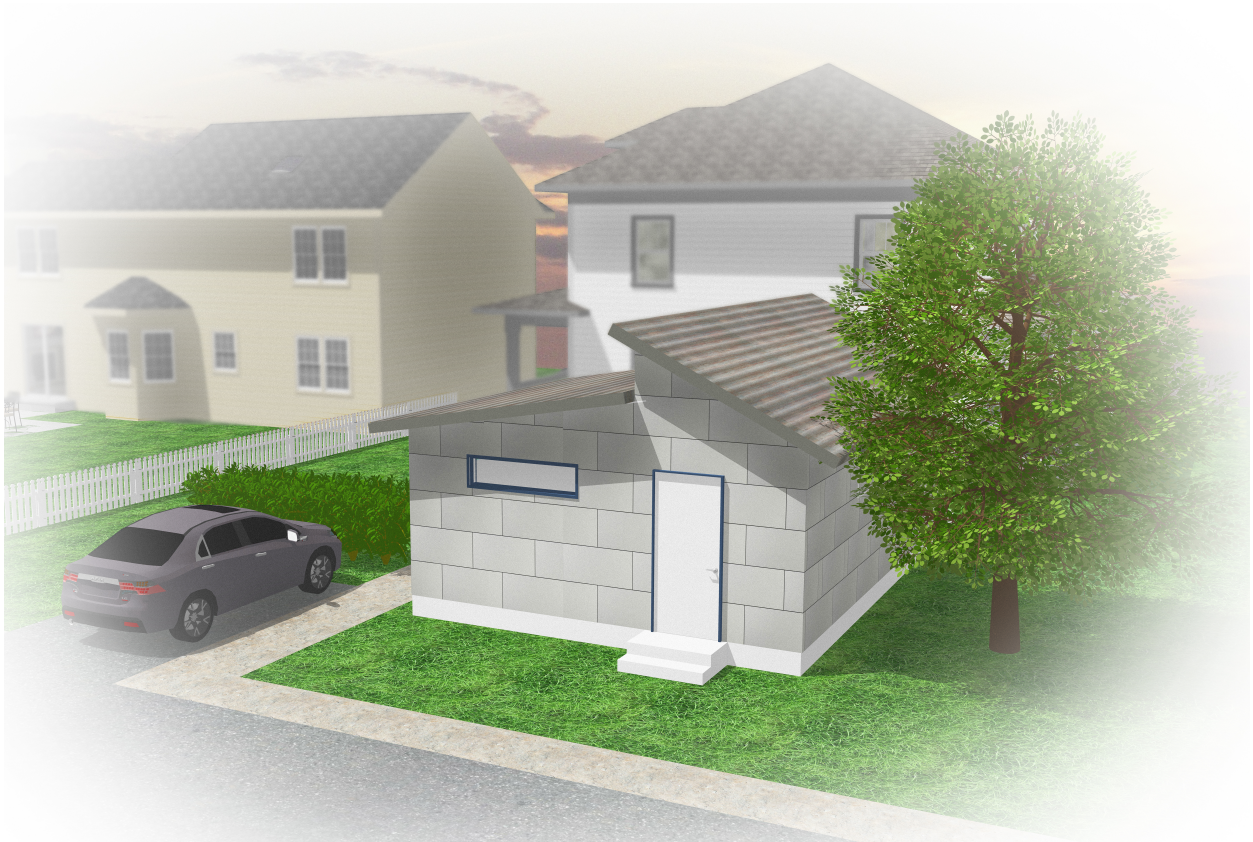
Plate 7: Interior View #1



Plate 8: Interior View #2



Plate 9: Exterior View #2



Appendix A

Housing Definitions from the Louisville Municipal Code

- Accessory structure or use means a structure or use incidental or subordinate to the main use of the property, including a home occupation which is located on the same lot, or on a contiguous lot in the same ownership, with the main use. (Sec. 17.08.015)
- *Assisted living facilities* provide a range of residential and personal care services, often with on-site nursing care facilities for the elderly who are unable to fully care for themselves, and/or the elderly who do not desire to live independently. Individuals live in a variety of residential settings with meals, housekeeping, social, leisure, and other services available to assist residents in daily living. Assisted living facilities do not include adult foster care homes and adult care group homes, which are often established in single-family homes and where elderly residents share the house with the care provider's family.
- Dwelling, multi-unit means a building used by two or more families living independently of each other in separate dwelling units but not including hotels, motels or resorts. (Sec. 16.08.020)
- Dwelling, single-family means a detached principal building other than a mobile home designed for or used as a dwelling exclusively by one family as an independent living unit. (Sec. 16.08.020)
- *Independent living facilities* include any residential development that is age-restricted to persons 55 years of age and older, and that is not a group home (as defined by C.R.S. 31-23-303), and which may be in any housing form, including single-family detached or attached dwellings or multi-family structures. Independent living facilities may offer private or semi-private rooms/units, shared community dining facilities, and other social, recreational, or transportation amenities for the entire community, but does not provide for individualized personal or medical care for residents.
- Mobile home means a transferable, single-family dwelling unit suitable for year-round occupancy and containing the same water supply, waste disposal and electrical conveniences as immobile housing. Such structure will have no foundation other than wheels or removable jacks for conveyance on highways and may be transported to a site as one or more modules. "Mobile home" shall not include "travel trailers," "campers," "camper buses" or "motor homes," or modular homes designed to be placed on a foundation. For purposes of this chapter, "mobile home" and "manufactured home" are used interchangeably. (Sec. 15.20.020)
