INTergenerational Housing:
A Vernacular Perspective

A Thesis in
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by
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ABSTRACT

Demographic studies and trends indicate that multigenerational households are becoming increasingly common in the United States. This thesis examines design strategies that can improve the quality of intergenerational home architecture through the study of successful vernacular examples. These vernacular case studies offer lessons about intergenerational design validated by years of architectural evolution and experience.

Studies of development and aging attribute a variety of mental and physical benefits to living in an intergenerational environment. The design of homes that encourage and facilitate interaction between generations can truly foster healthier living for all ages. There is, however, scarce research conducted on the subject in the architectural realm; consequently, no universal insights for effective intergenerational design have been developed. This research explores the vernacular houses of three different American subcultures that embraced an intergenerational existence in order to illuminate architectural design concepts and approaches that can be implemented in future designs.

The three vernacular case studies selected for this research—the Amish farmhouse, the Spanish-Colonial hacienda, and the industrial alley house—were visually documented through drawings, photographs, and historical research. Identification of potential intergenerational design issues, distilled from existing research, formed the framework for subsequent architectural analysis.
Examination of each vernacular case study determined how each issue manifests itself in the existing architecture. The analysis of the three distinct structures, condensed and combined to identify commonalities and differences, designated significant architectural lessons. Through this process of vernacular analysis, a number of architectural ideas that could be implemented in future design and investigated through further research became demonstrably clear. These ideas are centered on the design of variable hybrid spaces, the inclusion of space for productive activities, designing for flexibility, and the connection to a larger community. These design concepts, when considered together, should lead to the creation of more effective intergenerational architecture.
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Chapter 1. INTRODUCTION

Humans meet their basic need of shelter in different ways around the world. The constant is that housing reflects and evolves with the technological, economic, and social characteristics of any society. Rapid changes in the determining factors result in a lag between the societal requirements and the housing structures. Today, the United States is experiencing such a lag as a result of recent and rapid socioeconomic changes that have created a gap between existing home design and the requirements of the occupants. This contemporary housing shift is characterized by the rapid growth of multigenerational households. Multigenerational households appear to be on the rise due to the increasing appeal of the economic and social support that families can more readily provide when living together. Architects, designers, and homebuilders must explore how architecture can create a positive and interactive intergenerational environment for this growing population. In this context, an analysis of vernacular housing structures provides important knowledge to contemporary designers that can assist in the design of inclusive intergenerational living environments. This study seeks to clarify the architecture of an intergenerational home through the study of such vernacular structures.

Vernacular Architecture

“Vernacular architecture” is defined in a number of different ways and plays a different role in varying schools of thought. For the purpose of this study, the
designation of “vernacular” refers to a building that is the product of an evolutionary folk design tradition. This concept is discussed at length in Amos Rapoport’s *House Form and Culture*.

The Vernacular design process is one of models and adjustments or variations... It is the individual specimens that are modified, not the type. When a tradesman builds a farmhouse for a peasant, they both know the type in question, the form or model, and even the materials. What remains to be determined are the specifics—family requirements, size, and relation to the site and micro-climate (Rapoport, 1969, 4).

The study of vernacular dwellings is important to this discussion because vernacular architecture evolved organically with the needs of the population. Vernacular housing examples are informative because they arise without the distant input of a professional designer. As Henry Glassie explains in his book on the subject, “plans drawn on paper are indications of cultural distance... the amount of detail on a plan is an exact measure of the differences that separate those who conjoin in a building project” (Glassie, 2000, 45). By avoiding the services of an external architect (as we understand the term today), the cultural distance between the building design and the building occupants is reduced and therefore more can be learned from the buildings themselves.

This type of self-designed architecture most truly reflects the intergenerational nature of the culture it spawns from. Glassie again explains this important distinction when he claims, “people can be understood only from their own creations, from what they say and make, and not from what others say about
them or make for them” (Glassie, 2000, 154). Rather than reflecting the contrived agenda of a government or corporation, self-designed multigenerational structures exhibit a functional design sensibility based on experience. Rapoport solidifies the relationship between building and the builders when he claims “the folk tradition…is the direct and unself-conscious translation into physical form of a culture, its needs and values—as well as the desires, dreams, and passions of a people” (Rapoport, 1969, 2). Vernacular buildings are variations upon a model and therefore do not represent the whims of a designer with a limited perspective and the desire to impress. Rather, a vernacular building takes on a model that has been developed by an entire people over a long period of time. These evolutionary models directly represent the spatial needs of the occupants and the cultures from which they spawn.

