

SENIOR COHOUSING:  
AN OPTIMAL ALTERNATIVE  
FOR AGING IN PLACE

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AN OPTIMAL ALTERNATIVE  
FOR AGING IN PLACE

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**ABSTRACT:**

The rising numbers of individuals emerging into older adulthood may lead to overcrowding of current facilities in the near future. Many existing facilities do not seem to be preferable environments for numerous older adults deciding where they will live out the duration of their life. Facilities often appear to neglect two important aspects of transitioning to a new home and aging in place in older adulthood: place attachment and autonomy.

This study will examine opinions of potential residents regarding the residential floor plan design of senior cohousing communities as a means to provide older adults with an alternative housing option in which they may optimally age in place. For this study, current and potential members of a senior cohousing community participated in unstructured, individual interviews and in an open-ended focus group to gather this information.

Data collected from participants was used in conjunction with the seven universal design guidelines to guide the design of four individual floor plans that addressed place attachment and perceived autonomy. These floor plans were presented to participants in a questionnaire with a post-evaluation that determined the observed successes and deficiencies of the floor plans in promoting place attachment and perceived autonomy in relation to aging in place.

These observed successes and deficiencies were based on participants' perceived connectedness to the residences, creating relationships with other members within the community, and whether they would feel autonomous within that residence. According to the responses of the post-evaluation questionnaires, it was supported that the four individual floor plans would promote both place attachment and perceived autonomy. The collected responses from the post-evaluation provided evidence that these four floor plans could work for future senior cohousing communities whose members may opt for universally designed residences.

Results from this study may aid older adults in finding a new alternative housing option in senior cohousing in which they can optimally age in place. This study may serve other researchers in the fields of interior design, architecture, and gerontology as it may provide answers to the gap in literature concerning the residential preferences of older adults.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION.....	1
II. LITERATURE REVIEW.....	7
Aging in Place.....	7
Senior Cohousing.....	10
Place Attachment.....	14
Autonomy and Older Adults.....	18
III. METHOD.....	22
Participants of the Study.....	23
Interviews.....	23
Focus Group Study.....	24
Data Coding and Analysis.....	26
Questionnaire.....	27
IV. RESULTS.....	29
Interviews.....	30
Focus Group.....	47
Floor Plan Design.....	57
Questionnaire.....	62
V. DISCUSSION.....	75
Aging in Place.....	75
Senior Cohousing.....	77
Place Attachment.....	79
Autonomy and Older Adults.....	81
Summary and Implications.....	83

Chapter	Page
REFERENCES .....	86
APPENDICES .....	90
APPENDIX A - INSTITUTIONAL REVIEW BOARD (IRB) .....	91
APPENDIX B - SURVEY OF DEMOGRAPHIC INFORMATION .....	93
APPENDIX C - INTERVIEW SCRIPT .....	95
APPENDIX D - FOCUS GROUP QUESTIONS .....	97
APPENDIX E - FLOOR PLAN POST-EVALUATION QUESTIONNAIRE .....	99

## LIST OF FIGURES

Figure	Page
1 Senior Cohousing Site Map.....	12
2 Matrix of Merged topics with the Seven Principles of Universal Design .....	57
3 Bubble Diagrams that are the Closest Representation of the Four Individual Finalized Floor Plan Designs.....	59
4 Final Floor Plan Designs of the Four Individual Floor Plans.....	60
5 Rendered Floor Plan Drawings Used in the Post-Evaluation Presentation .....	61
6 Kitchen Elevation Drawings Used in the Post-Evaluation Presentation .....	61
7 Perspective Drawings Used in the Post-Evaluation Presentation .....	62

## CHAPTER I

### INTRODUCTION

As a person ages, many activities in daily life once thought to be simple, ordinary tasks can become burdensome and troubling to the older adult's mind and body. Many older adults share the same pressing issue: trying to maintain their existing residential responsibilities in the light of fading independence (Lawton, 1977). Older adults in the United States are currently reported to consist of 12.4 percent and this population is expected to significantly rise another 20 percent by the year 2030 as the baby boomer generation emerges into older adulthood (Durrett, 2009). Blumenstock (2006) stated that preparations must be made to accommodate this cohort as they could easily over-burden existing housing for older adults in the U.S. The baby boomer cohort shares a common goal to redefine housing for older adults: finding a better alternative for their future housing options. They are looking for a way of life that will benefit them in their later years by providing a supportive option to maintain their well-being. Many new conceptions of housing have been developed under this modern outlook on aging, but older adults are consistently looking to find new options that will allow them to maintain personal control over their routines, autonomy, and independence (Peace, Holland, & Kellaher, 2011). For this reason, this study will focus on aging in place, place attachment, and perceived autonomy in relation to housing concepts for older adults.



Alternate housing for older adults has gone through extreme modifications during each decade since the 1960s, originally starting out as medical-oriented institutional facilities. Blumenstock (2006) suggested that housing facilities for older adults focus more on hospitality and the comfort of their residents. Many of the changes in such housing could be due in part to higher education and expectations of the rising population of older adults. The term *housing for older adults* will refer to an assortment of homes such as assisted living, retirement communities, and nursing homes among others for the duration of this manuscript. The baby boomer generation is now the largest cohort of older adults the United States has seen and baby boomers' increasing interest in how they will spend their later years is driving an innovative, new concept of aging.

With such a large population of older adults in the baby boomer generation, housing programs and facilities may become over-burdened in upcoming years as the number of older adults needing to relocate continues to rise (Blumenstock, 2006; Sugihara & Evans, 2000). Many of these older adults might not need institutional housing in later years with advances in medicine and healthy aging, but they may still require other feasible possibilities for housing (Bronstein, Gellis, & Kenaley, 2009). Older adults with healthy minds and bodies will continue to age regardless, and living in a supportive home could improve their well-being possibly for the duration of their life. These advances in health along with the current and future generations' outlook on how they want to age are the forces behind this newly developed idea of aging in later life. The term *aging in place* has recently been used to refer to homes that are available for older adults to relocate to so they will have a supportive housing environment as they continue aging (Senior Resource for Aging in Place, 2005). For the context of this manuscript, aging in place will be synonymous with this reference. Many older adults are looking for a housing option in which they can take part through their own personal choices and resident management, and also an environment that will help them to feel like they belong by maintaining social relationships ("Elder Cohousing," 2005; Sugihara & Evans, 2000). Housing options that keep older adult

residents engaged and active are thought to improve life in later years; however, many current housing options may not provide adequate activities for residents (Silverberg, 2010).

Many older adults in the current generation and individuals in the baby boomer cohort are dissatisfied with existing housing for older adults and are actively searching for new alternatives (“Elder Cohousing,” 2005). Older adults’ dilemmas with available housing options are generally perceived as losing personal control of their choices and daily activities, having no say in the way the community operates, and worrying about new neighbors they may not get along with (Silverberg, 2010). Another problem numerous older adults face with existing facilities is not having the finances needed to be able to afford living in such housing as many facilities only target individuals with middle-to-high incomes (Peace et al., 2011; Glass, 2009; Wagner et al., 2010).

These problems with existing institutional facilities may possibly derive from missing concepts such as place attachment and perceived autonomy within the housing facility. *Place attachment* is regarded as a development of a personal relationship with a specific place, which can then help to instill a sense of comfort and security within an individual (Oswald, Jopp, Rott, & Wahl, 2010; Shenk, Kuwahara, & Zablotsky, 2004). *Perceived autonomy* envelops an individual’s maintained independence and self-control, which have been found to be important to older adults in their later lives (Bronstein et al., 2009; Peace et al., 2011). Therefore, concepts of place attachment and perceived autonomy will be considered for housing design objectives in the present study as they may support aging in place.

If many individuals in the older population are unhappy with existing housing options and if the sheer number of baby boomers beginning to reach older adulthood will over-burden these existing options, current and future generations of older adults may feel unsettled and discontented in their later life. One new idea in housing has begun to seep into the United States from Denmark: the concept known as cohousing. Cohousing communities, originally construed

as a multi-generational option, are usually made up of multiple families living together in a collectively-managed neighborhood with privately-owned homes. These communities consist of the residents' homes and a centrally located common house where residents may gather (Silverberg, 2010). Cohousing communities that are developed for older adult residents may offer baby boomers and the current generation an alternative, as they are able to have input in the construction and operation of the community and the way in which they will continue to live their lives (Glass, 2009). Cohousing communities that are designed specifically for older adults have become known as *senior cohousing* communities and will be referred to as such for this study (Durrett, 2009).

This study will explain new ideas in senior cohousing community practices and the benefits they could provide older adults in need of a new alternative for housing as they age. Exploring new ideas in housing for older adults and analyzing the reasons why current available options are not satisfying their needs in later life may provide an important juncture in research for future generations. Although senior cohousing communities are a relatively new concept in the United States, seminal architects have given significant consideration to the construction and design of the overall layout of the neighborhood, common house, and housing units (Cohen, 2005; Durrett, 2009). Though the site plan and common house have been carefully developed, individual homes in senior cohousing communities could be addressed more effectively in the context of aging in place, place attachment, and autonomy. Therefore, senior cohousing communities and the premises they may be able to provide for these housing concepts will be examined in detail in this study as an optimal alternative to the variety of housing options presently available to older adults.

This study will address older adults' perceptions of housing they would prefer to live in for their later years that will address their needs and concerns. Though this study may look at older adults' needs and concerns, it will focus on the built environment and not on the health of such individuals. These perceptions will be revealed through individual interviews and a focus

group with prospective members of a senior cohousing community. These gathered perceptions on housing and the universal design principles will be used to develop individual floor plans with varying interior and exterior designs. These principles will be utilized as they guide “the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design” (Center for Universal Design, 2010, para. 1).

According to the Center for Universal Design (2010) the seven principles include: equitable use; flexibility in use; simple and intuitive use; perceptible information; tolerance for error; low physical effort; and size and space for approach and use. Equitable use signifies that a design is easily used and marketed to all people regardless of their abilities. Flexibility in use is concerned with the flexibility of the environment to accommodate individual preferences and needs. The principle, simple and intuitive use, ensures that designs are easily understood by all individuals, whereas perceptible information is concerned with granting that individual with all of the necessary information needed to use the design. Tolerance for error is used to ensure that the risk of hazards are low from using the design inappropriately, while low physical effort guarantees that the design can be used easily with minimal energy. Last, size and space for approach and use assures that the design may be accessed and used regardless of an individual’s size or mobility. Examples of universal design in housing might consist of lever door handles, wider doors and hallways, sinks and cabinetry with leg-room underneath, and single-level foundations which may be accessed by those who use wheelchairs. Using these principles in housing design may accommodate any individual with a range of abilities, providing him a safe, flexible, and easily understood environment in which to live.

Four options will be developed for this study as each residence plan will vary in square footage in addition to the difference in floor plan design. This will allow older adult residents to have a choice in the residential unit they may choose to live in, as members could have different needs for space and/ or different design preferences. Offering cohousing members options for their

home selection may help to increase individuality, but the limit of four options may help keep costs lower when a community is built at one time instead of constructing all custom homes. These four individual residences designed using the guidelines of universal design principles and older adults' perceptions of housing regarding their needs and concerns may offer significant implications for aging in place in later years of life.

## CHAPTER II

### LITERATURE REVIEW

#### **Aging in Place**

Historically, aging in place has meant growing old within one's existing home and staying there through some means of support, such as care by family members or using supportive devices eventually living out the entire life course in that very home (Durrett, 2009). Today, aging in place is taking on a variety of different meanings as older adults are choosing to revitalize the way in which they age and the housing in which they choose to do so (Blumenstock, 2006; Bronstein et al., 2009). According to the Senior Resource for Aging in Place (2005), aging in place more recently refers to the housing industry's approach to creating housing which older adults can relocate to begin their later stages of life. This is comparable to the approach senior cohousing follows: creating a neighborhood of individual homes and a shared common house for use by all residents to promote aging in place through appropriate housing and the establishment of community (Cohen, 2005; Peck, 2008).

Durrett (2009) noted that if older adults took time to look into what they would prefer for their future needs and begin organizing some kind of plan to follow as they age, they would typically be much more likely to age successfully through maintaining positive well-being. By planning ahead to live in a supportive community, older adults may be able to relinquish the fear

of being forced to move straight out of their home and into an institutional setting (Abraham-Paais, 2005). As older adults start searching for a home in which they may be able to age in place, they might want to consider the social quality of the community as it will likely affect their future life satisfaction (Oswald et al., 2010). Current studies are exploring the relationships of healthy aging in relation to characteristics of physical, mental, and social health that are relevant in housing for older adults (Oswald et al., 2007).

If older adults consider moving into a housing facility in maintenance for healthy aging, the capability of forming place attachment to the new home is the first step in successfully navigating the aging in place dilemma (Sugihara & Evans, 2000). A site that eases older adults into their new surroundings, by establishing a social network, preserving their independence in daily activities, and allowing them to personalize their space may aid in this formation of place attachment. Through these provisions, older adults may also achieve a higher level of well-being (Oswald et al., 2007; Peace et al., 2011; Sugihara & Evans, 2000). These provided features may then work in conjunction, making aging in place easier for an older adult in her chosen housing option.

Successful aging in place for older adults relies on both the formation of place attachment and the design features effect on perceived autonomy within a community (Oswald et al., 2010). In senior cohousing, creating a site plan and buildings that allow for adaptation for varying levels of physical ability and personal control may help maintain autonomy by presenting older adults with an environment that is just demanding enough to keep them engaged in their normal activities (Oswald et al., 2010; Durrett, 2009). Senior cohousing communities are designed to promote aging in place as the community building and residences may be easily modified to the older adult's needs as they age (Peck, 2008). The size of residences in a senior cohousing community is another factor in determining the best way for older adults to maintain their autonomy. Larger floor plans may have a positive effect on younger individuals while older

adults may perceive a large floor plan negatively as it may be too much maintenance for them (Lawton, 1977, Oswald et al., 2010). For example, a way to increase mobility and through that, autonomy is to locate parking lots to the exterior sides of the community as it will not only increase social interaction among residents when they pass by one another, but also maintain resident exercise (Durrett, 2009). These features of the built environment can all play a part in helping older adults retain their personal autonomy within a housing option such as senior cohousing.

Features in a senior cohousing environment may integrate autonomy as discussed, but how does that help to manage aging in place successfully for an older adult? Oswald et al. (2007) discovered that accessibility in a home is the main determining factor related to healthy aging in older adults regardless of the obstacles the home may contain. These authors also reported findings that could establish possible criteria for the design and construction of future accessible and useful housing options for older adults (Oswald et al., 2007). Assessing the accessibility problems within the home is a key component in the process of aging in place. Without addressing emotional and social problems, such as connecting an older adult to a new housing option and community, and also planning for future concerns that are related to the aging process, the resident will never be fully satisfied in later life (Durrett, 2009). The features of senior cohousing that encapsulate community can aid in the fulfillment of these emotional and social issues. The community planning and development participated in by all members of the community may contribute to solving these issues. Oswald et al. (2010) noted that the relationship with the neighborhood has serious implications for aging older adults as it is correlated with well-being. Independence is a considerable part of the concern centering on older adulthood, and senior cohousing can provide the benefits of personal choice and freedom of routine, while still affording residents support within the community and within their individual lives (Peace et al., 2011). For these reasons, senior cohousing communities and their construction



and operation premises will be explained in detail in the upcoming section to provide the reader with a general understanding.

### **Senior Cohousing**

Durrett, (2009) stated that in recent decades, the majority of the Danish population was dissatisfied with the choice of housing options available. Therefore, cohousing was created to provide a new housing option centered on the idea of neighborhood. These cohousing neighborhoods provided members with a social community while allowing them the privacy and autonomy of living in their own individual homes. The communities utilize a model consisting of individual housing units centered around an open common area and a main activity building or common house for all residents to share (Silverberg, 2010). Though cohousing communities vary, they always share these six components: participatory process; deliberate neighborhood design; extensive common facilities; complete resident management; non-hierarchical structure; and separate income sources (Durrett, 2009). Charles Durrett and Kathryn McCamant are known to be the two initiators and seminal architects of the cohousing movement brought to the United States in 1986. In 2005, Durrett expanded his focus to include a more specific form of cohousing for older adults: senior cohousing (Cohen, 2005).