- Motor home means a motor vehicle containing cooking and/or sleeping facilities and designed as temporary living quarters for recreational camping or travel use. "Motor home" shall include vehicles designated as "camper buses," and shall also include vehicles which may have been originally designed for use as vans, buses, and the like, but which have been converted to be used as living quarters. (Sec. 15.20.020)
- Townhouse or rowhouse means one of a group of not fewer than three nor more than 12 attached dwelling units, each dwelling unit located on a separate lot. No single group shall exceed 240 feet in length. (Sec. 17.08.560)
- Travel trailer means a portable structure, mounted on wheels and designed to be towed by a motor vehicle, and containing cooking and/or sleeping facilities to provide temporary living quarters for recreational camping or travel use. Such structure may be constructed with rigid sides, or may have collapsible side walls of fabric, plastic or other pliable material. (Sec. 15.20.020)

Appendix B

Tiny House Map Findings

	In Build Phase	Living in Tiny House	Planning / Design	Website or Group	For Sale or Rent	Land	Builder or Contractor	Community	Total
Alabama		1	3			1	1		6
Arizona	3	4	4			2	1	1	15
Arkansas	1	2				1			4
California	13	20	36	4		6	5	3	87
Colorado	6	4	19			4	3	1	37
Connecticut	1		3						4
Delaware	1		1						2
Florida		6	21	3	1	2	2	3	38
Georgia	4	2	8	1	1		1		17
Idaho	1	3					2		6
Illinois	3	3	13						19
Indiana	4	1	8			1			14
Iowa		1	9	1		1		3	15
Kansas	2	1	3					1	7
Kentucky	4		3	1				2	10
Louisiana	1			1			1		3
Maine	2	1	4			1	1		9
Maryland	4	2	3			3			12
Massachusetts	5		9	3			2		19
Michigan	5	4	12	0	0	3	1	1	26
Minnesota	1	2	6				2		11
Mississippi			1			1			2
Missouri		5	5			2			12
Montana	1	1	1		1				4
Nebraska	2	1	4						7
Nevada	2	2	2						6

New Hampshire	2	3		1					6
New Jersey	2		7			2	1		12
New Mexico	1	2					1	1	5
New York	4	5	12			4	1	1	27
North Carolina	2	6	17				2	1	28
North Dakota						1			1
Ohio	5	3	13				4	2	27
Oklahoma		1	6			1			8
Oregon	3	6	7	1			5	3	25
Pennsylvania	3	3	15	1		3		4	29
South Carolina	3	5	2			1	1	1	13
South Dakota	1		2			1			4
Tennessee	1	3	6	1			1	1	13
Texas	7	12	17	2		3		1	42
Utah	3	1	4			3	2		13
Vermont	2	4	1	1				1	9
Washington	7	7	10				1	2	27
Washington, DC			1					1	2
West Virginia		1	3						4
Wisconsin	1	5	15				2		23
Wyoming		2	1		2				5
Total	114	136	319	21	5	47	43	34	719