The examination of vernacular buildings is also critical because it affords architectural insight into a cultural group or time period that had very different architectural requirements and cultural values. This study specifically aims to gain insight into the architecture of an intergenerational family. Consequently it makes sense to examine the vernacular spatial traditions of groups of people where “often, [the nuclear family] is projected back to one set of grandparents, to form a stem family of three generations living together” (Oliver, 2007, 153) and therefore share some circumstance with the mainstream housing transition underway in the United States. Scholars of vernacular architecture claim, “aspects of family and society may be directly expressed in the physical structure
of the dwelling, with levels and rooms differentiated in accordance with the priorities and distinctions of a specific kinship system" (Oliver, 2007, 155). This study seeks to identify these evident “physical structure” characteristics that are expressed in the architecture of an intergenerational society. While the cultures that spawned the vernacular structures examined are disparate from that in the United States today, the lessons learned from them can inform the architectural transition that is occurring.

**Housing Trends**

Following World War II, political, economic, and architectural factors such as the G.I. Bill and mass-produced suburbs (the work of William Levitt for example) began to change the way Americans were housed, trending towards nuclear rather than extended families. While the reasons for such a transition are complex, scholars argue that the government and manufacturers encouraged a post-depression consumer culture (as an economic recovery tool) that created a single family “dream home” ideal, designed around generalized gender roles and family structures (Hayden, 2002; Wright, 1981; Groth, 1994). The influx of young couples with government paychecks following the war bought into this dream and set the stage for the dramatic shift in housing practices.

This shift in housing practices post World War II can be described as a system of dispersion. During the second half of the 20th century, the general trend of the family and that of the house, slope in seemingly paradoxically opposite
directions. For example, in 1940 24.7% of Americans lived in a multigenerational household (The Return, 2010) (at least two adult generations) and the average housing unit had 1170 square feet (Bureau of The Census); by 2000, only 15.1% lived in a multigenerational setting (The Return, 2010), while the average housing unit rose to 2150 square feet (Bureau of The Census). In other words, while 10% fewer people lived with an extended family, the size of the average home nearly doubled. At the same time—between 1940 and 1990—the American housing stock grew at double the rate of the population and homeownership rose by 21% (Chapin, 1993). Dolores Hayden points out that by “2000, Americans enjoyed the largest amount of private housing space per person ever created in the history of civilization” (Hayden, 2002, 54).

Figure 1.1 – Dispersive Housing Diagram (Miller, 2013, 1).
This dispersive trend—enforced by the “dream home” ideal—has defined American home design and construction since its introduction and has led to an unprecedented housing condition in the United States that has been the subject of extensive research by scholars such as Dolores Hayden and Gwendolyn Wright. An increasing number of single-family homes, a decreasing number of multigenerational households, and a general dispersion of the population characterize this well documented shift in the American housing scene.

Despite the long history of dispersion, a recent trend of reconsolidation has been identified through the work of the U.S. Census Bureau and other demographic researchers. According to the Pew Research Center, “the largest increase in the number of Americans living in multi-generational households in modern history” occurred between 2007 and 2009 (The Return, 2010). A range of factors—both social and economic—have led to this contemporary shift that is affecting all demographics. After peaking in 2004, the percent of Americans that own homes has steadily fallen to levels last seen almost 20 years ago. At the same time (between 2000 and 2010) the percentage of Americans living in multigenerational households has risen by 27% (The Return, 2010). The steady decline in individual home ownership and the rapid growth of multigenerational homes, suggests that the recent trend of reconsolidation is having a significant effect on the way American families are housed.
Intergenerational Homes

Demographic trends clearly indicate that multigenerational households are becoming more common in the United States. However, this does not necessarily mean that there are more intergenerational households. The distinction between multigenerational and intergenerational is subtle but extremely important. In a paper striving to illuminate this distinction, Patricia Brownell and Rosa Resnick cite the definition of intergenerational as “being or occurring between generations” and multigenerational as “of or relating to several generations” (Brownell and Resnick, 2005, 69). The same study indicates the terms are treated as inappropriately interchangeable by organizations as large as the United Nations. Feliciano Villar expands on the distinction by positioning the potential impact of intergenerational projects as the important difference.