Senior cohousing communities have developed from this overarching idea as a way to explicitly manage the needs of older adults looking for a housing option that provides social support, independence and positive well-being through their life course (Durrett, 2009). Senior cohousing is a relatively new and unexplored area as an alternative for older adults in the long line of available housing options and there is minimal literature written over this topic (Glass, 2009). More information on the subject of senior cohousing and its implications can be found in Durrett's book, *The Senior Cohousing Handbook: A Community Approach to Independent Living* (2009), as it has become a current benchmark for research on senior cohousing.

Senior cohousing operates in such a way that older residents are able to continue living productive and meaningful lives by engaging in activities that keep them involved within the community (Durrett, 2009). Through participation in these activities such as clubs, games and managing the community (which is done only by residential members), residents may decrease the chance of developing depression through loneliness (Bronstein et al., 2009). Residents may also form connections with other members through group planning and organization (Durrett, 2009). This is a key determinant in developing social relationships throughout the neighborhood, which are the defining factors creating the sense of community. Through the experiences of this supportive society, it is likely that life satisfaction will remain intact despite the ever present decline of resident's health (Oswald et al., 2010).

Durrett (2009) remarked that though operation and development of community are essential to the notion of senior cohousing, the design of the built environment plays an integral part in establishing the socialization component. He further explained that bad design in a community has been found to inhibit residents' social interactions by up to five times more than that of a well-planned community. In this study, the term *built environment* is to be understood as the collection of human-made products, systems, and architectural elements that surround an individual in a given area (Bartuska & Young, 1994). For example, the built environment of a senior cohousing community would consist of the individual homes, common house, and any other structures located in common areas.

The site plan of a senior cohousing community is typically arranged with the individual residences clustered together, surrounding an open, common area circling around the common house in which residents are encouraged to interact with one another (Durrett, 2009; Silverberg, 2010). The site plan of a senior cohousing community can be seen in Figure 1. The common house is typically located within the center and in close proximity to the individual residences as it helps to promote the overall sense of community when it becomes the central location that

residents pass through during their daily activities (Sugihara & Evans, 2000; Durrett, 2009; Glass, 2010). The common house design may incorporate a number of guest suites to provide extra lodging for visitors or accommodation for an on-site caregiver if professional health care is ever needed by a member of the senior cohousing community (Durrett, 2009).



Figure 1. Senior Cohousing Site Map [Sample]: Used with permission.

Within the individual homes, the environment must be capable of adjusting to various stages of support, as privacy and personalization are major factors of high quality of life (Peace et al., 2011). Homes in senior cohousing are developed around the concepts of universal design guidelines, though there have been no suggestions so far as to what design concepts in a floor plan may contribute to a prolonged and optimal aging environment (Durrett, 2009). Individual residences and buildings, such as the common house, in senior cohousing communities are

designed to appear non-institutional and more like individual homes with variations in finishes and façade design that would be seen in the typical neighborhood (Durrett, 2009). This might aid older adult residents in perceiving the community to be closer to that of the home they moved away from comparatively to other existing housing options that are available. Following this idea, the four individual floor plans that will be drafted for this study will be designed to appear more aesthetic like the typical individual residence rather than the institutional-oriented versions that are seen so often in other housing options for older adults. Oswald et al. (2010) observed that the experiences gained from the place in which one lives as well as the accessibility of the environment may affect the older adult's feelings of belonging to that place. The built environment in the community site plan, common house, and individual residences in senior cohousing is significant to the way residents may perceive the senior cohousing neighborhood as a whole. Design features used within the environment attempt to establish the relationship between the individual and the community. Though these features may be significant to an older adult's perception of a senior cohousing community, affordability must still be addressed for interested individuals.

A large concern for many older adults is the related costs involved with moving to an alternative form of housing, or being able to afford modifications to their current home (Glass, 2009; Peace et al., 2011; Wagner et al., 2010). According to Kornblum (2005), senior cohousing is considered to cost slightly more than other comparable, individual homes, though it may cost less than housing such as assisted living in some instances. In the Midwest, a senior cohousing community contains 24 one- and two-bedroom privately-owned homes ranging in price from \$150,000 to \$265,000 and in square footage from 702sq.ft. to 1,190sq.ft. (Abrahms, 2011; XYZ, 2009: This information was procured from this community's website and a pseudonym is used to protect community members' identities). According to the community's website, these prices will not only include the individual home itself, but also a shared 'piece' of the 7.5 acres the

community sits on and the 3,800 square foot common house (XYZ, 2009: This information was procured from this community's website and a pseudonym is used to protect community members' identities). In comparison, a local assisted living community offers its residents choices in rooms. According to the Director of Life Enrichment, sizes range from 340sq.ft. to 550sq.ft. costing \$2,300-\$3,100 per month at a minimum fee with no special needs required. This facility operates on a need basis, and the more needs an individual has with daily activities, the more fees are added on to the base. According to National Clearinghouse for Long Term Care Information (n.d.), most people will need long term care services for an estimated three years. Based on that estimate, living in the aforementioned assisted living community could cost between \$82,800 and \$111,600 for three years and more if an individual stayed there longer or required any specialty services.

As most senior cohousing communities are a housing option older adults can buy into rather than paying non-refundable fees, some individuals may prefer owning an asset they have some personal control over. Assisted living centers cannot be evenly compared to senior cohousing communities as they are not only based on housing, but also on many other services assisted living centers frequently offer. Older adults must make this decision for their future based on whether they would prefer to live in their current home and wait to join an existing housing option, or to make the decision early and invest in a senior cohousing community. The decision to invest in a new residence in a community like senior cohousing versus renting or paying fees as is done in many other housing options may result in differing levels of attachment to the home after an older adult has moved in.

### **Place Attachment**

The relationship created between a place and an individual has been referred to as place identity, sense of place, and place satisfaction among others, each of them being slightly different in their implication (Lewicka, 2009). For the context of this study, the term *place attachment* will

be used to express such a relationship. Place attachment is defined as having developed, emotional ties to a place or location that influence personal identity by providing comfort, familiarity and security to the individual (Sugihara & Evans, 2000; Shenk et al., 2004; Oswald et al., 2010). Attachment to place has been known to form through social contact with neighbors, duration of time spent in the home, and through memories gained from possessions and emotional experiences (Lewicka, 2009; Shenk et al., 2004; Sugihara & Evans, 2000). Similar findings within studies have been reported to show stronger place attachment forms in places that elicit residential satisfaction, though social ties were more important overall than were physical features of the place (Lewicka, 2009; Hidalgo & Hernandez, 2001; Sugihara & Evans, 2000). Sugihara and Evans (2000) indicated that little research has been done over the effects of design features on place attachment, though they found that living closer to a common activity building where unplanned social encounters happened more frequently increased place attachment. Lewicka's (2009) findings in relation to bonds with homes, neighborhoods, and cities reported that age, ownership, and type and size of housing among other factors could also be predictors of place attachment.

Sugihara and Evans (2000) maintained these findings are relevant to older adults in senior cohousing because they represent the importance of place attachment and social ties in the successful relocation of an older adult to this type of housing. Place attachment and social ties may be essential to an older adult during the period in their life when they choose to move out of their existing residence into housing such as senior cohousing. Social contact has been found to directly and indirectly affect physical and mental health, as it encourages integration into the new home through emotional support (Sugihara & Evans, 2000). Keeping memorable possessions can aid older adults during such a move as they serve to help maintain stable meanings of self-identity for individuals though their life is changing (Shenk et al., 2004). Having these possessions in their

new homes may then act as an emotional support for older adults while they adjust to their new space and community.

Shenk et al. (2004) found that familiarity within a residence may play an important role in the development of place attachment as it can possibly lead to creating order within the home for the older adult. Living in a place may lead an individual to employ specific routines and rituals within that space as he becomes accustomed to performing activities on a daily basis and begins to feel comfortable within the area. As that individual personalizes the space, it may become representative of that individual's identity as unconscious routine and preference for the place begin to overlap (Shenk et al., 2004; Lewicka, 2009). Overall, these findings are representative of the effects an environment may have on an individual's behavior.

Place attachment has also been aligned with several theories on aging as researchers study to explain the environment's effect on behavior. In relevance to this study, the Lifecourse perspective and the Continuity Theory of Aging may offer further insight into how concepts from senior cohousing communities may be able to improve place attachment in their older adult residents. In the Lifecourse perspective, an individual's character may be shaped throughout one's life stages, such as young-adult through retirement-age, based on past experiences and social and cultural environment (Elder, Johnson, & Crosnoe, 2003; Hutchison, 2010). This theoretical approach views the transitions and changes that occur in that individual's character as aging processes which take place in each life stage (Hutchison, 2010; Shenk et al., 2004). During these life stages, individuals may undertake numerous social roles, which can then be associated with familiar environments. The Lifecourse perspective correlates a person's attachment to a home or possessions to the various roles that person may have played at some point in life, such as wife and mother, which can serve as guided support for the duration of that person's life (Shenk et al., 2004). This aspect of the theory is central to the idea of keeping important

possessions that may provide emotional support for an older adult who has moved out of an existing home and into housing, such as senior cohousing.

According to Atchley (1989), the Continuity Theory of Aging subscribes to a similar approach where individuals are assumed to change and adapt as needed for normal aging and continuation through life (Nimrod & Kleiber, 2007). Continuity theory suggests that maintaining internal and external emotional and psychological characteristics is significant to well-being in middle and later life as individuals make these adaptive choices (Atchley, 1989). “Internal continuity” is generally connected with the inner-self processes such as self-esteem and identity, where as “external continuity” relates to finding comfort in the physical and social environment (Atchley, 1989; Nimrod & Keliber, 2007; Parker, 1995). The various social roles and life stages that are discussed here previously can also be correlated with the Continuity theory as older adults consistently show continuity in their habits, abilities, relationships, and environments over time (Atchley, 1989; Parker, 1995). Alongside place attachment, the need to maintain continuity with an environment may be another leading factor in why many older adults are reluctant to relocate in their later years (Atchley, 1989).

Following the guidelines of the continuity theory, older adults may not feel comfortable relocating to a new home at first, though they will still have the capability to adapt to the new environment. Specific concepts related to place attachment and the Lifecourse perspective, that can be implemented into the design and operation of a housing option such as senior cohousing could make the adaptation process easier on older adults. Allowing residents to personalize their individual homes as they see fit with memorable possessions is one example of such concepts. Housing options which utilize these concepts may be able to expect an increase in their residents’ satisfaction with their new homes; and therefore, with the housing environment itself. As these two theories indicate in their constructs, the built environment may be a major component in the process of place attachment formation for older adults.



Many characteristics of the built environment in senior cohousing could play an important role in establishing place attachment. While it has been found that smaller distances between residences and the common house may increase social interaction, outdoor spaces such as gardening areas may attribute to it as well (Sugihara & Evans, 2000). Factors such as personalization of the home, using the natural environment, maintaining community appearance, and establishing neighborhood relationships have all been found to be positive predictors of place attachment (Lewicka, 2009; Peace et al., 2011). Senior cohousing communities assert downsizing by utilizing smaller living spaces in individual homes which may reduce challenging maintenance and maneuverability around the home which can positively affect an older adult's environment (Oswald et al., 2010). Each of these factors are likely to be found in a senior cohousing community and they may all be relative to increased place attachment; however, they may be relative to perceived autonomy as well.

### **Autonomy and Older Adults**

Andresen, Runge, Hoff, & Puggaard (2009), argued that independence, along with culture, religion, and personal control all influence a person's autonomy. The formation of place attachment to a new home is the major step in beginning a relationship with the new residence, though the maintenance of an older adult's independence may grant her the ability to stay in the space longer and with a higher quality of well-being. In a cross-national study, participants who thought of their homes as meaningful due to physical, social, or emotional reasons were found to be more independent in their daily activities, better with environmental control, and less likely to develop depressive symptoms (Oswald et al, 2007). The home in which one lives establishes the types of activities an older adult may be able to accomplish (Wagner, Shubair, & Michalos, 2010). Maintaining autonomy through independence and personal control of one's activities, choices, and life is a common concern among aging populations when faced with the fact of growing older (Bronstein et al., 2009; Peace et al., 2011). Older adults worry about these issues as

they fear having to face the choice of deciding what they will do when they are no longer able to live by themselves (Bronstein et al., 2009; Peace et al., 2011). Many older adults share similar opinions that after they are no longer able to live alone in their home, choosing to live in a housing option for older adults would be better than leaving the responsibility up to their children. Others still fear giving up personal control of their social lives, eating habits, and daily routines as they believe moving to many of the current housing options will force them to give all of these abilities up (Peace et al. 2011).

These fears older adults face may be very important to their well-being and maintained independence in their future. The competence of a person, or their physical and mental health, strength, and self-esteem, will allow that person to manage personal control of their interaction with the environment in a positive way. Lawton (1977) also examined how lower competence, due to low levels of environmental stimulation, may result negatively in poor physical health, sensory losses in older age, and the development of mental health issues. Durrett (2009) has viewed humans as social beings in the light that when they experience change, they will want to reconnect at a different level. By maintaining autonomy in later life, older adults may be able to preserve their health and well-being, learning that aging positively may allow them to age in place successfully.

Well-being can be maintained in two specific areas of the human psyche: confidence and health. By preserving their autonomy, older adults may expect to keep their self-confidence at a higher level than if they were to decrease the stimulation they received from the environment (Lawton, 1977). Choosing to live in a housing option that may assist with instrumental activities of daily living (IADL) for older adults instead of having the residents do the activities on their own could cause residents to lose those abilities in later years (Lawton, 1977; Oswald et al., 2007). IADLs can consist of shopping, talking on the phone, cooking, housework, and using transportation among other activities (Oswald et al., 2010). Health is also positively impacted

through retaining autonomy if an older adult continues to interact socially, keeping isolation and alienation to a minimum by staying involved with friends (Durrett, 2009; Sugihara & Evans, 2000). Programs that engage older adults' hobbies and interests or keep them regularly active have been found to improve health conditions and even delay some health problems in later life (Russ, 2009; Silverberg, 2010). Keeping up with their activities of daily living (ADL) such as eating, dressing, walking, showering, and so forth are also found to be important to health (Bronstein et al., 2009; Oswald et al., 2010). Older adults who live within a community have been found to have healthier lifestyles than those who do not (Cohen, 2005).

In senior cohousing, many features are in place to make sure that residents have the ability to continue living autonomously to benefit their confidence and health during their later years of life (Lawton, 1977; Durrett, 2009). As stated previously, senior cohousing communities offer social interaction, engagement in activities, and independence, all found to be related to improving health. Durrett (2009) stated that residents who participate in these social interactions and activities may maintain a high level of confidence by providing their own productive input into the neighborhood. The mutually supportive community environment establishes co-care between residents. This has been reported to make members of the community feel healthier by ensuring that everyone is taken care of. This perception may be caused by individuals focusing more on their neighbors' health issues instead of only on their own. Building design in the common house and individual residences is constructed to be adaptable and accessible for all members of the community so that everyone is able to contribute and reach a higher level of well-being (Durrett, 2009; Oswald et al., 2007). Senior cohousing communities will only invest in paid services if members think it necessary and this can encourage residents to keep up with their own chores as well as maintenance for the entire property (Lawton, 1977).

These ideas embody the goal of this study's design objectives, as it aims to develop options for senior cohousing community residences with the hope of offering older adults a place

to age in place successfully for the duration of their lives. Creating housing options that promote concepts of place attachment and perceived autonomy may be an essential element to what older adults are missing in current housing facilities. Bronstein et al. (2009) remarked that this has become a growing interest for the older population as they have begun to examine what features of existing housing options may not be working as needed and which aspects of community may be important to expand upon for future design and building. As the baby boomer cohort and current older adults search through the available types of housing options, they will likely decide on the option that best supports later life well-being, maintained independence and personal control of their future years.