Appendix C

Interview Questions for Young-Old People

1. How long have you lived in your current house?
2. Do you own it? Rent it?
3. Have you ever considered moving?
4. How big is your house? (Sq. ft.)
5. Are there any challenging aspects of your housing or current situation?
6. What would you consider important design aspects of your home, from the perspective of an older adult?
7. Any housing needs or wants in general?
8. Bath or shower preference?
9. Do you have any particular values (socialization, privacy, cooking, storage, etc.) that relate to your house?
10. As you've gotten older, how do you view mementos or collectables? Level of attachment?
11. Is there anything you wouldn't be able to live without?
12. Do you know what a tiny house is? Would you ever live in one?
13. Is there anything that could entice you to live in a tiny house?
14. Anything else?

Appendix D

Interview responses, concepts, and themes, by question category (Young-Old People)

Current Situation

Question Number	Response	Concept	Theme
3	Yes, smaller	Spatial	Efficiency
3	Yes, smaller	Spatial	Efficiency
3	Less expensive, property tax	Financial	Financial
3	Yes, recently due to bad leg	Ability	Accessibility
3	Just moved, wants to remodel	N/A	N/A
3	Yes, but husband is opposed	Spatial	Efficiency

Theme	Efficiency	Accessibility	Financial	
Count	3	1	1	

Question Number	Response	Concept	Theme
5	Recycling is far away	Walking far	Accessibility
5	Staggered steps, hard for walker	Ability	Accessibility
5	Wasted space	Spatial	Efficiency
5	Open stairs to basement, risk of falling	Accessibility	Accessibility
5	Narrow living room	Spatial Need	Spatial Need
5	Crawl space accessed through ladder	Accessibility	Accessibility
5	Getting in and out of tub	Ability	Accessibility
5	No dishwasher	Amenities	Efficiency
5	Too big for 2 people	Spatial	Efficiency
5	Cleaning and yard maintenance	Ability	Accessibility

Theme	Efficiency	Accessibility	Spatial Need	
Count	3	6	1	

Important Design Aspects

Question Number	Response	Concept	Theme
6	Big open space (outdoor)	Location	Location
6	2 nd bathroom	Privacy	Spatial Need
6	Kitchen work area & sink	Spatial Need	Spatial Need
6	Ranch level	Accessibility	Accessibility
6	Laundry	Amenities	Efficiency
6	Large shower	Accessibility	Accessibility
6	Large doors	Accessibility	Accessibility
6	One level	Accessibility	Accessibility

6	Open spaces	Spatial Need	Spatial Need
6	2 bed, 2 bath	Privacy	Spatial Need
6	More outlets	Amenities	Efficiency
6	Bigger bathroom & shower	Accessibility	Accessibility
6	One level	Accessibility	Accessibility

Theme	Efficiency	Accessibility	Spatial Need	Location
Count	2	6	4	1

Question Number	Response	Concept	Theme
7	Open layout	Spatial	Efficiency
7	Private bath	Privacy	Spatial Need
7	Drawers in kitchen	Organization	Spatial Need
7	Separate areas around TV and table	Spatial Need	Spatial Need
7	Love town, neighborhood	Location	Location
7	Cost	Financial	Financial
7	Garden, yard	Individualization	Location
7	Privacy of house over condo	Privacy	Location
7	Neighborhood, safety	Location	Location
7	Having kids over	Visitors	Social

Theme	Efficiency	Location	Spatial Need	Financial
Count	1	4	3	1

Living in a Tiny House

Question Number	Response	Concept	Theme
13	Want to live more simply	Simplification	Efficiency
13	Outdoor space	Amenities	Location
13	Garden	Individualization	Location
13	Location	Location	Location
13	Size	Spatial	Efficiency
13	Price	Financial	Financial
13	Affordability	Financial	Financial
13	If it was on a lake	Location	Location
13	Price	Financial	Financial
13	2 bathrooms	Privacy	Spatial Need