The term “Intergenerational” implies the involvement of members of two or more generations in activities that potentially can make them aware of different (generational) perspectives. It implies increasing interaction, cooperation to achieve common goals, a mutual influence, and the possibility of change (hopefully a change that entails improvement). In contrast, “multigenerational” is usually used in a related but far broader sense: it means to share activities or characteristics among generations, but not necessarily an interaction nor an influence among them (Villar, 2007, 115).

Using the more precise definitions described above, the expansion of the multigenerational household is already occurring on broad scale in the United States. The question that remains is how architects can transform the natural multigenerational expansion into a beneficial intergenerational growth.
Homebuilders in the United States have taken notice of the natural resurgence in multigenerational households. A number of the nation’s largest homebuilders have added multigenerational schemes to their catalogues in recent years. An article on the front page of The New York Times entitled Under One Roof, Building for Extended Families indicates that thirty percent of PulteGroup (largest homebuilder in the United States) customers are asking for “features” they have specifically designed for the multigenerational family (Green, 2012). The identification of this significant market demand for intergenerational living by major homebuilders illustrates the obvious need of a population, but the actual design “features” employed are less obvious. A survey of promotional material from major “multigenerational homebuilders” shows primarily a combination of rhetoric and accessibility features (grab-bars, walk in showers, ramps, etc). While accessibility is an important part of intergenerational architecture, the focus should be placed more on creating spaces that allow and encourage positive interaction. Architecture that encourages interaction between generations is the only way that home design can bridge the gap between multigenerational and intergenerational.

The National Association of Home Builders has identified the multigenerational home as “an opportunity for the builders” (Green, 2012). An opportunity such as this for builders is also an opportunity for architects to change how home design is considered. The current design of the single-family home that makes up most of the United States housing stock may prove to be inadequate for an
intergenerational occupancy group. It is the hypothesis of the author that an intergenerational transition will provide unexpected advantages for a significant part of the population, as there are many studies that show that living in an intergenerational arrangement is beneficial to people of all ages (Carp, 1969; Chappell, 1991; Cohen and Casper, 2002; Markides and Krause, 1985; Morgan and Schuster, 1991). As these benefits are discovered by newly-multigenerational families, it is possible that this sort of living arrangement will become far more desirable, independent of financial necessity (increasing the market and longevity of multigenerational homes). In fact, *The Wall Street Journal* recently published an article that provided a look into the lives of NFL players living at home while making over 400,000 dollars a year, clearly indicating that multigenerational living is not exclusively attractive for economic reasons (Woo, 2013).

![Figure 1.2 – Mutual and Universal Benefit Diagram (Miller, 2013, 3.3.0).]
In addition to the apparent benefits, the average life expectancy in the United States is 78.2 (2013), meaning that people are living longer and more productive lives than ever before. This basic demographic shift coupled with the potential benefits of living in an intergenerational setting suggests that the market for multigenerational architecture will persist beyond the current economic downturn. However, with the current housing stock slanted towards a specific nuclear family structure, the demand may not be adequately met by current typologies and existing structures. It is important to understand what can be done architecturally to facilitate intergenerational interaction for the contemporary multigenerational family that is becoming more prevalent.

In addition to the economic sensibilities of a multigenerational housing environment, there are also many identifiable social benefits to intergenerational living for all generations that have been marginalized in the current dispersive system. Many of these benefits are primarily derived from the “shared and reciprocal needs demonstrated by young and old” (Hatton-Yeo and Ohsako, 2000, 10) as described in a UNESCO report on the subject.

In nations across the world, we recognize that the generations need to nurture and be nurtured, to teach and to be taught, to have a successful life review, and to learn from and about the past, to share cultural mores and to have a cultural identity, to communicate positive values, to have positive role models, to leave a legacy and to be connected to a contiguous generation (Hatton-Yeo and Ohsako, 10).

A serious deficit is created when generations are segregated by their housing system. On the other hand, simply living in a healthy intergenerational
community naturally satisfies the mirrored social needs of young people and older people. The creation of this sort of community begins with an architecture that can properly accommodate all generations and facilitate healthy intergenerational interaction. This concept has been shown in multiple studies that indicate that both older and younger people are happier and in some cases healthier when living an intergenerational lifestyle (Carp, 1969; Chappell, 1991; Holland et al., 2007; Markides and Krause, 1985).