## CHAPTER III

### METHOD

For this study, the researcher submitted an application to the Institutional Review Board (IRB) for an approval on the protocol for three sessions with potential members of a senior cohousing community: individual interviews, a focus group, and a questionnaire over the proposed floor plan designs. Once the IRB approval had been obtained, the researcher contacted these members through email and by phone. Potential participants were presented with a flyer at first contact that explained the present study and the sessions that would be offered if they chose to participate. Older adults who were interested in participating were given a cover letter of informed consent, which further explained details of the session or sessions they chose to participate in. Upon further interest, older adults were given an informed consent form to read and sign after they fully comprehended what their participation could entail. The researcher drafted two individual informed consent cover letters and informed consent forms addressing the interviews and questionnaire and the focus group and questionnaire. Participants were only included in the questionnaire if they participated in the interviews, focus group, or both. The interviews were held either in the participant's homes or another location of their choosing. The focus group was in a public meeting room. The questionnaire took place at the senior cohousing members' newly renovated common house as it was easily accessible to all participating members.

## **Participants of the Study**

The researcher recruited a purposive sample of 11 older adults, from the ages of 55 to 85, living within a rural community in the Midwest. Of the 11 participants, 10 completed individual interviews, 4 participated in the focus group, and 5 were involved in the questionnaire. These individuals are associated with a local group of older adults in the process of organizing a senior cohousing community for themselves within the town. Members within this group who were currently living in their single-family residences and who had never lived within any form of housing for older adults were selected out of this population to be included in the interviews, focus group, and evaluation. Due to their membership within such a group, these older adults are considered to have working knowledge and understanding of how senior cohousing communities operate. This group of older adults was approached for the study by the researcher through their advertised website containing phone numbers and emails of many of the individual members. The researcher contacted members by emailing or calling them with the contents of the advertisement flyer explaining the three research sessions.

## **Interviews**

Older adults who agreed to participate in the first session for this study were asked to complete a survey of demographics and to take part in individual, informal interviews that were audio recorded. These interviews were scheduled between the researcher and each participant for a specific time and place. The interviews examined the opinions of these potential residents regarding residential floor plan design of senior cohousing communities to formulate questions that were later used in the focus group. The interview questions were used to help expand on the perceptions the participants had of various features of residential design such as space requirements, using universal design within the homes, floor plan arrangement, and how they believed plan arrangement could work within a senior cohousing community. A script was used

with each participant during the interviews to ask questions such as: “What made you want to move into this senior cohousing community? How did you feel about downsizing? Would you be interested in having a front porch for social engagement with your neighbors?” Each interview lasted no longer than one hour.

The survey used for this study collected demographics of the participants involved so that they could be compared with current and future studies examining the populations in various senior cohousing communities. This aided in the generalization of overall sample results for future, individual studies as most studies examining senior cohousing communities may have a very small and selective group of participants. Questions in the survey consisted of information regarding age, gender, marital status, level of education, occupation, years spent in current home, income, and ethnicity.

### **Focus Group Study**

Sample members who agreed to participate in the second session for this study were contacted by the researcher who proposed the designated time and place where the focus group took place. During this meeting, participants were offered refreshments, given an informed consent form, and asked to participate in the demographics survey if they had not already done so in an individual interview. This meeting lasted approximately one hour. Participants were also invited to join in a future third session regarding their evaluation of the study’s floor plan propositions after the focus group findings had been analyzed.

Following the survey of demographics, these older individuals were asked to participate in the audio recorded focus group held with the goal of collecting older adults’ opinions and perceptions on residential design regarding spatial functioning, aging in place, lighting, and the home exterior. These questions concerning their opinions and perceptions were based on the themes that emerged from the individual interviews in the first session of this study’s research.

These areas were determined to be representative of what this sample of older adults was looking for in terms of residence design in a senior cohousing community. Questions regarding residential design were aimed at the participants' preferences for the design of the homes in these communities. These four areas were chosen for topics of discussion as responses were expected to be relevant to the two proposed design objectives of this study: promoting place attachment and contributing to perceived autonomy as they affect aging in place. Altogether, there were eight open-ended questions in the script for participants to discuss freely with the researcher during the focus group. The four topics each had two main questions and various prompts were used within each topic to gain further insight from participants. The focus group meeting lasted an approximate hour and one half. The primary purpose of using a focus group over these areas of community housing was to listen and document the perceptions of older adults choosing to live in a senior cohousing community and to aid in the understanding what they are looking for as far as needs and concerns within that type of housing.

Questions related to these four topics regarding residential features pertained to the exterior and interior design of individual homes that could be used in a senior cohousing community. For example such features as front-facing porches, entry ways, floor plan layouts, and universal design and accessibility could be implemented within the home. The topic of spatial functioning was used to gather opinions on which areas participants felt were important and not important in a residence. An example of a question related to spatial functioning was "Do you think anything may not be necessary in your current home for your future living?" Participants were asked questions regarding aging in place to better understand what expectations they had for features in a new residence that would benefit them in later years. One of the questions concerning aging in place was "What do you think the home should provide for accessibility and mobility problems?" An example from the lighting topic included "What would you look for in artificial and natural lighting in a new residence?" The final topic, the home exterior, was aimed at gathering perceptions of what participants were looking for from their porches and patios in the



senior cohousing community. Questions in this topic regarded the expectations participants had for these areas. These questions assessed this group of older adults' opinions to gain perspective on how their perceptions of senior cohousing were tied to residential design in order to promote place attachment and contribute to autonomy in later years. Understanding the perceptions of this sample of future senior cohousing residents aided the researcher in shaping the conceptual floor plan designs that were drafted for this project.

### **Data Coding and Analysis**

Audio recordings from the individual interviews were transcribed by the researcher and used to formulate the questions that guided the focus group in the second research session. Transcribed data from these interviews was reviewed using grounded theory. Grounded theory according to Walker & Myrick (2006) can be understood as such:

To code, data are broken down, compared, and then placed in a category. Similar data are placed in similar categories, and different data creates new categories. Coding is an iterative, inductive, yet reductive process that organizes data, from which the researcher can then construct themes, essences, descriptions, and theories (pp. 549).

Using grounded theory and the computer software NVIVO, reoccurring themes of participant's perceptions and opinions over residence design in senior cohousing were identified from the interviews. In the NVIVO software, data was organized into categories which could then show how many times each category was referenced by participants and how many of the participants mentioned something correlated to each category. Viewing these references, the themes were ranked in order of which were mentioned the most by participants. Questions regarding these themes were developed to ask participants in the focus group. Recordings from the focus group were analyzed according to the amount and length of time various topics were discussed to identify key points that were common among sample participants. These key points regarding the

older adults' perceptions on spatial functioning, aging in place, lighting, and the home exterior were merged with the reoccurring themes that arose from the individual interviews. The merged list of themes and key points was ranked in importance according to the number of references made by participants. This list was then matched with the universal design guidelines within a matrix. This allowed the found themes and key points to be visually represented against the seven universal design principles showing what components of aging and design were correlated, integrated, or not applicable to one another. Findings based on this matrix were synthesized with housing concepts in the design of the floor plans produced for this study. Using these concepts, four floor plan options were drafted; each with slightly varying exterior and interior floor plans. The drafted plans incorporated architectural designs that supported universal design guidelines, though they were presumed not to appear institutional in nature. Great care was taken to express the individuality of the four different plans so that residents could continue to perceive themselves as independent individuals. These four floor plans employed features of these concepts with the ultimate goal of satisfying both of the two proposed design objectives within this study: place attachment and perceived autonomy. As stated previously, four plans were designed to offer residents a variety of floor plans and square footage while maintaining lower costs compared to building only custom homes.

## **Questionnaire**

Once the floor plans for the study were completed, participants who were involved in the individual interviews and/ or focus group were approached again for the third session of this study, the questionnaire which contained a post-evaluation of the four individual housing options. The questionnaire was held at the participants' newly renovated common house on the senior cohousing site that was under construction at the time. Following the informed consent, the researcher gave an informal presentation to the participants so that they could question the researcher and understand each floor plan option to the fullest extent. The presentation consisted

of each of the four floor plans, elevations of the kitchen cabinets, and four various perspectives of a master bathroom, a master bedroom, a full view of a living, dining, and kitchen area, and one of the front porches. The elevations and perspectives were used to aid participants in picturing a three-dimensional image of these spaces within the floor plans. Following the presentation on each of the four plans, sample members were asked to fill out post-evaluation questionnaires which would be used to determine the conclusion of this study. The questionnaires examined the participants perceived attachment and independence in the floor plans using questions concerning adaptation, comfort, individuality, ease of mobility and maintenance. A few of the questions used in the evaluation consisted of: "Do you feel as though these floor plans would provide a supportive home in which to age independently?" "How much work do you think these floor plans would be to keep up with in terms of cleaning and maintenance?" and "If you lived in one of these floor plans, do you feel as though these homes would be easy to personalize and provide enough space for your memorable possessions?" The evaluation questionnaires were used to assess the four floor plans regarding whether or not they were able to accomplish designs that were perceived to meet the two design objectives of this study: promoting place attachment and perceived autonomy. The floor plans' observed success was based on the participants' beliefs that they would feel a greater connection to the new home, to other members, and the community, and whether the participants believed they would feel more autonomous within that interior environment. The answers from the evaluation questionnaires were examined as a group to ascertain the participants' observed success of the floor plans and whether or not the floor plans met the two design objectives of this study. As only five participants took the post-evaluation questionnaires and their responses were generally in agreement, the results of the questionnaires were analyzed by comparing and contrasting participants' answers to each question.

## CHAPTER IV

### RESULTS

The three research sessions culminated in the evaluation of the research project. The first two sessions included in this study, the interviews and focus group, produced individual sets of results that were used as building blocks to aid in formulating questions that would be asked in the following sessions. *Themes* that emerged from the individual interviews were used to produce questions for the focus group that were more detailed and specific for housing design for a senior cohousing community. The questions in the focus group fleshed out detailed responses from participants which were later identified as *key points* the participants agreed upon regarding residential housing design. For the remainder of this study, *themes* will be used to signify results from the interviews and *key points* will be used to signify results from the focus group. The merger of the found themes and key points was used within a matrix to cross reference universal design principles for the development of the four individual floor plans. The results from the final session, the questionnaire, determined the observed success and deficiencies of the floor plan designs in promoting place attachment and perceived autonomy. The following sections explain in detail the results from the three individual sessions, the development of the floor plans, and the integration of findings regarding place attachment and perceived autonomy.

## Interviews

During the transcription process of the individual interviews with participants, 13 reoccurring themes were recognized. The 13 themes were recognized as: Housing Concerns; Planning for the Future; Downsizing; Social Engagement; Taking Personal Belongings; Home Arrangement; Privacy; Storage; Universal Design; Care for Nature; Pet Concerns; Natural Light; Energy Efficiency. Within these individual themes, some themes were very specific while others wound up being broad. This was due in part to the amount of references made by participants concerning each theme category. If the number of references was small, the theme stayed specific, whereas if there were multiple references made in a category, the theme grew more broad. The broad themes contained various pieces of information that were deemed similar and grouped together in the same category. It is important to note that this was necessary as the amount of data collected could have otherwise resulted in too many themes that may have skewed the remainder of the study. Of these 13 themes, 11 of the themes were related to residential design for senior cohousing communities and were referenced by participants in varying degrees. The themes, Housing Concerns and Planning for the Future, though relevant to the literature were not considered pertinent to the design of the floor plans for senior cohousing communities. These two themes will be discussed immediately following the 11 themes concerning residential design. These 11 themes will be discussed in the following paragraphs in order of themes found most commonly to the themes found the least commonly.

The theme identified as *Home Arrangement* was referenced the most by all of the participants involved in the interviews. This theme was identified as such because it referred to the participants' opinions and perceptions regarding the arrangement of floor plans, the various rooms to be included in the floor plans, and how the individual homes would be arranged on the site plan of a senior cohousing community. The arrangement of floor plans generally dealt with the participants' opinions of whether an open floor plan would be more pleasing to them versus a

closed floor plan. The participants expressed that they preferred an open space in the living, dining, and kitchen areas as all of the floor plans would be much smaller in square footage than their homes they were living in at the time. An open floor plan would help to make the new floor plans seem larger. They also indicated that using higher ceilings in an open floor plan would be another way to increase the feeling of spaciousness within the floor plans. The following remarks represent these results:

*I just think open floor plan is the way to go. In a small space, if you divide it even more by closing areas off, it just reduces the overall space. I very much favor an open floor plan... in fact that's what lead our designing was the great room concept where you've got all the visual space you have that is available and you can have it all at once when you're in the living space and the only division space is the bedroom space where you might need it.*

*I think that the slanted ceiling that is fairly high will give a feeling of more space than is actually there.*

*I like that aspect cause when you're cooking it's nice to be able to talk with people I think.*

When the participants discussed the various rooms they would prefer within the different floor plans some of them spoke of including an extra bathroom, extra bedroom, or both. Their reasoning behind wanting these extra rooms varied depending on the uses they had in mind for the rooms. Some of the participants wanted extra bathrooms for visitors and guests who might stay the night as they didn't want to worry about making guests feel uncomfortable about using their private bathroom or taking the time to clean their 'mess'. Participants had many specific ideas regarding a second bedroom that consisted of having an extra workspace, having a place for

guests to stay the night, and having a room where they could have their computer desk or television out of sight of their main living room. Participants indicated the following ideas:

*It seems strange for a single person to say I must have more than one bathroom but, if you expect company I think that's really a necessity.*

*Another thing I have to have is more than one bathroom. If I have company I would have probably one guest at a time that might stay overnight. I don't want them to feel that in the middle of the night they have to traipse through my bedroom to get to the master bathroom...so they may be sleeping on an air mattress, but at least they will have a little bathroom right there and that was important to me in choosing the size of house.*

*I've gone with one of the larger units and my second bedroom is going to be my TV room, my office, and my guestroom altogether. That's a lot of purpose to have in one small space.*

*I've got so many bookmarks of ideas where I can turn this room into a multi-purpose room.*

Participants also discussed how they believed the individual homes in a senior cohousing community should be oriented on the site. Many participants believed that the individual homes needed to face one another to ensure that community relationships would naturally flourish through daily communication. Some participants remarked that they did not think the homes should face the common house as they would most likely see one another in there on a regular basis. Participants also expressed their opinions on whether the homes should be individually built or built together in groups such as duplexes. Some remarked that building the homes in groups could result in savings in construction cost and others had come to believe that this was preferable to building separate houses that would have larger lawns that would require more maintenance. Participants made these comments:

*I had a condo, and I was connected to one other, and that was fine. And then I've lived in apartments, and that seemed fine too. I think that the fact that we're connected in fours and then across the sidewalk in fours... I think that will promote the idea that we're all about and that's community. Whereas in individual homes you just don't get that as much.*

*I think that facing the other houses is important again to the concept. It kind of forces us, but in a good way, to really pay attention to each other. And a lot of us have been living by ourselves for a long time in a neighborhood where people just put up their garage door, put their car in, and go in their house. So this... facing each other is going to create a new habit in us, and that's good.*

*The idea of having smaller, independent houses is nice, but not to have to do yard work because we're in that fourplex design I think is an advantage for me. I'll have a small yard that I can just do shrubs and things like that if I don't want to do the weedeater on some lawn and those kinds of things, and in an independent home where the yard was all around, I think it'd be a lot more outside work.*

*Downsizing* was the second most referenced theme as all of the participants in the interviews commented heavily on this topic. The idea of downsizing was concerned with participants' opinions and perceptions of moving into a home that would be much smaller in square footage than the homes they were living in during this study. Participants discussed many areas involved with the idea of downsizing such as reducing their personal belongings, passing belongings on to their children, and preparing to sell their homes. When speaking about reducing their personal belongings, many participants remarked that it was time for them to do this, and that they were enjoying the process. Participants also mentioned that though many items were



trivial and easy to discard, as they continued through the process and went through items with more sentimental value, decisions became much harder. Participants indicated the following:

*Uh, it was time. We had a lot of stuff that we didn't need, and we've gotten rid of all the easy things and now we're going through some of the things that are hard... trying to figure out what's going to fit in the new house.*

*Oh, I know it's exactly what I need to do and I've had friends who had to move quickly and they had to downsize or... they just had to be moved and other people decided what they were keeping.*

*There's always mixed feelings with it. Everything that you handle that you have to make a decision about are we going to take it with us? Are we going to get rid of it? How are we going to get rid of it? It paws up the feelings that we have about things and we happen to live in a house where virtually everything that's on these walls has a personal attachment to a person and event, almost nothing was just chosen because we thought it would go well with the rest of the stuff we have. Downsizing is something that's important to do, I'm more than willing to do it, and we've started to do it and we have a lot of work to do.*

Participants often spoke of leaving the belongings they could not take to their new home with their children during their downsizing process. They felt that seeing meaningful belongings go to their children would be a better alternative to getting rid of the items, but participants also mentioned that their children often did not want many of their belongings or did not hold the same regard for their various cherished items. A few of the participants also mentioned that they wanted to downsize while they were still able to do so instead of leaving the burden to their children. The following comments were concerned with these beliefs:

*Part of it is not hard at all, there are things that I definitely know will be going with us, but the things that are not going to fit into our new home and what we may have left over*

*that our daughters do not want or cannot accommodate in their homes... that will be the hard part.*

*[We] decided that with all of our daughters living from 1,000 to 1,500 or more miles away that we should probably downsize while we ourselves were able to do that.*

Participants explained that the need to sell their individual homes was a driving factor in pushing them to begin their downsizing process. Some participants said that it was easier to start working through their belongings when they realized they would need to sell their house before they would be able to move into the completed senior cohousing community. These comments were related to this matter:

*When someone came and knocked on my door and said I really want to buy your house, it was like a total shift in my head, and I got excited about that. That helped with the downsizing because I knew in order to get out from under that house I had to get my stuff out of there.*

*While I've been getting ready for my painter, I thought I'm moving these out of his way but I really don't need it here or later... and it just feels so good and I'm so excited... I think oh I'm going to have so much less to clean, and I think I can get all of my future square footage cleaned each week, and that will be so rewarding instead of putting the dirt pile up.*

The theme recognized as *Social Engagement* was also mentioned by each of the participants in the interviews. This theme regarded participants' perceived opinions and perceptions over visitation on the front porches of the individual homes and the building of community relationships with other senior cohousing members. Participants noted that having front porches that faced other members' front porches just across common sidewalks in the community would be an easy way to start informal communication on a consistent basis. They

believed that the proximity of the front porches would benefit the building of their friendships with other members as it would be easy to see who was out and milling around or walking up to the common house. Participants made the following comments regarding these beliefs:

*The communication pathways kind of meet out there or are in our visibility and so, even though we're not directly across from somebody, people are going to be going by quite a bit, and you know that keeps us connected. We can check on other people and they can check on us.*

*When I go out on the front porch, I know those people well. And we're going to be close enough together you're going to be talking across the front porch anyways, might as well come over and sit down and have a cup of coffee with me..*

*I think it will be a way to sit out and talk to them without having to call and say are you busy? Can I talk with you? It's a more informal way of beginning conversation and staying all night over there.*

*The more I worked with the group and became a part of the group the more readily I gave into the idea about sharing a building with other people and living in that close of proximity. I would never have thought I wanted to live wall to wall with somebody else.*

*I think designing in such a way that you create casual contact is very helpful... And you can design it so it's hard to make contact or you can design it so it's easy, and cohousing with that porch on the front is a design that encourages me to go out and bump into somebody else.*

All of the participating members in the interviews expressed beliefs or commented about specific possessions they believed would be important to take with them to their new homes and so the theme *Taking Personal Belongings* was identified. Many of the participants elaborated on

the particular possessions they wanted to take with them and some spoke of possessions they wanted to take, but that they would not be able to. Generally, the personal belongings participants discussed in the interviews were memorable to them or had sentimental value, or they were functional items that they would need on an everyday basis. The following statements support these findings:

*We've got a lot of artwork that we identify with and honestly we're not going to hang it all. I suppose we could rotate it... we might have to do that, but yeah I guess other than a few pieces of furniture and artwork... the futon and the things that are functional and they fit.*

*I think it sounds kind of like keeping your identity. The things that support this is what I am or this is one of the things I'm involved with or something that you wrote... things like that. Some of those I think will be fun for me to look back on and remember.*

*Well there are certain pieces of furniture, there are books, and there are photographs. Those kinds of items are necessarily going to be moved, and a lot of our plants...*

*So I'm really thinking what kind of furniture is smaller, very versatile, serves dual purposes, and then also if it's very cleanable...*

*Privacy* was yet another theme that was identified as it was discussed by all participants in the interviews. Participating members spoke of two main areas of privacy in a senior cohousing community: privacy within the homes, and the private back patio spaces on the individual homes. Remarks regarding this theme were geared toward the participating members' senior cohousing community that was under construction at the time of this study. Their group had already discussed the community's terms of privacy outside the homes and all members were to respect one another's privacy when they were on their back patios. Some participant's added that they planned to landscape around their back patios as a way to create a vegetative screen so that it

would seem more private as well. Participant's indicated that privacy in the homes would be easily attainable. These comments reinforce these results:

*The whole concept is that the front porch is not your private space, if you're out there; you're open to the public. And if you're on your back patio, the implied policy is that that's your private space and people know that and don't bother you if you're on your back.*

*I'll be the closest unit to the parking, but I think it will be okay. We have a good landscaping plan, and I'm not going to lay out in a bikini anyway... no need for privacy.*

*The thing that makes it work for me is that I know I can go inside and close my door and I can have all of the privacy I want. And I can go outside on my back area and have all of the privacy I want. That's the balance, I'm not forced to only come and go through my front door. If I don't want to, if I want to go out and take a walk down by the creek, I can go out my back door and nobody knows where I am.*

*I'm not so concerned about that and there will be some kind of border or shrubbery that will kind of block the common house from my backyard. I'll be able to see it from my front porch, but I don't think I'll get the sense that everyone driving in and parking in the guest parking or something like that is going to be invading my privacy.*

The last reoccurring theme that was discussed by all of the interview participants was recognized as *Universal Design*. Though many of the participants were unaware of this professional term, they spoke of features in residential design that are associated with universal design principles. Participants' opinions and perceptions of this topic were geared toward various problematic situations and needs that they had already experienced or believed they would experience in their future. These situations and needs included modifying their current homes, experiencing a personal disabling ailment or watching a friend or family member develop one,

and thinking about their own or other community members' future needs. Participants believed that they would benefit by using particular residential features, such as those of universal design, and would be less likely to suffer from these situations or needs. Participants who had modified their current homes had done so to incorporate a family member's needs and they spoke of the modifications that were easy to accomplish and the modifications that would have been complicated and expensive which they had tried to work around. These remarks express how these participants dealt with modifying their homes:

*I put in double doors so you could get from one room to the bedroom area and I made ramps from the kitchen... so it was easy to modify that, but there were parts of the house that couldn't be modified without major things, so I was very much aware of all of the needs and the kinds of things you have to have and it would not detract from the usual living space.*

*The fact that everything is one level... my father lived in this house for a few months and we had ramps everywhere because of that, because you get to where you trip over something and you can fall at nothing so that feature I think is excellent...*

Participants who had experienced a personal disabling injury or ailment or who had watched a friend or family member go through it spoke of design features that would have been beneficial during that time. They also believed specific design features could be beneficial to everyone in all residences in the occurrence that they ever had to deal with an injury or disability that could affect mobility. Design features mentioned by these participants included grab bars, roll-in showers, and wide doorways. The subsequent statement expressed these beliefs:

*What we call grab bars, we call them balance bars. Those ought to be in everybody's... when I broke my leg... it's not a roll-in shower, it just has a little lip... and my daughter broke her leg in gymnastics when she was little. We had to either have somebody there to*

*help or that would have been very handy for anybody at any age. Those ought to be standard and wider doorways...*

Many of the participants' comments on this topic were aimed at planning for future needs that could be developed later in life by themselves or other community members. Participants mentioned design features that could aid a disabled individual in maneuvering around the home as this was a need many were concerned with regarding aging. Participants also indicated that including such design features in a residence made sense for preparing the home to support oneself as one aged. Participants indicated the following:

*Well I guess given the fact that it's a senior cohousing and that any one of us could possibly end up in that condition, it would be nice to have a place where you didn't have to move. It makes sense.*

*I think the grab bars are already going to be in there and that bothers me a little bit, just because when I was a child I went to a nursing home and it scared me and... I don't know why, but anyways to me it looks a little institutional, so I'm hoping to do something to camouflage in some way until I need it... I mean one of our members broke her ankle and she's confined to a wheelchair for 6 weeks so it's good. I mean that can happen.*

*All the hallways are wide, I think that's wonderful and even if you just have a walker as opposed to a wheelchair you still need more room because typically you're going to have trouble going straight. I can see myself sort of wobbling down the hall a little bit from side to side, so I like that.*

*I think universal design is just smart design. It maximizes your flexibility and how you use the space. Maximizing the opportunity for different persons to be in the space so I can have any kind of company I want to have and the space can be as supportive of them as it is of me.*

The theme recognized as *Care for Nature* was discussed by the majority of the interview participants. This theme was identified as participant's opinions regarding having vistas from the individual residences, having enough outdoor space to enjoy and relax in, and having space for gardening as a hobby. Several of the participants noted that they enjoyed having a nice view of the outdoors from the interior and exterior of their homes and that this was something they might miss from their current residence. Participants also mentioned that having an outdoor space as a getaway in which they could relax and enjoy was an important decision in their choice of home in the senior cohousing community that was being built for their group. These opinions were reiterated in the following comments:

*I want enough space that I can have a comfortable chair and a little end table and some planters and things like that on the back porch.*

*In selecting my home, the vista from the back porch was more importance than the vista from the front porch.*

*Yeah and that's just my solitary nature coming out because I picked a home that has a very nice view on the property where I could sit on the back porch and enjoy the view, read a book, and have some solitary time... invite someone to share it with me if I want to, but you know that was very important to me... the view.*



*I spend a great deal of time looking out these windows and we're going to have very nice windows where we're going and I think we're lucky enough to have chosen a house that has stuff to look at, but that's it. Certainly the yard, seeing the yard, being in the yard will be the major thing that will be a change.*

Having plenty of space outside to continue gardening and housing potted plants was another concern many of the participants voiced regarding care for nature. They wanted space in which they could transfer many of the plants they already had or space that they could plan for new plants to grow in. These participants enjoyed taking care of their plants and gardening as a hobby and a way to spend time outside. Participants made the following remarks:

*I'm hoping I can take this long thing here and put plants all on it and that might be it, other than maybe hanging baskets on the front porch. Things like that, but yeah I'll miss my indoor plants.*

*I plan to use it for warm plants. I enjoy plants and expect to, depending on how the lighting turns out, I think there will be a fair amount of morning sun, so I look forward to the challenge of choosing the plants that'll work there.*

*They showed spots where there would be little if any land but lots of green things, and flowers, and shrubs, and all that so that will be kind of fun. And once that gets established then maybe then I think it's even more tempting to spend time outside on that back patio.*

The theme recognized as *Energy Efficiency* was not one of the leading themes from the interview session as only about half of the participants issued comments relating to this topic. The participants showed concern for conserving energy through the design of the individual homes in the community they were building and through that addressed some affordability issues as well.

Participants shared these comments:

*I really would have preferred a freestanding home because I am into windows and light, well they considered that, but I think the energy efficiency... cause I'm into being as green as possible, and that's the other thing that attracted me to this community.*

*When I started out thinking about cohousing I was seeing little individual cottages in my head, as we worked through the process, energy conservation was one, and affordability was the other factor that caused me to say that's crazy...*

*So as the idea of sharing more of it grew on me, I went from individual house to the idea of well maybe duplexes and then it was built that triplexes would fit better here and then the final outcome was kind of why don't we build 6 buildings just alike and it was an affordability factor. It brought the cost down, and it created more cost savings and energy efficiency so I didn't start out thinking that way... that was a product of community.*

The theme recognized as *Natural Light* was not a very common theme as only a few of the participants discussed this topic in the interviews. Though this theme did not frequently occur, it was still considered relevant to the floor plan design that would come later in this study and the participants who mentioned this topic did so without questioning or prompts in the interviews. The participants who mentioned this topic merely noted to the researcher that they enjoyed natural lighting within their home and would like to have it in their future home as well. The following comment concerned this topic:

*You will notice that we keep our windows open. We don't... mostly don't put the shades down, so openness is fine... now in my bedroom I do like it so that I can make it dark.*

The theme recognized as *Storage* also did not frequently occur within the interviews, but this topic was also deemed relevant to the upcoming floor plan design. Participants who mentioned this topic made a point to bring it up as there was nothing in the interview script

regarding it. Participants spoke briefly of the storage spaces that would be provided within their new community and indicated the following:

*The storage is excellent for the size. Those closets in each of the bedrooms are double depth. In the back are shelves from bottom to ceiling, and then hanging in front so there's a lot of storage there.*

*There is a certain amount of storage space and I think that's where some of the people are going to find it difficult.*

*It's got to be a home and home can't be that everything you own is out in view.*

The last of the 11 themes, *Pet Concerns*, was only mentioned a few times by participants, and so it was not necessarily reoccurring. However, the participants that discussed this topic pointed out that it had been debated in their group of potential members of the senior cohousing community that was under construction. These participants' felt that this topic was important to consider as it concerned their options over what they would do with their pets that enjoyed being outside when it came time to move into the senior cohousing community. The following comment was made regarding this issue:

*If I get a new cat I will have to train him to the leash and decide whether I'll let him go outside, and if so then I will be outside with him because I don't want him to get tangled up in the leash... but we don't want to have any of our pets run free you know...*

The theme recognized as *Housing Concerns* was the first of the two themes that were not considered pertinent to the design of the floor plans, though it was supportive of the literature. In this theme, a few of the participants voiced concerns they had for their own senior cohousing community that was being built and they advised that these matters could be important to look into for a future community. These concerns were grounded in two areas: the number of homes

chosen for the community and the age of members. The participants who were uncomfortable with the amount of homes chosen to be on the property felt this way due to marketing problems and the arrangement of the site plan for their community. Participants mentioned that if there wouldn't have been as many individual homes built on the property, the group might have had an easier time getting the homes sold to other members and they may also have been able to save a few more trees on the grounds. The following statements note their concerns:

*We sold the first ten so quickly, we thought oh we're going to sell them all, and now we're still having to market to sell the rest of them.*

*If we'd had 16 units for instance then we could have spaced them to save more trees and had them virtually all sold by now. So, all of this in retrospect there are other questions that... for a future project I would raise.*

The participant who mentioned the age of the members noted a small concern with their particular senior cohousing community. The participant commented that though the age for the community was 55 and older, their community seemed to be assembling members who were generally quite a few years older than 55 at this period. The participant issued the following comment:

*I think that this community is tending a little bit too much to people who are my age and older, but that's just who has decided to come in. I hope we're going to have more people who are 55 or closer to 55 than I am. It just remains to be seen.*

In the theme that was identified as *Planning for the Future*, all of the interview participants discussed their concerns and opinions regarding this topic. As this theme revolved around preparation for aging, participants discussed their reasons for planning ahead, scenarios that made them want to plan ahead, and a few of their reasons for choosing a senior cohousing community. Many of the participants believed that the time had come for them to decide on a

housing option for their older adulthood as they had been thinking about what might happen if they were to have an accident. Several participants mentioned that their family lived far away, or that they were unsure who would take care of them if something were to happen. Other participants wanted to plan ahead based on unpleasant events that had occurred with their older friends or family members. Participants also mentioned how they believed a senior cohousing community could meet their needs for their upcoming future and the benefits they believed they would gain by moving to one. These remarks expand on these concerns and opinions:

*We realize that although we're perfectly able to take care of our house and our yard now, early looking around and making a decision while we were able to make good connections in another community were important.*

*I can't take care of my yard any longer and a lot of things I can't do or I'd rather be doing something else, and so this seemed a good fit, and I like living here... This community fits my concept of what I want to do in the next stage of my life... I was getting close to needing to make a decision of what to do.*

*I mean she made the decision that we should do this, and yeah... given the experience she had with her parents it just made sense. And also we've got more house than we need, more yard than I want to mess with, and we're gone a third of the year.*

*I don't have any family anywhere nearby. My remaining family is all in Washington State, so living in a cohousing community was very attractive to me... so that I had other people close by in my age group and wouldn't be isolated as an old lady in the neighborhood.*

*It was trouble for me to take care of this house while I was traveling and now when I'm going to a smaller house with a lot of people around I feel safer with a lot of people around. It's more convenient and easy, and mine's going to be very small so I hope that leaves me with few chores to do.*

The first 11 resulting themes that emerged from the individual interviews in the first research session of this study were scrutinized by the researcher and used to develop questions that would be used for the second research session, the focus group. These questions were organized into four areas regarding residential design: spatial functioning, aging in place, lighting, and the home exterior. Spatial functioning was a conjuncture of the themes, Downsizing, Home Arrangement, and Storage. Aging in place consisted of the themes Taking Personal Belongings and Universal Design. Lighting was related to Natural Light and Energy Efficiency, and the home exterior was concerned with Social Engagement, Privacy, Care for Nature, and Pet Concerns. These four areas were chosen to gain further understanding of the participating members' opinions and perceptions of specific design features within residences that would be designed for a senior cohousing community.