Theme	Efficiency	Location	Spatial Need	Financial
Count	2	4	1	3

Appendix E

Interview Questions for Tiny House Dwellers

1. How long have you lived in your tiny house?
2. Did you build your house or buy it from a company? (Which one?)
3. Why did you choose to live in a tiny house?
4. If you could make any changes to your house, what would it be?
5. What is the best part about living in a tiny house?
6. What is the worst part about living in a tiny house?
7. Under what circumstances would you not want to live in a tiny house?
8. How do you see your life changing in the next 20 years? Still live in a tiny house?
9. Can you think of any barriers that would prevent you from living in your tiny house?
10. What do you think is the most important aspect of living in a tiny house?
11. Do you travel with your tiny house or are you mostly stationary?
12. Would you want your house to have a foundation somewhere?
13. How much time do you spend at home?
14. What is your opinion about tiny house communities?
15. What makes living in a tiny house different than other housing options?
16. Do you think any of your life values will change?
17. Is there anything else you want to mention?

Appendix F

Interview responses, concepts, and themes, by question category (Tiny House Dwellers)

Advantages

Question Number	Response	Concept	Theme
3	Financial	Financial	Financial
3	Housing shortage	Necessity	Well-being
3	Option to own home	Independence	Lifestyle
3	Mobility	Location	Lifestyle
3	Financial	Financial	Financial
3	Used to be living to work, not working to live	Independence	Lifestyle
3	Less stress	Well-being	Well-being
3	Affordability	Financial	Financial
3	3,200 ft ² to 1,400 ft ²	Downsizing	Simplification
3	Life is short, want to road trip	Passion	Lifestyle
3	Live in tourist area, house availability	Necessity	Well-being
3	Want to change goals and career	Passion	Lifestyle

Theme	Lifestyle	Well-being	Financial	Simplification
Count	5	3	3	1

Question Number	Response	Concept	Theme
5	Paid for, no bills, or mortgage	Financial	Financial
5	Personal pride	Pride	Well-being
5	Space built yourself	Pride	Well-being
5	Really simple	Simplification	Simplification
5	Feel clean, organized	Pride	Well-being
5	So much less	Simplification	Simplification
5	Sense of control	Well-being	Well-being
5	Feel like it's yours	Pride	Well-being
5	Good for environment	Moral	Well-being
5	Cozy	Feeling	Well-being
5	Mobility	Freedom	Lifestyle
5	Less space to take care of, maintain	Simplification	Simplification
5	Cost of living	Financial	Financial
5	Financial freedom	Financial	Financial
5	Manage work & free time	Freedom	Lifestyle
5	Ability to live of what you love	Freedom	Lifestyle

Theme	Lifestyle	Well-being	Financial	Simplification
Count	3	7	2	3

Question Number	Response	Concept	Theme
10	Less is more, still comfortable	Simplification	Simplification
10	Peace of mind	Moral	Well-being
10	Don't feel bad about heating space	Moral	Well-being
10	Owning own space	Pride	Well-being
10	Rooted in self, stability	Well-being	Well-being
10	House is inspiration & motivator	Well-being	Well-being
10	Mindfulness, only focus on things that matter	Well-being	Well-being
10	Using a 1:1 rule for bringing new things in and removing things	Simplification	Simplification
10	Allow young people to find own way	Independence	Lifestyle
10	Not having to be in renting loop	Financial	Financial
10	More freedom outside of house	Independence	Lifestyle
10	Prioritize life & experiences	Passion	Lifestyle
10	Downsizing footprint	Downsizing	Simplification
10	Live life	Passion	Lifestyle
10	Flexibility in design, easy to customize	Individualization	Lifestyle
10	Better life, taking control	Well-being	Well-being
10	Living with less, minimalism	Simplification	Simplification
10	Environmentally conscientious	Moral	Well-being