These social benefits will be very important to understand in the years to come as the Federal Administration of Aging has predicted that by 2050, the proportion of people in the United States over the age of 60 will rise to more than 25%. At the same time, the proportion of young adults (25-34) living in multigenerational situations has doubled since 1980 (The Return, 2010). With increasing numbers of people on both ends of the generation spectrum living in multigenerational households, it is important for architects to understand how architectural design can accommodate and facilitate the positive intergenerational experiences that lead to happier healthier lives as suggested by researchers in the field. One way to begin to understand intergenerational architecture is to examine vernacular examples.

**Case Studies**

A sample of vernacular intergenerational housing schemes serves as the case study basis for this study. Each design is analyzed to determine spatial
organization, spatial qualities, and specific intergenerational design
characteristics. Specifically, a set of design concepts is defined that includes
information for each example such as: rooms, room size, connections between
rooms, private space, shared space, functionally specific spaces, generationally
specific spaces, thresholds, connections to outside, and other factors that arose
during the course of the research. Once all the case studies are synthesized,
they are compared to one another and combined with the existing literature on
the subject to form a set of experiential domains that inform future
intergenerational design.

The case studies represent subcultures within the United States from both the
past and the contemporary era. Each was chosen based on the prevalent
attitudes towards family housing and specifically intergenerational living. While
the disparate cultures and time periods are flush with idiosyncrasies that may not
be relevant to today’s mainstream, there are valuable lessons about
intergenerational design to be learned from each of these architectural examples.

The first case study is focused on the intergenerational housing that is common
in the Pennsylvania Dutch and specifically Amish communities. The Amish, also
known as Anabaptists, are a religious group that formed during the Protestant
Reformation in Switzerland. Since immigrating to North America in the 1700s,
the Amish have thrived and created an insular intergenerational society that
recognizes the value of both the young and the aged. The Amish are primarily
farmers and are well known for their pacifism, rejection of modern technology, and horse-drawn buggies throughout Pennsylvania. Upon retirement the Amish farmer traditionally passes responsibility and the main farmhouse to one of their married children—moving to an attached dwelling known as a *Grossdaddyhaus*. This arrangement ensures that all generations experience an intergenerational living arrangement for most of their lives and that all members of the family provide mutual support on a daily basis. The cyclical dwelling system and strong intergenerational values present in the Amish subculture offer clues to how intergenerational architecture can be designed for multigenerational families in the mainstream.

The second case study examines the architecture of the Spanish-Colonial Hacienda. This type of structure was common in the southwestern United States and a large part of Mexico. The hacienda typology is known for being an amalgamation of Spanish, American, and Native American building traditions and styles. Architecturally, haciendas consist of L-shaped, U-shaped, or square courtyards constructed of local adobe. The courtyards were completed or combined over time as spatial needs changed. Haciendas typically served as a combination farmhouse-trading post where residents of the sparsely populated region could gather. This study will focus specifically on The Martinez Hacienda near Taos, New Mexico. The Martinez Hacienda began construction in 1804 and originally housed a single couple and their workforce. As the family grew up, the adult children of the couple remained and the hacienda was expanded to
accommodate the larger extended family. Additions were planned to complete a square courtyard or add an additional courtyard adjacent to the original. The idea that common social space can be enclosed by the creation of additional residential quarters over time has interesting connotations for intergenerational architecture today.

The third case study explores the architectural phenomenon of the alley house that sprang up primarily in Pennsylvania industrial towns. This type of house was constructed on the backside of a residential lot (facing the alternating alleys that are common in Pennsylvania cities) and often housed young families. These houses reflect a mutually beneficial arrangement that reduces the financial burden of home ownership for both the street-side homeowner and the alley house resident. In addition there is evidence that homeowners would sometimes build alley houses for their adult children and their families on the same lot (Mosher and Holdsworth, 1992). This sort of arrangement is of particular interest to this study because it illustrates how separate housing structures can interact and form an interdependent relationship. In a study of this exact case, Anne Mosher and Deryck Holdsworth describe how “by building alley houses, property owners could ease a child or parent’s entry into society or old age. Alley houses allowed nuclear and extended families to maintain spatial proximity as children grew up” (Mosher and Holdsworth, 1992, 185). This sort of interdependent yet separate housing is another paradigm to be examined in order to understand and improve contemporary intergenerational housing.
The spatial analysis of these vernacular intergenerational environments points to a number of architectural conditions and spatial experiences that provide unique insight that architects can use to guide contemporary and future intergenerational design efforts. While the specific building forms or vernacular systems are mostly inappropriate for the contemporary intergenerational family, the architectural experiences that are created, lead to an understanding of intergenerational design principles that can more effectively translate between time periods and cultures.
Chapter 2. INTERGENERATIONAL DESIGN AND THE VERNACULAR