### **Focus Group**

Upon analysis of the focus group, 10 key points were identified from the four participating members in this meeting. These points were chosen from the conversation according to the amount of time each subject was discussed between participants and the researcher and on the agreement between all members regarding each subject. The 10 key points were identified as: Great Room Concept; Accessible Storage Space; Private Retreat; Easy Upkeep; Barrier Free Environment; Lighting in the Home; Windows and Wallspace; Front Porch; Patio; and Construction Options. It is important to note that the key point, Front Porch, was concerned with

the front of the individual residences, and the key point, Patio, was used to notate the back of the residences. These key points will be discussed individually within the subsequent paragraphs.

The key point identified as *Great Room Concept* was associated with participants' perceptions and opinions on the design of the public areas within a residence, such as the living room, dining room, and kitchen. Participants made comments over why they thought it was more important that these rooms be open to one another than closed off from one another. Participants agreed that it was pleasant to be able to continue communication with guests or other family members even though they might be in different areas of the home. Participants also mentioned that having one large space was more efficient than having multiple rooms with extra furniture pieces that they didn't use. These remarks were made:

*And I think having the kitchen open to a bigger area is very helpful to not being separated from the entertainment folks. I thought differently when I had a young family, I wanted a kitchen I could close the door on because I thought I'd be lucky to get food on the table for guests or family...*

*In our current situation if you have guests over and you're in the kitchen and the guests are out there you don't communicate, whereas in a great room you will, and that's important.*

*I had three sitting rooms, you know 12 chairs... and I didn't need three places. I mean I sat in one place in the day, and one place in the evening, and one place when I was working, but I don't need that.*

The key point, *Accessible Storage Space* was also identified in the focus group as participants discussed this topic thoroughly. Participants gave varying opinions on what they thought about having storage spaces in a residence and also on the amount they believed they needed or did not need at different times. One participant pointed out that the type of storage

space was important as they grew older and maneuvering around the home became more difficult. Storage space that was accessible even when one could no longer get around very well was the main concern. The participants shared these remarks:

*I don't need nearly as many storage spaces as I used to. I don't want an attic that collects stuff that I then have to sort through and dust off. When I was moving out of my house and into my temporary apartment, I totally forgot the attic and thought I was through. And then I went up there and thought oh my gosh, and it took another day and a half... and most of it went directly to the trash. Why was it up there?*

*I think storage is essential for organization when you have family and you've got all those different ages and different interests and the kids go through this and they grow out of that... well one of the grandkids might need that, I'll keep it. Then when you get through that its why in the world? What you need at the age we are is accessible storage. Not storage in the basement, not storage in the attic, but storage where I can get to the things I need without taking a physical risk of doing something silly like crawl up on a ladder when I shouldn't.*

Privacy was mentioned in the focus group as participants discussed the key point that was identified as *Private Retreat*. Participants agreed that their individual residence would be their safe place to retreat to for personal time in a senior cohousing community. Though they liked the concept of having a welcoming community right outside the front door, a place to be alone at was important to them as well. The following comment supports this opinion:

*I think that my expectation of my new house, the building part, is that it will actually be the private place that I need, and I could argue with myself all day am I an introvert or an extrovert, but I really need my private space... and my home in senior cohousing will be my*



*private space... though I know that after about a day and a half I get kind of morose and I need to get out and be around people... I start to be half empty.*

The key point, *Easy Upkeep* was an important subject among participants as it was an element they were greatly looking forward to that would be associated with their new homes in their senior cohousing community. Participants were looking forward to downsizing to a smaller residence that required less time and energy to keep clean and maintained. Participants' spoke of tasks that they no longer wanted to bother with that had to be done around their homes they were living in at the time. Such tasks involved yard upkeep, pool maintenance, and the continued cleaning of rooms that went unused in their homes. Participants specified the following:

*I think what I want in a house now... is I want a house that I can keep with a minimal amount of time and not a house that keeps me. I had 3000 square feet and if I kept that thing clean like it like it clean it took way too much of my time... constantly, and now I've been in my apartment for... it'll be 2 years by the time I move and I am amazed at the time I have freed up to do cohousing stuff.*

*It does take a little longer to accomplish the tasks that we used to do much more expeditiously probably...*

*It felt totally different to me when my husband was alive and when he wasn't. I mean when you're just doing everything and just doing it because it needs to be done and not because you're building something together... so I translate that over to this community. We'll be doing this to do it, to create something for ourselves. Now that makes a whole bunch of difference to me than just you need to edge this yard because you need to edge the yard... and every year that I did do the yard I could spend a Saturday and do the whole way around the pool, and then I could do three-fourths, and then one-fourth and now I'm just really happy if I have to pick weeds in about this much space.*

All of the participants in the focus group agreed on wanting a residence that would be supportive of their needs, so the key point *Barrier Free Environment* was recognized. Participants expressed their perceptions and opinions on what features they believed were important in a residence that would be beneficial to any individual needing support. They noted that having a barrier free environment in the home was important as participants never wanted to worry about what areas they might not be able to use anymore if they were ever to have an accident or illness that impaired them. Participants also mentioned that features such as higher toilet heights, grab bars, and roll in showers were not only beneficial to them as they aged, but that they would be to all ages. The following remarks were made:

*I guess I'm not looking for a moving sidewalk that takes me along. What I'm concerned about is an environment that doesn't have barriers to keep me from access to anything about my home. I don't want to then well when I fall and break my hip I can no longer get to that, so it's more a removal of barriers than assisting with the activity I think.*

*I think one of the things that's been made more evident to me as we have made barrier free environments and thought about this and researched it, is the fact that, that ought to be incorporated in every home no matter what the age... The height of the toilet, the bars in the shower, you know whenever we stay in a motel room that has all of those things, it's for everyone... and I broke my leg, I needed that in my shower. I had a practically barrier free shower, but there was no stabilizing bar in that shower so it was evident to me that everybody needed those things in their home.*

*A couple things that I have noticed... the ideal of balance bars, I find I put my hand on the bedpost more often, I touch door frames more often and on this last trip one of the motels I thought had an exceptionally low stool... and I noticed that.*

*Lighting in the Home* was another key point the participants in the focus group highly agreed upon and discussed fervently. All participants had a preference for natural lighting within the home and shared their opinions on why it was important. One participant mentioned that natural lighting was greatly needed for aging individuals as people need more light to see as they age. It was also believed that natural lighting does not create as much glare as artificial lighting and that it was another way for senior cohousing members to be environmentally friendly. Though there was a staggering preference for natural light, participants noted that sufficient artificial lighting was needed for evening use and dark, cloudy days. The following statements supported these opinions:

*If I never have to turn a light on in the day my life will just nearly be complete.*

*As we age, and this is scientific fact, we're going to need more light. It doesn't mean it can't be natural, and so if you get all of the natural light you can possibly have... that's the best light. And you don't have the glare issues and all that other that comes with the artificial light. I think artificial light needs to be available in abundance for evening use and dark, cloudy days, but natural light comes first.*

The key point, *Windows and Wallspace*, was only discussed for a brief time during the focus group; however, this topic was thought to be significant to developing the four floor plans later in this study. When participants were asked if they would prefer to have larger windows within a home versus having more wallspace to display their memorable possessions, they responded that they wanted to have both options. One participant made a pointed comment on how their personal senior cohousing community was handling the issue and she believed it was a wonderful solution to the problem. This comment was made:

*One of the things that our architect did in the design was he put the windows in the great room in the two larger units up high enough that it's way above any display space that*

*you would want to use and furniture arrangement, so you've got a whole wall in the great room that you could just do magnificent things in the great room with display.*

While discussing what participants wanted for the exterior spaces of their home, the key point *Front Porch* was established as all participants spoke of the many uses they envisioned for the space in their future senior cohousing community. Participants voiced their own ideas they had for their front porches, but they also mentioned other members' ideas as well. Uses for the space included a wide variety of things such as visiting spontaneously with neighbors, having an extra space to enjoy meals, housing potted plants, and creating an extension of the home for storage or covered parking for bikes or scooters. Participants indicated the following:

*Lots of perching and talking... just able to spontaneously be with people.*

*We have these wrap-around porches and they are huge, they are really large. I was thinking about having shelving for plants and things like that.*

*With her respiratory problem I can just see her on her little scooter coming down that walkway, wheeling up on that porch, and parking her scooter. It's a covered parking place for the scooter; it can be outside, available for her whenever she's ready to go. She'll whip down off of there and beat me to the common house.*

*She changes shoes at the door, so her garage, where she is now, has a shelf on it and all of her shoes are in the garage. So she's going to put a little cabinet out on the porch and it will be her shoe cabinet with a door on it. I think porches are going to be a very natural, unforced, collecting and visiting place.*

*We used to like to eat breakfast and dinner outside our patio and it's been inconvenient enough and weather-wise not very good that we haven't done that very often, but I can see having a little table on both front and back porches to do that.*

After discussing perceived uses for the front porch of the individual homes, participants also commented on what they were looking for from the back of their house space and the key point *Patio* was recognized. This topic dealt with further ideas participants had for the exterior of their homes. These ideas generally concerned having an area for pets to be kept outside and needing an outdoor space to which members could retreat to and relax. It was important to some participants to have an outside area to keep pets that would be moving with them to the community. They noted that the space would need to be able to contain the pets as they did not want them traveling freely through the community, and that this could be accomplished by having a screened-in area on the patio that could serve dual purposes for them. The following remarks were made:

*Once I see a design of the screened in back porch, it could be a place where we can take our cat that wants to be outside all of the time.*

*Several of the members have expressed an interest in having a screened back space... mosquitos... we've also thought about doing some screening on the common house.*

*I moved from my house to an apartment and I absolutely did not realize how just intensely important outdoor space was to me. You know it's a lovely apartment, pool, golf course, but I'm downstairs and I have a chair on my little cement... underneath the metal stairs... it's disgusting.... Crickets everywhere and hoards of ants... but it's so important for me to have outside so that's front and back and I just cannot wait to have it.*

The last key point recognized in the focus group, *Construction Options*, was only discussed briefly and dealt with the specific subject of having the option for built-ins within a new residence. The term *built-ins* referred to any types of built in cabinetry or shelving that were an attached part of the home. While this topic was very specific, the researcher decided that it was

important to consider in the development of the four floor plans as participants all had strong opinions on the matter. They issued these comments:

*I always think that... at one point in my life, built-ins were wonderful. I didn't have to go out and get another piece of furniture and, our house presently has bureaus in two of the bedrooms, but now... it cuts down on your flexibility. We're in small spaces so we don't have that much space to put our furniture so it's a tossup in my mind.*

*I think in the house that I had, we had built-ins in one room but we added that room and designed the built-ins the way we wanted them. It's that fine line between somebody deciding that I want my whatever over here and I'm always going to want it over here and me deciding where I want it, so I like to have a little bit more control.*

*That's such a personal thing, and I think that if I were going to put them in my house they'd probably be fine there forever because once I get my furniture like I really like it, I don't feel the need to change it around. I have friends who if they don't get to change the arrangement in their living room, they're very upset. So it's just very personal.*

These 10 key points that were identified in the focus group gave the researcher further knowledge of what participants wanted in these four areas of residential design: spatial functioning, aging in place, lighting, and the home exterior. The results from the focus group were used to reinforce what the researcher had gained from participants in the individual interviews and aid in the development of the four individual floor plans. The results of the interviews and focus group overlapped in many areas though they also had very specific findings. In order to be used together to guide the design of the floor plans along with the seven principles of universal design, it was decided that the results of both sessions be merged before compared to the principles. Where reoccurring themes from the interviews and key points from the focus group overlapped, *topics* were combined to represent them. The themes and key points that were

specific to their correlated session were then added to this merged list of topics. The 12 topics that were decided for the merged list were: Social Engagement/ Community Relationships; Downsizing; Universal Design/ Barrier Free Environment; Wallspace for Memorable Possessions; Private Retreat and Outdoor Space; Windows to View Outside; Preference for Natural Light; Accessible Storage; Energy Efficiency; Screened Area for Pets; and Construction Options. The merged themes and key points were ranked in the matrix in order of the topics most commonly referenced by participants. The list of topics can be seen in the matrix alongside the seven principles of universal design in Figure 2. This matrix allowed the found themes and key points to be visually represented against the principles of universal design so that it could be noted what components of aging and design were correlated, integrated, or not applicable to one another. Components that were considered correlated between the merged topics and universal design principles were considered to already associate with one another in the built environment. An example of this would be that the topic Universal Design/ Barrier Free Environment would be correlated with all of the universal design principles as they had the same agenda. Components that considered the merged topics and design principles to be integrated would need to have a specific design solution created to ensure that both the topic and the design principle were incorporated in the design of the floor plans. One example of an integrated component solution was that the floor plans would be smaller in size to incorporate the Downsizing topic, but the arrangement of the floor plans would need to be flexible to a resident to utilize the principle Flexible in use. These three components are represented in the matrix key. Once the matrix was completed and the components were decided for each cross-referenced point, it was then used to guide the design process of the four individual floor plans developed for this study.

Matrix of Merged Topics with the Seven Principles of Universal Design							
Key:							
	○ Correlated						
● Integrated							
● Not Applicable							
Merged Topics	① Equitable Use	② Flexible in Use	③ Simple & Intuitive Use	④ Perceptible Information	⑤ Tolerance for Error	⑥ Low Physical Effort	⑦ Size & Space for Approach & Use
① Social Engagement/ Community Relationships	●	●	●	●	●	●	●
② Downsizing	●	●	●	●	○	○	●
③ Universal Design/ Barrier Free Environment	○	○	○	○	○	○	○
④ Wallspace for Memorable Possessions	●	●	●	●	●	●	●
⑤ Private Retreat & Outdoor Space	●	●	●	●	●	●	●
⑥ Windows to View Outside	●	●	●	●	●	●	●
⑦ Preference for Natural Light	●	●	●	●	●	●	●
⑧ Front Porch as Extension of the Home	●	●	●	●	●	●	●
⑨ Accessible Storage	○	○	●	●	○	○	○
⑩ Energy Efficiency	●	●	●	●	●	●	●
⑪ Screened Area for Pets	●	●	●	●	●	●	●
⑫ Construction Options	●	●	●	●	●	●	●

Figure 2. Matrix of Merged Topics with the Seven Principles of Universal Design.