Theme	Lifestyle	Well-being	Financial	Simplification
Count	5	8	1	4

Question Number	Response	Concept	Theme
15	High craftsmanship, attention to detail	Construction	Other
15	So personalized, reflects you	Individualization	Lifestyle
15	Sense of ownership	Pride	Well-being
15	Versatility	Individualization	Lifestyle
15	Being mindful of others, less impact	Simplification	Simplification
15	Feels like a house, not an RV	Well-being	Well-being
15	Low maintenance	Simplification	Simplification
15	Quality of building is high, can live year-round	Construction	Other
15	Own your own space	Pride	Well-being
15	Privacy	Independence	Lifestyle
15	Flexibility and customization	Individualization	Lifestyle
15	Not having to rent	Financial	Financial
15	No way to make current lifestyle possible without tiny house	Freedom	Lifestyle

Theme	Lifestyle	Well-being	Financial	Simplification
Count	5	3	1	2

Disadvantages

Question Number	Response	Concept	Theme
6	Tiny, cramped	Size	Spatial Restraint
6	Water set-up	Plumbing	Construction
6	Cleaning, “feelin’ the house”	Size	Spatial Restraint
6	Immense learning curve	Construction	Construction
6	Hard to know needs before living in it	Unforeseen	Other
6	During winter, water tank freezes, not consistent water	Plumbing	Construction
6	Easy to be overwhelmed by needs	Size	Spatial Restraints
6	Condensation by windows	Construction	Construction
6	People asking about least favorite part	N/A	N/A

Theme	Spatial Restraint	Construction	Other
Count	3	4	1

Question Number	Response	Concept	Theme
7	Parking	Zoning	Legality
7	Hard to get loans	Financial	Financial
7	Size, can feel like a dorm	Size	Spatial Restraint
7	County codes	Zoning	Legality
7	Surrounding area	Location	Legality
7	Wanting to have friends around	Freedom	Lifestyle
7	Stairs, space for bed	Accessibility	Construction
7	Nosy neighbors	Zoning	Legality
7	Ties to current life	Social obligations	Lifestyle
7	Having debt	Financial	Financial

Theme	Spatial Restraint	Legality	Construction	Financial
Count	1	4	1	2

Question Number	Response	Concept	Theme
9	Needing assistance	Accessibility	Construction
9	Fitting highway code	Codes	Legality
9	Married with kids	Life change	Transitional
9	Land	Location	Legality

9	Kids	Life change	Transitional
9	Injury	Accessibility	Construction
9	Hurricanes, extreme weather	Weather	Construction
9	Children	Life change	Transitional
9	Needing to work from home	Life change	Transitional
9	Set on living tiny	N/A	N/A
9	Raising more than 1 child	Life change	Transitional
9	Can't think of anything	N/A	N/A

Theme	Transitional	Legality	Construction	Other
Count	5	3	3	2

Change/Future

Question Number	Response	Concept	Theme
4	Add 4 ft. (to become 20 ft. long)	Size	Spatial Need
4	Clothes storage	Size	Spatial Need
4	Doggy door	Individualization	Spatial Need
4	Change window/extend loft	Size	Spatial Need
4	Close off loft a bit	Privacy	Spatial Need
4	Land for tiny house	Location	Lifestyle
4	Insulate pipes on inside	Construction	Construction
4	Bathroom is too small	Size	Spatial Need
4	Make window frame different material	Construction	Construction
4	Put deck outside of wheels	Construction	Construction
4	Put porch on opposite side of trailer	Construction	Construction

Theme	Spatial Need	Construction	Lifestyle
Count	6	4	1

Question Number	Response	Concept	Theme
8	No idea	N/A	N/A
8	Live for 5 or 6 years	Life change	Transitional
8	Find other place to live later	Life change	Transitional
8	Land for tiny house, place to go back to	Life change	Lifestyle
8	Creative way to go into future	Independence	Lifestyle
8	Definitely not live in tiny house past a couple of years	Life change	Transitional
8	Pay it off & sell	Life change	Transitional
8	Growing kid	Children	Lifestyle
8	No idea	N/A	N/A
8	No idea	N/A	N/A

8	Modest house no matter what	Passion	Lifestyle
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Theme	Transitional	Lifestyle	N/A
Count	4	4	3

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