In order to examine the lessons that vernacular examples can contribute to intergenerational housing, a number of related disciplines with varying levels of established research and theory must first be explored. The first area of research important to this examination is the study of aging and age relations. This field of study includes a vast quantity of social research that aims to explain the process of aging and how this process impacts social structures. The second area of research is closely related, but focuses much more specifically on the concept of intergenerational interaction—what it means, how it is encouraged, and what are its effects. Thirdly, vernacular architecture has been studied extensively and offers a broad base of information that will also serve as the foundation of this study. Finally, the work of contemporary designers and thinkers that are already creating intergenerational architecture with varying degrees of success must be considered. The aggregate of these bodies of research serves as the knowledge base for this study of intergenerational architecture through the vernacular lens.

Aging and Age Relations

In order to understand the concept of intergenerational architecture—vernacular or otherwise—it is critical to have a broad understanding of the many studies that have focused on the process of aging. There is a wealth of research on the topic of aging, most of which falls into the general area of gerontology, or the study of
the social, psychological, and biological facets of aging. As early as 1946, *The Gerontologist* and *The Journal of Gerontology* (since 1961) have published a wide range of articles that explore the process of aging and age related issues—both social and physical. Of primary relevance to this study is the body of research that deals specifically with relationships between generations and within family units. These journals (as well as others) display a consistent interest in the concept of multigenerational households, although typically not with an emphasis on the architecture of the corresponding structures.

A review of selected gerontology literature reveals some consistent findings, as studies have shown repeatedly that living with others (often with family) is beneficial to the well being of the elderly (Chappell, 1991; Markides and Krause, 1985). Specifically, social research has shown that a close relationship with ones children and/or grandchildren leads to elders reporting a higher life satisfaction as well as a lower incidence of depression (Markides and Krause, 1985). Living with family has been shown to increase the likelihood that an older person requiring assistance receives the care that they need. In addition, the availability of family means that it is more likely that an older person will receive needed emotional support (Chappell, 1991).

A number of communities that exclusively house the elderly have sprung up around the country; however, research suggests that the elderly may prefer to remain in their naturally multigenerational neighborhood. A study by Frances
Carp reported that 75% of respondents thought elder housing was a good thing, but most also said it wasn’t something they would ever consider. In fact, “less than one in six could conceive of such a possibility” (Carp, 1969, 23). This apparent paradox suggests that many elders prefer to live multigenerational lives even when presented with an option that caters to their specific needs but isolates them from family and an age heterogeneous population.

The comparative benefits to children raised in an intergenerational situation have also been the subject of an extensive body of research. However, the findings of these studies have been inconsistent. In a recent report intended to recommend policy changes for informal childcare (primarily grandparents) support, an exhaustive literature review was combined with existing data sets to determine the comparative value of informal care versus formal care (Bryson et al., 2012). This study indicated some associations between stronger vocabularies and higher levels of socio-emotional development with children raised by grandparents than those who participated in formal day care. The large area of uncertainty inherent in collecting and coding the data (for example difficulties determining levels of educational “success/development” and the variability in childcare techniques) led the researchers to conclude that a child raised by grandparents is not at a significant disadvantage and may experience a slight (though difficult to prove) developmental advantage (Bryson et al., 2012).

Despite the scarcity of scientific evidence, there is strong support among
educators for the idea that intergenerational learning and living are beneficial to the development of children. The Association for Childhood Education International (ACEI) has included a strong endorsement for including intergenerational approaches “whenever feasible” (Early Childhood, 1999, 5) in its Global Guidelines for Early Childhood Education and Care in the 21st Century since 1999. This sort of endorsement suggests that the benefits of intergenerational life are hard to measure quantitatively, but are recognized by professionals in the field of childcare and education.