**Floor Plan Design**

To begin the design process of the four individual floor plans, the matrix was studied to cultivate ideas for various designs that could provide solutions for all of the crossreferenced points that were marked as integrated. Crossreferenced points that were marked correlated were done so as the merged theme and key point and the corresponding universal design principle were determined to already coincide with each other. All crossreferenced points that were considered not applicable were thrown out and not used in the design process. A few examples of design solutions chosen for integrated components included:

- 1.Social Engagement/ Community Relationships and Flexible in Use- creating a front porch that



was large enough to incorporate visiting and extra space that may be used by the resident for keeping potted plants or whatever purpose they saw fit.

2. Energy Efficiency and Low Physical Effort- providing skylights and solar tubes within the individual homes would be an easy way for residents to save on lighting costs.

3. Wallspace for Memorable Possessions and Flexible in Use- Incorporating multiple large areas on walls on which residents could display their possessions in a variety of ways.

Many of the crossreferenced points with integrated components shared design solutions as the crossreferenced points sometimes shared similar needs. Two examples of crossreferenced points with correlated components included:

1. Universal Design/ Barrier Free Environment and Equitable Use- the built in features of the floor plans would be easy to use by any individual no matter their abilities. Some features incorporated were using easy-to-turn lever door handles instead door knobs, making all doorways 36 inches wide, and keeping the entire floor plan all one level.

2. Accessible Storage and Low Physical Effort- designing closets and cabinets that were easy to reach into no matter the ability of the resident.

By studying the matrix and the individual crossreferenced points and developing ideas for design solutions to all of the correlated and integrated components, the design process was started and the development of the floor plans began.

In the first stages of developing the floor plans, the researcher decided on an approximate square footage for each of the four plans. According to Durrett (2009), the average square footage of individual senior cohousing residences generally averaged 800 or 900 square feet; therefore the square footage of the developed floor plans was based around these numbers. Rooms and spaces each of the four plans would contain were also decided at this point. The two smaller floor plans, later recognized as Plan A and Plan B were selected to have only one bedroom while the two larger floor plans, Plan C and Plan D were selected to have two. Upon deciding approximate

square footage and the rooms that would be incorporated, the researcher created multiple bubble diagrams for each of the four floor plans. A *bubble diagram* contains circles that represent all the main rooms that will be used in a floor plan in roughly estimated sizes. By creating these bubble diagrams, the researcher was able to visualize a satisfactory arrangement for each plan that could work with the generated design solutions from the matrix. The four bubble diagrams that were chosen to develop into the four final floor plan designs are shown in Figure 3.

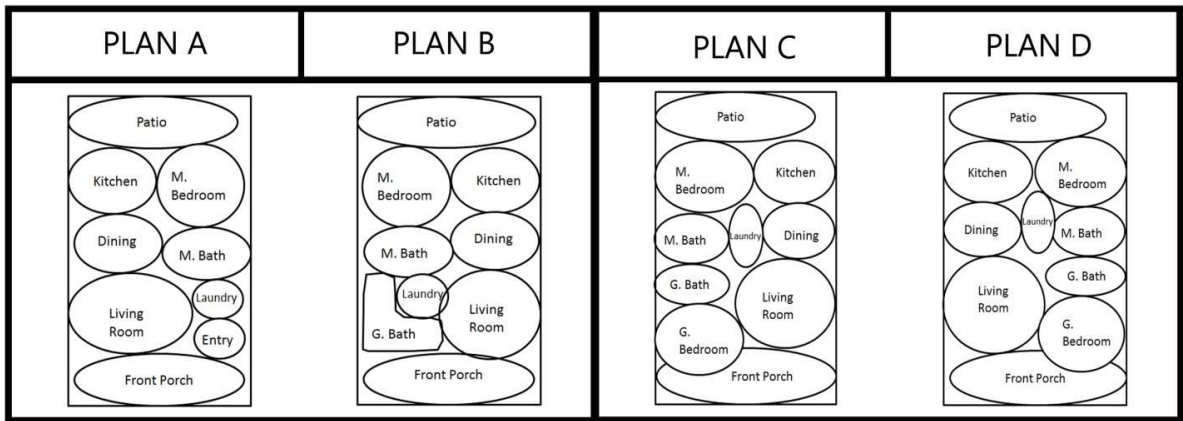


Figure 3. Bubble Diagrams that are the Closest Representation of the Four Individual Finalized Floor Plan Designs.

From the rough arrangement of the circles, these bubble diagrams were developed further to where the circles representing the rooms were formed into shapes that closely represented the size and shapes of the finalized rooms. At the same time, it was decided where extra storage spaces would be located within the arrangement. As each floor plan began to take shape, spaces were designed and redesigned to best suit the needs for the space while incorporating the design solutions from the matrix. In Figure 4, the four finalized floor plans are shown.

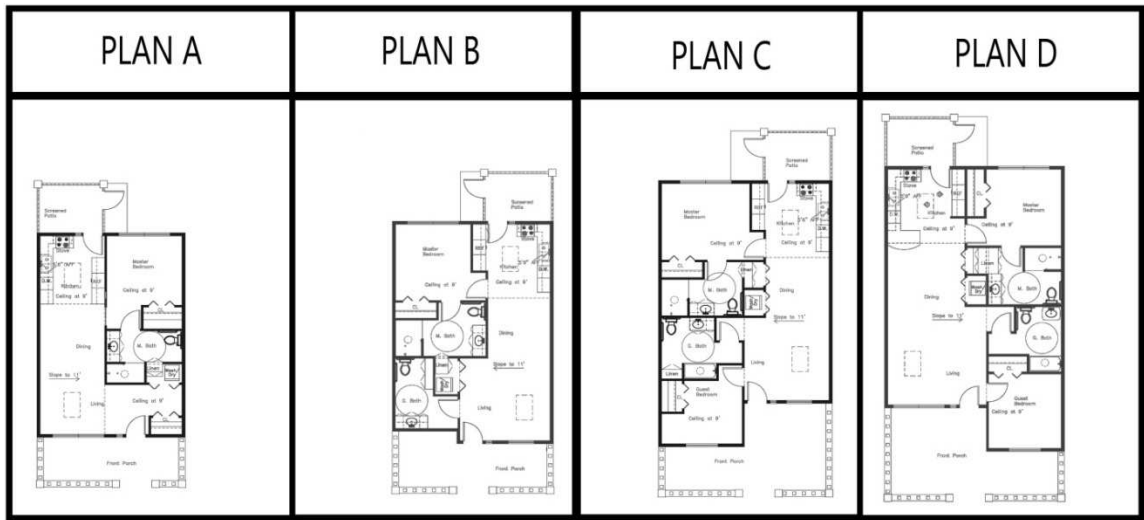


Figure 4. Final Floor Plan Designs of the Four Individual Floor Plans. These floor plans were used in the post-evaluation presentation.

As the four plans were finalized, they became identified as Plan A, Plan B, Plan C, and Plan D ranging in size from 760 to 1,800 square foot with A being the smallest and D being the largest. As can be seen, the four plans have similar arrangements in the large living space containing the kitchen, dining room, and living room, but they each have individual designs in the private spaces such as the bedrooms and bathrooms. The change in each floor plan would allow residents to choose from four individual plans for their own specific needs in a residence. It is important to note that these four floor plans are not meant to serve future senior cohousing communities as plans that need no changes before they are built. Each of these plans is a guideline for future senior cohousing members to look over and discuss as a group if they decide they are interested in following universal design guidelines in their residences during the participatory process and deliberate neighborhood design components of creating their community. These four individual plans were used in the final research session of this study, the questionnaire. Along with each of floor plans, four rendered furniture plans (Figure 5), two elevations of the kitchen (Figure 6), and four perspectives of areas within the plans (Figure 7) were shown to participants. The four perspectives included Plan C's master bedroom, Plan D's

master bath, a full view of Plan D's great room including the living room, dining room, and kitchen, and Plan C's front porch. The rendered furniture plans, elevations, and perspectives were used to help participants visualize what the floor plans would look like as a finished building. After the presentation of the floor plans and rendered drawings participants were given the post-evaluation questionnaires to fill out.

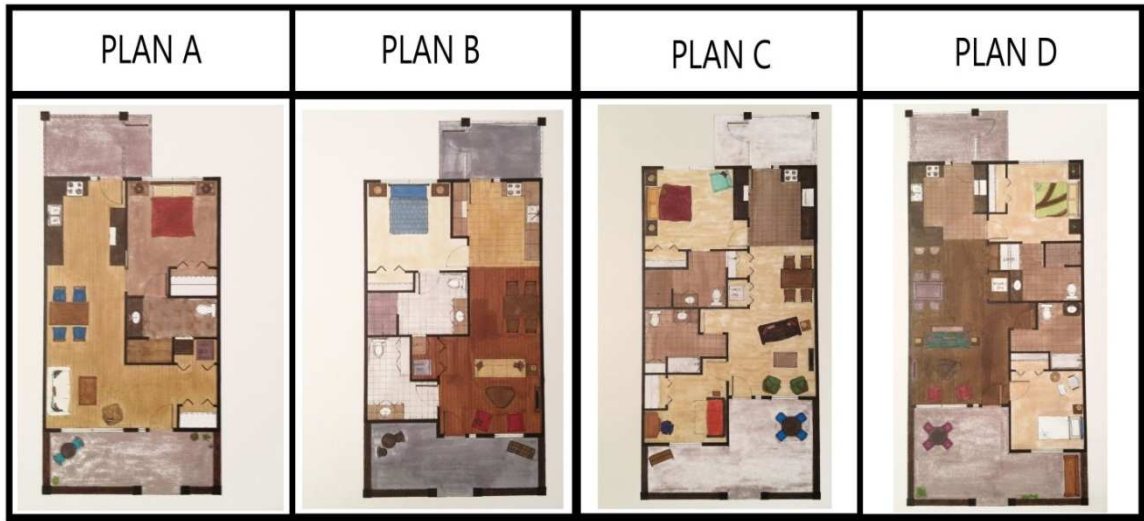


Figure 5. Rendered Floor Plan Drawings Used in the Post-Evaluation Presentation.



Figure 6. Kitchen Elevation Drawings Used in the Post-Evaluation Presentation.



Figure 7. Perspective Drawings Used in the Post-Evaluation Presentation.

## Questionnaire

The post-evaluation questionnaire was comprised of 15 questions that would determine the observed successes and deficiencies of the floor plan designs in promoting place attachment and perceived autonomy. These would be determined through the participating members' answers in the questionnaires. Question numbers two, three, four, nine, ten, eleven, twelve, and thirteen were used to gather participant's perceptions and opinions concerning place attachment to the plans. Question numbers one, five, six,

seven, eight, twelve, fourteen, and fifteen were used to gather participant's perceptions and opinions concerning their perceived autonomy within the floor plans. Again, the floor plans' observed successes and deficiencies were based on participants' perceived connectedness to at least one of the residences, creating relationships with other members within the community, and whether they would feel more autonomous within that residence. To determine the results of the post-evaluation questionnaires, the answers from the five participating members to each of the 15 questions were compared and contrasted.

Question one regarded participants' opinions on whether or not they believed the floor plans would provide a supportive home in which to age independently. All of the participants were in agreement to this question and answered that they believed the floor plans would provide such a home. Participants indicated the following:

*All aspects of aging have been taken into consideration.*

*Universal design makes it possible to "age-in-place".*

*If they are designed on the site to promote interaction... not if they stand alone or have garages.*

The second question dealt with how the design of the front porches would affect resident relations among those living in these proposed homes. Participants noted that because the porches were a large size, they would therefore feel inviting to neighbors and provide a nice place for visiting and socializing with other members. The following remarks were made:

*Space for casual conversation... Easy to make contact if sitting where people pass by.*

*Good porches and are nice size and feel like a real part of the living space.*

*They look attractive with enough space for socializing.*

The third question contained two parts. The first part had participants rank how attached they perceived they would feel, supposing they ever chose to live in one, to each of the four floor plans on a scale of 1-10 with one being not attached and ten being very attached. The second part of the question asked if they preferred one floor plan over another and if they did to explain their response. In the first part, participants showed widely varying opinions on which of the four floor plans they believed they could and could not feel attached. Plan A was ranked by four participants as a 4, 8, 5, and 9, averaging a 6.5 on the scale. Plan B was ranked by four participants as a 5, 2, 4, and 5, averaging a 4. Plan C was marked as the preferred plan by one participant, and was ranked by the other four participants as a 7, 5, 9, and 9, averaging a 7.5. Plan D was ranked by four participants as a 8, 5, 9, and 8, averaging a 7.5. Over all, Plan B was the least favorite among participants and Plans C and D were equally ranked. Each of the participants' rankings varied due to their preference of a particular floor plan which was discussed in the second part of the question. Participant's preferences ranged mostly according to their opinions on needing an extra bedroom or an extra bathroom. Some stated that having just a small lavatory might be better than having a full second bathroom if they chose to have another bath at all. The following statements were documented:

*I prefer 2 bedrooms, but would not want to have two full bathrooms- perhaps a lavatory, but I prefer having that space to live, not use just occasionally.*

*Plan A because I don't see the need for 2 bathrooms. The second bathroom seems to chop up the space into odd corners.*

*Didn't care for the second large bathroom in B- space could be better used as a small study etc.*

In question four, participants were asked if they felt the floor plans offered a comfortable and secure living environment. All of the participants responded in the post-evaluation questionnaires that yes they believed the floor plans did provide such an environment. Some of the participants further explained why they felt this way and issued the following comments:

*All one level.*

*Adequate space for day to day living.*

*Again, the needs of seniors have been taken into consideration in the design.*

Question five inquired how well participants thought an older individual could move around in the floor plans even if that individual developed a disability in later life. Participants all stated that they felt the floor plans would be easy to maneuver around in no matter the physical abilities of the person. Two of the participants noted that the entrances to the bathrooms in Plans C and D had sharp turns that could be an area that would be hard to get around in. Participants made the following comments on this question:



*Ample consideration has been given to ADA requirements in a creative way.*

*People should be able to meet daily needs even with gradually diminishing skills of a physical nature.*

*Seems like lots of thought has gone into accessibility- I think they would be easy to get in and around- except going around into the master bathrooms in C and D.*

In question six, participants were asked if they thought the floor plans would offer an older individual with mobility constraints (such as using a wheelchair or walker) a barrier free and easily accessed environment. All participants stated that they thought the floor plans would provide for such an environment, and two of them offered their opinions on the matter. They issued the following remarks:

*Yes, but A seems like it would be easier.*

*Yes, though there could be a few adjustments to create fewer turns.*

Question seven concerned maintenance and cleaning the proposed floor plans and participants were asked how much work they believed would be required for the up keep of the homes. Participants could circle one of the following: a lot of work; some work, about what you spend now; some work, but less than you spend now; and not very much work. The majority of the participants stated that the floor plans would require some work, but less than the amount of time they spent on up keep in their current homes. Two participants made extra comments on this question to support their answers. They indicated the following:

*A lot depends on the materials used in construction. The openness of the plan should make them easy to maintain.*

*Depends on floor materials... probably because it's smaller.(referring to some work, but less than currently working)*

Question eight presented participants with a list of universal design qualities that had been incorporated within the floor plans and participants were asked which qualities they believed would benefit the lifestyle of an aging resident. The list of universal design qualities included: using levers on doors instead of knobs; providing knee space under sinks; building grab bars into the design; roll-in showers with no lip; all doorways are 36inches; five foot diameter for turnaround in bathroom; floor plan all one level; pocket doors utilized; nine inch toe kick on cabinets; and outlets moved up to 18inches. From the given list, the majority of participants agreed that all of the qualities could provide benefits to an aging resident. Universal design qualities that were not checked by every participant included: providing knee space under sinks; nine inch toe kick on cabinets; five foot diameter for turnaround in bathroom, and outlets moved up to 18inches. Notations were also made that future members might prefer to have the five foot turnaround in only one bathroom if the residence had two and that pocket doors could be difficult to open for arthritic hands.

Question nine dealt with whether or not participants felt as though the homes would be easy to personalize and provide enough space for their memorable possessions. Four of the participants believed that the floor plans could accommodate their needs and

one participant replied with a 'maybe'. The participants made comments to support their opinions and some of them included the following:

*Good deal of wall space permits keeping of family photos on display which is important for the elderly.*

*Maybe, some walls in B, C, and D would be awkward to use.*

*There are enough blank walls in all rooms.*

*Absolutely- don't want too much room to encourage too much "stuff".*

Question ten concerned participants opinions regarding their views from the windows and porches from these homes would affect the resident's community involvement. All of the participants offered comments that greatly differed in sharing their perceptions on this topic. These comments included being able to see neighbors was important and the large windows in the public sides of the floor plans would allow residents to look out from their homes. Participants made these remarks:

*The large windows on the public side are an asset.*

*Seeing neighbors is huge- critical. Hopefully seeing encourages people to come out of their homes. That is something outside the design of the home that is important.*

*The porches would provide a lot of involvement. There are big windows from the living rooms.*

In question eleven, participants were asked to rank the appearance of the individual plans on a scale of 1-10 with one looking the most institutional and ten looking the most residential. Plan A was ranked by participants as a 1, 7, 3, 7, and 8, averaging a 5.2 on the scale. Plan B was ranked as a 10, 9, 2, 7, and 6, averaging 6.8. Plan C was ranked by participants as a 10, 10, 9, 9, and 7, averaging a 9. Plan D was ranked as a 10, 10, 9, 10, and 6, averaging a 9 as well. According to the individual participant's rankings, it appeared that each participant had different preferences, proving that the floor plans met each of the participant's needs at some level. In addition, when the rankings were averaged it was observed that as the size and spaces included in the floor plan grew larger, the floor plan appeared more residential to participants.

Question twelve also contained another 10 point scale asking participants how willing they would be to move into one of the floor plans. One was ranked as not willing and ten was ranked as extremely willing. Plan A was ranked by participants as a 6, 8, 5, 1, and 8, averaging a 5.6. Plan B had rankings that included a 4, 5, 4, 8, and 10, averaging a 6.2. Plan C was ranked by participants as a 10, 4, 10, 9, and 10, averaging an 8.6. Plan D's rankings included a 10, 3, 10, 10, and 10, with an average of 8.6 as well. According to the overall rankings, the participants in the post-evaluation appeared to be more willing to move into the two larger floor plans than into Plans A and B. In the individual rankings however, it can be noted that at least one of the participants would have preferred to live in one of the smaller floor plans comparatively. The willingness of the participants to move into the different sizes of floor plans may have been merely based on what their plans were for living in their future residence.

In question thirteen, a 10 point scale was used to have participants rank how likely they believed they could adapt to living in one or more of the individual floor plans with one being not at all and ten being extremely well. Participants ranked Plan A as a 1, 10, 9, 6, and 9, averaging a 7 on the scale. Plan B was ranked as a 1, 10, 5, 4, and 10, with an average of 6. Plan C's rankings included a 10, 10, 5, 10, and 10, averaging a 9. Plan D was ranked by participants as a 10, 10, 5, 10, and 10, also averaging a 9. Overall, participants appeared to prefer the two larger plans out of the four and they liked Plan B the least. In this question one of the participants ranked Plan A the highest and two others ranked it as equal or near equal to the other plans. This can be assumed to mean that for adaptability, these participants believed that they would either prefer this residence over the other three or that they would be able to adapt to Plan A as well as they could adapt to Plans C and D.

In question fourteen, participants were asked if they believed they would have an easier time living in one of the four floor plans as they aged compared to living in their current residences. The majority of the participants responded that these floor plans would be easier to live in than their current residences and offered various statements supporting their reasoning. A reason offered by the participants included the floor plans having built-in mobility arrangements while their current homes did not. Other reasons participants believed living in the floor plans would be easier concerned being able to easily socialize in a senior cohousing community and having an outdoor space of their own. The remaining participant responded with 'probably', explaining that except for three steps included in the current residence, the house would present no problems for aging. Participants responded with the following comments:

*Definitely- current home has open, easy to move spaces, but bathrooms not ADA and doors would not be wide enough for a wheelchair.*

*Yes, I am currently living in an upstairs apartment with no consideration of universal design!*

*Yes- current residence (apartment) does not have the good light and especially does not have access to outside space i.e. front and back porch.*

Question fifteen inquired how participants felt accomplishing everyday activities in these floor plans such as doing laundry, cooking, and cleaning the house would compare to doing those activities in their current homes. Responses from participants varied according to the current house they were living in and the expectations they had about cleaning that home and cleaning one of the four proposed floor plans. The majority of participants stated that these floor plans would be very easy to accomplish everyday activities because of their open design and smaller square footage. One participant noted that the kitchen in the floor plans would need to have more shelf space in cabinetry. The following comments expressed these opinions:

*Laundry idea is great- cleaning house is always a challenge, but this very open space will be easy to work around with vacuum and/or mop.*

*My current residence is very easy to live in and so I have that expectation and these homes would live up to that expectation.*

*In my old house- I would have (could have) spent way more time to do cleaning etc. ...In my apartment (950sq.ft.) I find myself very liberated from cleaning etc.*

*...Takes about 15 minutes to vacuum, dust, do floors, not bad and similar to what I would expect in these plans.*

According to the responses of the post-evaluation questionnaires, the participant's observed success of the floor plans supported that the four individual floor plans would meet the design objectives of this study: promoting place attachment and perceived autonomy. The fifteen questions in the questionnaire were split evenly to be directed toward determining the perceived agreeability of both place attachment and perceived autonomy. Question numbers two, three, four, nine, ten, eleven, twelve, and thirteen were used to gather participant's perceptions and opinions concerning place attachment to the plans. Question numbers one, five, six, seven, eight, twelve, fourteen, and fifteen were used to gather participant's perceptions and opinions concerning their perceived autonomy within the floor plans. Participant's responses to these questions showed that they believed these floor plans would provide a comfortable, residential environment in a senior cohousing community. They believed that they could easily age in place, keep up with housing maintenance and daily activities, and be surrounded with supportive neighbors throughout the rest of their lives.

The collected responses from the post-evaluation questionnaire provided evidence that these four floor plans could work for future senior cohousing communities whose members may opt for universally designed residences. The manner in which participants answered questions regarding these four floor plans in this study also reflects on how these floor plans would be used only to guide future residence designs for senior cohousing communities. Participants who observed the floor plan designs noted in their responses many of the design features they liked and those they did not. When

participants noted that they did not prefer a particular area in the floor plans, they often made comments offering their own solutions or ideas that could be changed within the plans. For instance, Plan B was the least preferred plan among all participants and their reasoning behind this was their dislike of the extra bathroom. The participants all agreed that the guest bathroom was too large and that it took up too much square footage due to the universal design guidelines requiring a five foot diameter area for wheelchairs to turn around. Some of the participants noted that they would prefer to only have one bathroom in their residence that met universal design standards while other participants did not see the need for an extra bathroom would have preferred the space for another use. Another issue the participants noted with some of the floor plans was also associated with bathrooms. They mentioned that some of the plans had turns that they believed would present a problem when they were trying to enter a bathroom and they merely suggested removing a wall that had been constructed for their privacy. Examples of the participants' reactions to spaces in the floor plans that they liked revolved around the open floor plan design in the living spaces and the built-in laundry cabinet that was open and adjoined with all master bathrooms. Participants gave various reasons, such as ease of maintenance and communication, for preferring the open floor plan of the living, dining, and kitchen areas. Participants liked the built-in laundry cabinet as it was designed as a convenience element that would eliminate the need for them to carry heavy laundry baskets across the home.

Reactions from these participants were thought to represent how future senior cohousing community members could use these plans as guidelines to develop their own individual homes. This would be decided by future potential members during their



participatory process and deliberate neighborhood design phases in the development of their own senior cohousing community. In the concluding section, these results are discussed alongside the four literature topics reviewed in this study to examine how they support, refute, or fill gaps in the existing literature on this subject.

## CHAPTER V

### DISCUSSION

In order to discuss the four literature topics reviewed for this study in a comprehensive manner, they will be discussed in their corresponding order in this study's literature review: Aging in Place, Senior Cohousing, Place Attachment, and Autonomy and Older Adults. Within each topic the results from the first two research sessions, the individual interviews and the focus group, are examined alongside the published literature as they relate. Results from the post-evaluation questionnaires will then be discussed in conjunction with the reviewed literature in a final summation of this study. Limitations of this study and future implications for research will conclude this manuscript.

#### **Aging in Place**

Cohen (2005) and Peck (2008) both discussed provisions for aging in place that were integral to how a senior cohousing community operates: providing residents with a neighborhood of individual homes and a shared common house that could aid in the development of community. Two of the emerging themes from the interview sessions in this research study were considered to be supportive of these findings. The themes, *Home Arrangement* and *Social Engagement*, were relevant to these findings as participants discussed how arranging the individual homes in close proximity to face one another could greatly influence their socializing in the community. Older adults who decide to plan ahead for their future living arrangements

were also believed to be able to age more successfully in their homes as they were likely to not worry as much as individuals who had not planned (Durrett, 2009; Abraham-Paiss, 2005). Lawton (1977) and Oswald et al. (2010) noted that older adults who moved into a smaller residence may prefer the size to that of a larger residence as having less square footage would require less maintenance from them. The theme, *Planning for the Future*, supported these conclusions as participants' comments in the interviews explained the reasons they were choosing to move from their current homes and starting to plan early for their later years. Many participants' reasons included wanting to take care of their future instead of leaving it for their children to deal with, and others had witnessed friends or family members become isolated and dealt with an accident or disability alone. A key point from the focus group, *Easy Upkeep*, was also believed to support these beliefs as participants often mentioned that they were looking forward to moving into a smaller space that would require less of their time for maintenance and cleaning.

Oswald et al. (2010) noted that for older adults to be successful at aging in place in a new residence, they would need to develop an attachment to that residence and continue to feel independent. The themes *Social Engagement* and *Universal Design* were believed to reassert this inference as participants believed that staying socially active in a community was crucial for their health as was living in an environment that was supportive of their physical needs. The key point, *Barrier Free Environment*, was also considered relevant as it was noted that the environment participants wished to live in not only needed to support them, but should never interfere with their activities. The buildings and homes in senior cohousing communities are generally designed to meet these criteria as accessibility is largely important for the healthy aging of older adults (Peck, 2008; Oswald et al., 2007). The theme, *Universal Design*, was also regarded to support these findings as well as the key point, *Barrier Free Environment*, as they both concerned creating supportive environments that would be easy to use by individuals with varying abilities.

Another key point, *Accessible Storage Space*, was relevant to this belief as it was important to participants to be able to fully use their homes in the years to come no matter their physical abilities.

Durrett (2009) remarked that older adults who relocated to a new housing option would never feel fully satisfied in their later life unless they developed an attachment to their new home and community and were able to plan for their future concerns. Four of the themes that emerged from the interviews sustained this idea and they included: *Social Engagement*, *Taking Personal Belongings*, *Privacy*, and *Planning for the Future*. These themes were supportive as participants' believed that living in a community would keep them socially active and provide them with a home in which they could personalize and retreat to. They believed that choosing to move into a senior cohousing community while they were still able to take care of themselves would be beneficial to their health and independence in their later years. Senior cohousing communities can provide older adults benefits that improve their independence such as providing them with a supportive community in which they can remain as active as they choose as they age (Peace et al., 2011). The themes, *Home Arrangement*, *Social Engagement*, and *Privacy* were all believed to back this finding as well. Participants noted that when individual homes in senior cohousing communities are oriented in the correct ways it encourages residents to actively engage one another while still providing them their own private spaces. The key point, *Private Retreat*, reinforced participants' beliefs that having individual homes was greatly significant in senior cohousing communities.

### **Senior Cohousing**

Senior cohousing community residents not only have easy access to other community members for social engagement, but are encouraged to be social by the planned activities, maintenance, and design of the community itself, decreasing the likelihood that they ever feel

lonely (Durrett, 2009; Bronstein et al., 2009). Two themes that emerged from the interviews, *Social Engagement* and *Care for Nature*, were supportive of these findings as was the key point, *Front Porch*. Participants commented on how the community is designed to create planned and unplanned social gatherings, increasing members' community interaction. Some participants also mentioned that they enjoyed gardening and were planning on keeping potted plants on their front porches in the community. This kind of hobby could draw even introverted individuals out of their homes to be engaged by others and invited to other activities.

Peace et al. (2011) remarked that having a private and personalized space were factors in having a high quality life in older adulthood and so the individual home environments needed to adjust to various stages of support for an aging resident. The themes *Privacy* and *Universal Design* were observed to reinforce this idea as participants explained their needs for a private home in which they could be alone and still feel autonomous by having supportive design features. Three key points were also thought relevant to this literature and they included: *Accessible Storage Space*, *Private Retreat*, and *Barrier Free Environment*. These key points also reasserted that having a private space was significant, though the space must continue meeting the needs of the older adult resident and allow the individual to live independently.

Affordability is often a concern for older adults when they begin looking into alternative housing options or feel the need to modify their existing home to provide for physical disabilities (Glass, 2009; Peace et al., 2011). The theme that emerged from the interviews that dealt with cost concerns was indicated as *Energy Efficiency*. Though concerns over affording alternative housing for older adults were not voiced more than a few times by participants, some participants' spoke openly of how the senior cohousing community they were part of was utilizing methods for energy efficiency to help them cut down on building and utility costs within the individual homes.

## Place Attachment

According to Sugihara and Evans (2000), Shenk et al. (2004) and Oswald et al. (2010), individuals develop place attachment through emotional ties that have been influenced by feelings of comfort, familiarity, and security. Individuals have also been known to form attachment to their homes or possessions as they view them as a form of self-identity or a reminder of a role they played in their life (Shenk et al., 2004). Some studies have shown that attachment to possessions may be connected with memories or experiences that are linked to those possessions (Lewicka, 2009; Sugihara & Evans, 2000). Participants in this study remarked that they were currently downsizing their possessions and that it was an emotional process to choose what memorable belongings they would take with them and which belongings they would leave behind. Participants also mentioned that having adequate display space in their new homes was important to them so that they could display the possessions they chose to take with them and personalize their new homes. Due to this reasoning, the themes, *Taking Personal Belongings* and *Downsizing*, were considered supportive of this literature as was the key point, *Windows and Wallspace*.

The formation of place attachment has also been strongly correlated with social contact among neighbors where relationships were established and homes were believed to be satisfactory to residents (Lewicka, 2009; Hildalgo & Hernandez, 2001; Sugihara & Evans, 2000). Sugihara and Evans (2000) found that frequently occurring, unplanned socializing increased place attachment and could affect physical and mental health, encouraging a resident's transition into a new home. The themes *Social Engagement* and *Home Arrangement* were found to be valid to this literature. Participants believed that socializing in the community was extremely important to their health and participation in community activities. They also noted that the arrangement of the individual residences could increase the amount of socializing that occurred. Participants stated that having a large front porch that had room for them to lounge and use for hobbies was likely to

encourage interaction among residents as well. Some participants noted that by having a great room design in the interior of the home, communication with guests would be easier while entertaining. These results recognized that the key points, *Front Porch* and *Great Room Concept*, were additionally relative to the literature.

Other positive predictors of place attachment have been found to include personalizing the home, using the natural environment, maintaining the appearance of the community, and establishing neighborhood relationships (Lewicka, 2009; Peace et al., 2011). These findings were associated with three of the themes that emerged from the interviews: *Social Engagement*, *Home Arrangement*, and *Care for Nature*. The key point, *Front Porch*, was considered related to this literature as well. As mentioned earlier, participants believed communication among residents to be significant and encouraged by the design of the community site plan. They noted that using the front porch for visiting, relaxing, and hobbies such as keeping potted plants were easy ways to establish informal communication.