Multigenerational living is historically more prevalent among poorer populations and recent immigrants (Cohen and Casper, 2002; Hashimoto, 1991; Mindel, 1979). Minority groups and the impoverished are still much more likely to live within an extended family unit in the United States. Recently however, there has been much public interest in exploring multigenerational living for the middle and upper economic classes. This interest is frequently expressed in major newspaper articles, television segments, and popular books (Green, 2012; Woo, 2013; Neiderhaus and Graham, 2007). It has even been suggested that all families are equally likely to be multigenerational (independent of economic status or culture) and that most become multigenerational out of choice, not necessity (Garcia, 1993). The increasing prevalence of multigenerational families (The Return, 2010) and expanding media promoting additional multigenerational conversions indicates a much more universal interest in multigenerational living than has been seen in the past.
A 1991 study by Raymond Coward on the composition of and relationships within multigenerational families indicate that dependency of the oldest generation is not always the reason that multigenerational families form. Frequently adult children are the ones in need of support from their elderly parents due to difficulties in their own lives (Coward and Cutler, 1991). This unexpected trend of younger generations receiving support from their elderly parents is also shown in other studies that specifically examine the giving and receiving of support. It has been established through broad studies that elders typically provide more support to their social network than they receive until they are well into their eighties and sometimes even longer when certain controls are introduced to the data (Morgan and Schuster, 1991). This research indicates that having elders around not only benefits the elders themselves, but also the other members of the family.

**Intergenerational Interaction**

The specific study of intergenerational interaction is perhaps even more important to developing an intergenerational architecture than the general study of aging. This field of study lends relevance to vernacular examples that may be consulted for insight into contemporary intergenerational architecture. As discussed in Chapter One, the interaction between members of different generations distinguishes the terms intergenerational from multigenerational (Brownell and Resnick, 2005; Villar, 2007) and has been the subject of a number
of different studies in the context of public spaces, educational settings, and housing situations. As with child development, the effects of intergenerational interaction have proven difficult to quantify and study. Most of the research available relies on observational studies that provide interesting insight, but not necessarily any definitive conclusions. All of these nuanced paradigms offer different perspectives and all are relevant to the study of intergenerational living and architecture.

Of primary importance is the distinction between multigenerational and intergenerational. These terms were considered interchangeable in the past, but have been clarified recently due to increasing interest in intergenerational studies (Brownell and Resnick, 2005). Today, intergenerational is a term that applies to anything that occurs between generations that improves generational understanding, increases interaction, allows for a mutual influence, and encourages positive change (Villar, 2007). The term multigenerational maintains the older definition “of or relating to several generations” (Oxford Dictionary, 2014) and lacks the implication of interaction or influence. This distinction has spawned a large amount of interest in intergenerational interaction, specifically through programming in schools and elder care facilities.

Studies have shown that both children and elders hold negative stereotypes about other generations that dissipate when interaction occurs (Hernandez and Gonzales, 2008). These negative stereotypes are particularly interesting when
considered in light of the benefits suggested by the body of research already
discussed. Negative stereotypes about intergenerational interaction indicate that
a general lack of familiarity with different generations is responsible for culturally
supported stereotypes taking root. This finding is also supported by research
indicating that age based stereotypes can be reduced most easily by increasing
exposure to people of different ages and encouraging interaction (Kimuna, Knox
and Zusman, 2005).

Urban planners have taken a keen interest in intergenerational interaction in the
public spaces for which they are responsible. There is a substantial body of
research that seeks to answer questions about the needs and tendencies of
different generations in public settings. Observation of public spaces has shown
that people of different ages have many different physical and social needs and
that the most vibrant public spaces accommodate these needs in different ways
without segregating any particular group (Holland et al., 2007). Examples of
these sorts of intergenerational design considerations are spaces of different
scales, spaces with varying levels of surveillance, lighting, seating, bathrooms,
and many others. The importance of multigenerational design is supported by
the finding that planners who promote the needs of families (rather than focus on
more singular generations) see greater community participation and less
resistance in the design and implementation process (Warner and Rukus, 2013).
Understanding how intergenerational interaction occurs within a piece of
architecture is critical to the design of effective homes for multiple generations.
Vernacular Architectural Studies

In order to understand the relevance of the intergenerational lessons offered by vernacular architecture, previous research into the value of the vernacular must first be examined. There have been many studies of vernacular architecture seeking insight into just as many unique questions. The intimately sociocultural nature of vernacular architecture gives it almost unlimited potential for fruitful study. In his book introducing the concepts of vernacular architecture, Henry Glassie explains that “the study of vernacular architecture is a way that we expand the record, bit by bit…moving toward a complete view of the builder’s art…toward utility in the comprehensive study of humankind” (Glassie, 2000, 20). It is this very close relationship between the “builder’s art” and the “study of humankind” that has drawn the interest of many architects and scholars for centuries.

Vernacular architecture has not been analyzed in the context of intergenerational design to its full potential. Most studies that use the vernacular as a design tool for contemporary buildings tend to choose a specific building type and reinterpret its structure. These types of projects produce buildings based on a vernacular type, but do not necessarily synthesize lessons or explore the insight that is available into the human aspects of design. Many such projects produce results that look very similar to a given vernacular design but with a different scale, material palette, program, and/or context. These projects—while interesting—
miss the more important point that there are timeless non-formal lessons to be learned from vernacular architecture.

Alternatively, there are practicing architects that use the vernacular as a design tool by focusing on a vernacular method rather than a particular building. The work of the firm Fernau & Hartman Architects is a good example of this technique. The design process used by this group is termed “circumstantial design” by the architects. The method is described as “improvisational” and uses the vernacular as “a source not only of inspiration but design solutions” (Fernau, 2014). This distinction is important because it highlights the difference between using the vernacular as a kit of parts and using it as a learning tool.

**Current Intergenerational Architecture and Design**

Any study of intergenerational design must include an awareness and examination of what is already being researched and designed towards a similar end. Architecturally, a relatively small amount of research has been conducted on intergenerational spaces and what prevents, creates, and defines them. Most of these studies deal peripherally with this issue in the context of public space, but there are also a number of recent resources that have considered how houses can be designed to maximize interaction and minimize conflict between generations. Despite the apparent lack of academic studies dealing specifically with intergenerational architecture, there is no shortage of interest and corresponding anecdotal advice. Recent articles and books have shown a
consistent interest in multigenerational housing and its related issues. Beyond popular media, there are architects that have begun to develop and build the first steps of an intergenerational architecture.

Popular interest in intergenerational architecture can be gauged by the large number of articles appearing in national and international newspapers that include “intergenerational housing” as a keyword. *The New York Times* online article service reports 253 articles published between 2010 and the end of 2013 that include “intergenerational housing” as a keyword. The number grows by an additional 123 articles if the more generalized keywords “multigenerational housing” are added to the search (*The New York Times*, 2014). This means that on average, *The New York Times* published an article related to intergenerational living nearly every three days for three years. The articles take many different angles on the subject that are not of particular relevance to this study, but the fact that there is so much expressed interest in intergenerational architecture is important.

Perhaps as a reaction to the evident interest in intergenerational housing, a number of books have been published in the last 10 years that offer “practical” advice on how to live with different generational groups. As with most of the research in this area, these books consist primarily of advice often derived from a collection of personal stories. While these stories and pieces of advice have not been researched and cannot be considered fact, they do provide at least a
general overview of situational intergenerational interactions. An example of this type of book is *Together Again: a Creative Guide to Successful Multigenerational Living* by Sharon Graham Niederhaus. This particular work divides the subject into three categories: The Benefits, The Practicalities, and The Challenges. Each section then proceeds to introduce the personal account of participants that went through a multigenerational transition in an attempt to illuminate the process. Over the course of the book, specific architectural ideas are discussed, plans are included as illustrations (see figure 2.1), and specific advice is distilled from the stories. One thing that is emphasized repeatedly in the architectural recommendations is the balance between privacy and communication (Niederhaus and Graham, 2007).