Oswald et al. (2010) discussed how attachment to a place could be established by using smaller individual homes which could reduce the burden of maintenance for older adults while allowing them to effortlessly maneuver around. The themes that were considered to be linked with these beliefs were *Downsizing* and *Universal Design*. Participants explained that downsizing was important for them to do before moving into their new homes and that it often felt relieving to be rid of their excess belongings they no longer needed. They also remarked that they wanted their new homes to be supportive of their needs as they aged and easy to maintain. Therefore, the key points, *Accessible Storage Space*, *Easy Upkeep*, and *Barrier Free Environment* were additionally regarded to support this literature. Participants believed that a supportive home would provide them with easy access to everything they would need for their daily activities no matter their physical abilities. They also mentioned that they were looking forward to having

more spare time as they hoped to spend less time cleaning and keeping up with their future homes in the community.

### **Autonomy and Older Adults**

If older adults are able to easily keep up with their homes and their daily activities are supported by the design of the home, then they will most likely continue to feel independent as they age. Independence, along with culture, religion, and having personal control have all been found to impact an individual's perceived autonomy (Andresen et al., 2009). Two themes are considered to support this assumption. *Privacy* and *Universal Design* were described by participants to regard their needs for having a personal space that would sustain them and their abilities to complete their everyday tasks. The key points, *Private Retreat* and *Barrier Free Environment*, were also believed to represent these needs, and therefore were considered to reinforce this assumption as well.

Maintaining independence has been found to be a common concern among older adults as they often worry about keeping control of their activities and personal choices as they grow older (Bronstein et al., 2009; Peace et al., 2011). The theme, *Planning for the Future*, was determined to uphold this conclusion as many of the participants discussed their reasons for planning ahead for their later years. Participants mentioned that they wanted to make the choices for their future while they were able to do so and that they did not want to leave hard decisions for their children to make. They also did not want to have to worry about what would happen to them if they were to suddenly have an accident or develop a disability or illness.

Health has been found to be positively impacted by autonomy when older adults continue to socialize, stay active, and remain engaged in their hobbies in interests (Durrett, 2009; Sugihara & Evans, 2000; Russ, 2009; Silverberg, 2010). The theme, *Social Engagement*, reinforced these findings as did the key point, *Front Porch*, as participants thought that socializing and having a



space to socialize informally was essential for the development of community between senior cohousing members. Bronstein et al. (2009) and Oswald et al. (2010) noted that older adults' health benefited when they continued to engage in their daily activities and maintained their autonomy. The theme, *Universal Design*, and the key points, *Accessible Storage Space*, *Easy Upkeep*, and *Barrier Free Environment*, were all found to be pertinent with this conclusion as they all regarded the participants preferences for a home that would support them as they aged.

Older adults' health has also been observed to benefit from them living within communities as they often have healthier lifestyles, participate in more activities and socializing, and maintain a high level of confidence (Cohen, 2005; Durrett, 2009). The theme, *Social Engagement*, supports these findings as participants believed that they would be more active in a senior cohousing community as they would be more apt to leave their homes if they could readily see and interact with other members. These features that are built into the design of senior cohousing communities are believed to influence residents' health and confidence as their autonomy is maintained (Lawton, 1977; Durrett, 2009). *Universal Design* was a theme that was deemed relevant to this conclusion as were the key points, *Accessible Storage Space*, *Easy Upkeep*, and *Barrier Free Environment*. This theme and these key points were considered as participants' discussions revolving around them dealt with such features that are found in senior cohousing communities. Participants commented on how they believed a supportive environment that contained universal design features was beneficial to people of all ages and would be an aid to them. They also noted that having a home that would be accessible and easy to maintain for years to come was very important as it could allow them more spare time and the ability to manage by themselves a lot longer.

## **Summary and Implications**

As the findings from the interviews and focus group indicated, participants in this study believed that senior cohousing communities could offer older adults a newly developed and optimal alternative for housing as they age. This study sought to explore the individual homes in senior cohousing communities and how they could assist older adults to age in place. To further determine how this could be achieved, the promotion of place attachment and perceived autonomy were selected as design objectives for this study. The four individual floor plans developed for this study were based on the interview and focus group research session responses and the universal design principles. In the third research session, the post-evaluation questionnaires were used to determine the floor plans' observed success and whether or not the floor plans met the two design objectives. The observed success of the floor plans was based on participant's perceptions that they would feel more autonomous and connected to the floor plans, and through them they would also feel connected to the community and the other members. Based on the responses that were obtained from the questionnaires, the four individual floor plans were all found to meet the two design objectives and were believed to be able to promote place attachment and perceived autonomy for an aging resident. This assessment was generated by comparing and contrasting the individual answers to each question in the post-evaluation questionnaire. Their supportive responses to the questions that were geared toward place attachment and autonomy decided the final evaluation of the floor plans. By advocating place attachment and perceived autonomy, participants' believed that there would be no problems that would hinder aging in place in any of the four floor plans that were developed.

There were several limitations with this study. The sample used was small as it only contained eleven participants from one senior cohousing community. These participants were all living around the Midwestern town the community was built in, so the results of this study are not generalizable to the larger population of older adults as it was only a case study of one site.

Another limitation with the sample was the wide age range between the 11 participants, as they were anywhere between 55 to 85 years of age. Senior cohousing communities were considered to be a relatively new development in the United States at the time of this study and there were only five completed communities in various regions around the country. As these communities were a new development, they were also a new subject for research, and therefore, very little prior research or literature for this study to be based on could be found. Another limitation in this study was that the results from post-evaluation research session were only considering four individual floor plans. It is important to note that had the post-evaluation session contained more than the four individual floor plans, the final conclusions of this study may have varied considerably. The last considerable limitation to point out is the actual limitation of independence in older adulthood which is not addressed in this study. Recent research has indicated that while independence is important to well-being, “social inclusive independence” recognizes the need for socialization and the interdependence of older adults on other significant individuals (Plath, 2008).

Many of the limitations in this study were also considered relevant for future implications in this research. As senior cohousing was a new development at the time of this study, the findings may be beneficial to other projects and researchers who are beginning to look into this idea as a new alternative for housing for older adults. Due to the lack of research on this topic, the literature presented and the findings from this particular project may be able to begin to fill the gaps and open new doors for older adults looking for such an alternative for their housing. This study could be further explored in several ways. The data collected from the individual interviews and focus group could be further studied. An example of this would be to use the data supporting the theme, Planning for the Future, in order to study health in this group of participants and in other more homogenous samples since health of the individuals was not analyzed in this study. By utilizing the four individual floor plans and presenting them to other senior cohousing members around the nation, researchers could begin to compile generalizable results on this

subject. Other senior cohousing members from various communities could also partake in interviews and focus groups to further understand the concepts older adults are looking for in alternative housing options. It would additionally be beneficial to use interviews and focus groups with senior cohousing members that have been living in their existing communities. In this way, senior cohousing communities could be examined to observe whether or not they are meeting members' expectations and if they are supporting the current literature.

In addition to the benefits this study could elicit from research concerned with housing choices for older adults, the public and professional realms could profit from these findings as well. This study could be used to further enlighten older adults and the general public to a new alternative for housing in later life. As more is known about senior cohousing communities and the literature begins to expand, more older adults will be reached that may find this alternative to their liking. The floor plans developed for this study were accepted by participants' who believed that they could be used in the creation of future senior cohousing communities. If these floor plans were used as guidelines for the beginning ideas of individual homes, they could save future members precious time in the development of their communities. Using these floor plans could also educate potential new members on the support universal design features could bring to their new residences and their lives as aging older adults.

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## APPENDICES

APPENDIX A  
INSTITUTIONAL REVIEW BOARD (IRB)

Oklahoma State University Institutional Review Board

Date: Monday, March 19, 2012
IRB Application No HE1216
Proposal Title: Senior Cohousing: An Optimal Alternative for Aging in Place

Reviewed and Expedited
Processed as:

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/18/2013

Principal Investigator(s):

Jessica Kramp Melinda Lyon
1503 N. Hartford 431 HES
Stillwater, OK 74075 Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

- 1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Handwritten signature of Shelia M. Kennison

Shelia Kennison, Chair
Institutional Review Board

APPENDIX B  
SURVEY OF DEMOGRAPHIC INFORMATION

SURVEY OF DEMOGRAPHIC INFORMATION

1. What is your age?  
 65-74 years                       85 or older  
 75-84 years
  
2. What is your gender?  
 Male     Female
  
3. What is your current marital status?  
 Single, never married                       Married  
 Widowed     Divorced
  
4. What was the highest degree you ever completed?  
 High School Diploma  
 Associate's Degree  
 Bachelor's Degree  
 Master's Degree  
 Doctorate Degree  
 Other, please specify: \_\_\_\_\_
  
5. What is your occupation? \_\_\_\_\_  
  
If retired, what was your occupation? \_\_\_\_\_
  
6. How long have you resided in your current home?
  
7. What is your current household income?  
 Under \$10,000                       \$40,000- \$49,000  
 \$10,000- \$19,000                       \$50,000- \$74,000  
 \$20,000- \$29,000                       \$75,000- \$99,000  
 \$30,000- \$39,000                       Would rather not say
  
8. What is your ethnicity?  
 African-American  
 Asian  
 Caucasian  
 Hispanic  
 Native American  
 Would rather not say

APPENDIX C  
INTERVIEW SCRIPT

## INTERVIEW SCRIPT

1. What made you want to move into the Oakcreek community?
2. How do you feel about downsizing?
3. How do you think having a front porch would affect your social engagement with your neighbors?
4. What personal belongings do you consider important to bring with you to the Oakcreek community?
5. What living spaces would you hope to still have in your new home that you would miss from your old home?
6. What do you think about having free standing, individual homes versus multiple resident units in senior cohousing?
7. What are your views on having a front porch that faces shared common facilities and grounds in senior cohousing?
8. Do you feel as though a front facing porch would provide enough privacy? If not, explain.
9. What are your views on having private back porches for individual homes?
10. What are your opinions on living in an open floor plan versus living in a closed floor plan?
11. What are your thoughts on universal or ADA design for your new residence? Have you heard of these design guidelines?

APPENDIX D  
FOCUS GROUP QUESTIONS



## FOCUS GROUP QUESTIONS

### **Space**

1. What spaces or rooms do you feel are important in a residence?
2. Do you think anything may not be necessary in your current home for your future living?

Prompts:

- Storage Space
- Display Space
- Built-Ins

### **Aging in Place**

1. What are you expecting from your new home as far as aging in place?
2. What do you think the home should provide for accessibility and mobility problems?

Prompts:

- Specialized Design- Cabinet Heights
- Adaptable Design
- Shower/Tub
- Aesthetics

### **Lighting**

1. What would you look for in artificial and natural lighting in a new residence?
2. What do you feel would serve better purpose: more windows with views to the outside or greater wallspace?

Prompts:

- Adjustable/ Layered Lighting
- Ceiling Height
- Energy Conservation

### **Home Exterior**

1. Let's talk about expectations for the front porches.
2. What uses are you wanting from a private back patio?

Prompts:

- Screens
- Variation in Plans
- Plantings

APPENDIX E

FLOOR PLAN POST-EVALUATION QUESTIONNAIRE

FLOOR PLAN POST-EVALUATION QUESTIONNAIRE

1. Do you feel as though these floor plans would provide a supportive home in which to age independently? Circle one: **Yes** **No**

Please explain your answer:

2. How do you think the design of the front porches would affect resident relations among those living in these homes?

3. On a scale of 1-10 with 1 being **not attached** and 10 being **very attached**, how attached do you think you could become to one or more of these floor plans if you ever chose to live in one?

Plan A      Plan B      Plan C      Plan D  
\_\_\_\_\_

Do you prefer one floor plan over another, if so why?

4. Do you feel as though these floor plans offer a comfortable and secure living environment?

Please explain your answer:

5. How well do you think an older individual could get around in these floor plans even if they developed a disability as they aged?

6. Do you think these floor plans would offer an older individual with mobility constraints (such as using a wheelchair or a walker) a barrier free and easily accessed environment?

7. How much work do you think these floor plans would be to keep up with in terms of cleaning and maintenance?

Circle one:

**A lot of work.**

**Some work, about what you spend now.**

**Some work, but less than you spend now.**

**Not very much work.**

8. Which, if any, of the following universal design qualities of these homes would benefit the lifestyle of an aging resident?

Check all that apply:

- |   |   |
|---|---|
| <input type="checkbox"/> Using levers on doors instead of knobs | <input type="checkbox"/> Providing knee space under sinks       |
| <input type="checkbox"/> Building grab bars into the design     | <input type="checkbox"/> Roll-in showers with no lip            |
| <input type="checkbox"/> All doorways are 36"                   | <input type="checkbox"/> 5' diameter for turnaround in bathroom |
| <input type="checkbox"/> Floor plan all 1 level                 | <input type="checkbox"/> Pocket doors utilized                  |
| <input type="checkbox"/> 9" toe kick on cabinets                | <input type="checkbox"/> Outlets moved up to 18"                |
| <input type="checkbox"/> Other: _____                           |   |

9. If you lived in one of these floor plans, do you feel as though these homes would be easy to personalize and provide enough space for your memorable possessions?

Please explain your answer:

10. How do you think the views from the windows and porches from these homes would affect the resident's community involvement?

11. Looking at the four floor plans, on a scale of 1-10 with 1 looking the **most institutional** and 10 looking the **most residential**, rank each floor plan's appearance.

Plan A	Plan B	Plan C	Plan D
_____	_____	_____	_____

12. On a scale of 1-10 with 1 being **not willing** and 10 **extremely willing**, how willing would you be to move in to one or more of these floor plans?

Plan A	Plan B	Plan C	Plan D
_____	_____	_____	_____

13. On a scale of 1-10 with one being **not at all** and 10 being **extremely well**, how likely do you think you could adapt to living in one or more of these floor plans?

Plan A	Plan B	Plan C	Plan D
_____	_____	_____	_____

14. Do you believe you would have an easier time living in one of these floor plans as you age compared to your current residence?

Please explain your answer:

15. How do you feel accomplishing everyday activities such as doing laundry, cooking, and cleaning the house, etc. would compare to doing those activities in your current residence?

## VITA

Jessica Lynn Kramp

Candidate for the Degree of

Master of Science

Thesis: SENIOR COHOUSING: AN OPTIMAL ALTERNATIVE FOR AGING IN PLACE

Major Field: Design, Housing, and Merchandising

Biographical:

### Education:

Completed the requirements for the Master of Science in your major at Oklahoma State University, Stillwater, Oklahoma in December, 2012.  
Completed the requirements for the Bachelor of Science in interior design at Oklahoma State University, Stillwater, Oklahoma in 2010.

### Publications:

Lyon, M., Kang, M., & **Kramp, J.** (in review). Case study of senior cohousing development in a rural community. *Journal of Extension*  
Kang, M., Lyon, M., & **Kramp, J.** (accepted). Older adults' motivation and expectation toward senior cohousing in a rural community. *Journal of Housing and Society*.  
Herbert, P.R., Kang, M., & **Kramp, J.** (in review). Safety lighting: Exterior illumination at an existing U.S. Government facility. *Journal of Facility Management*.

### Presentations:

Kang, M., Lyon, M., & **Kramp, J.** (2012). *Older adults perceived behavior for senior cohousing in rural communities*. Design, housing, and merchandising faculty and graduate student presentation, OSU research week.  
Herbert, P.R., Kang, M., & **Kramp, J.** (in review). *Examination of safety lighting at an existing U.S. Government building exterior*. *Environmental Design Research Association, Providence, RI*

### Experience:

Graduate Research Assistant, Design, Housing and Merchandising Department, Oklahoma State University, 2011-2012. Graduate Teaching Assistant for Design Theory, Design, Housing and Merchandising Department, Oklahoma State University, 2011. Furniture Sales Associate, J.W. Lee's Home Furnishings, 2010-2011. Design Intern, Werner Design Group, 2009.