![Figure 2.1 – example recommended multigenerational plan (Niederhaus and Graham, 2007, 118).](image-url)
Expanding public interest has led to architects engaging the concept of aging and intergenerational design in recent years. Unfortunately, the distinction between intergenerational and multigenerational has been lost with some architectural designs that ignore the importance of interaction, overstating the effectiveness of universal design access features such as grab-bars and ramps. More successful projects come in the form of individual houses or multifamily structures that are designed to adapt to different family structures and the process of aging itself. One example of this is a project from the California firm Fernau and Hartman Architects, titled The Cheesecake Cohousing Consortium (Fernau, 2014). This project houses eleven people of varying ages and addresses some of the interesting challenges of intergenerational design by carefully considering shared versus private space and by creating a structure that is intentionally designed to be adaptable and to age gracefully along with the occupants. Fernau and Hartman also express an interest in creating architecture that “adapts to the changing needs of a growing family” in other projects, but how exactly this is accomplished is somewhat unclear.

Figure 2.2 – The Cheesecake Cohousing Consortium (Fernau, 2014)
Another firm that has expressed interest in the challenges of intergenerational housing is Studio Gang in their competition entry *The Garden in the Machine: Recombinant Housing*. This project was created as a visionary submission to the *Foreclosed: Rehousing the American Dream* competition held by New York City’s Museum of Modern Art. What is interesting about this project is the analysis that was preformed on traditional and existing homes to extricate the differences between design intent and actual use. The conclusions were that a house must be rearranged to fit the different needs of intergenerational groups rather than forcing multiple generations into a house that was not designed for them. The project creates a flexible system of spaces that can be changed and re-changed as required, incorporating living space, public space, and working spaces (*The Garden*, 2012).

![Diagram of Recombinant Housing](image)

*Figure 2.3 – Recombinant Housing (*The Garden*, 2012, 25).*
The growing elder population has also spurred a movement among architectural firms to participate in the market for senior living facilities. While many of these do not deviate significantly from the traditional “nursing” or “retirement” home, new and innovative schemes from firms such as the Faulkner Design Group, Perkins Eastman, and others are beginning to introduce the concept of intergenerational design. Both the Faulkner Design Group and Perkins Eastman have created a number of facilities that are designed specifically to house the elderly. These buildings follow a traditional model ultimately, but they have introduced vast improvements such as a residential layout (rather than institutional), finishes that conceal the medical nature of the space, and perhaps most importantly, the inclusion of program elements that are designed to attract people of different generations. These elements include elements such as cafes, restaurants, communal entertainment spaces, and child play rooms/playgrounds (Senior Living, 2014).

These sorts of features are an important recognition of the intergenerational needs of seniors, but both firms recognize that “multi-faceted community” and “aging in place” are the “best answer for seniors for the future” (Designing Homes, 2010, 22). Without a sound set of design principles based on architectural research, it is hard to create an intergenerational environment that will encourage the kind of interaction that will benefit the residents to the highest degree possible.
Summary

The aim of this study is to improve intergenerational architecture by drawing on lessons learned from vernacular building design. The attainment of this goal requires a broad understanding of human aging and interaction before the true analysis of vernacular design begins. There is a substantial body of research available that deals with the many facets of aging and age relationships. While there are many diverse findings from numerous studies, generally it can be stated that people of all generations exhibit some social and psychological benefits from exposure to an intergenerational setting. These intergenerational settings have drawn the interest of an increasing number of researchers in recent years whose studies have vastly expanded the knowledge base of intergenerational interaction. Many of these studies indicate that intergenerational interaction is a self-perpetuating system in which people exposed to different generations are increasingly likely to seek out future interaction. This sort of interaction in turn reduces age-based discrimination and encourages social growth and physical health.

In order to gain insight and improve intergenerational architecture, this study examines the vernacular designs of societies that organically evolved a successful model. This type of study has been conducted for many different aims and it is generally agreed that vernacular architecture is a relevant source of design insight. Much of this insight is derived from the intimate relationship between a vernacular building and the social structure from which it stems.
Today, a number of architects have also begun to develop their own models and theories of intergenerational architecture with different levels of success beyond universal design. This study draws from vernacular examples in an effort to ground and expand the successful practice of intergenerational architectural design.
Chapter 3. VERNACULAR ARCHITECTURAL CASE STUDIES

Methodology

This thesis uses three vernacular case studies to examine intergenerational architecture. The case study is a powerful method of research because it allows the researcher to study a phenomenon in a proven existing setting. This research tool is recognized by architects and architectural scholars as being an effective method for analyzing architecture due to its ability to incorporate a broad context, explain casual links, and generalize to theory (Groat and Wang, 2002, 360). The study of intergenerational architecture requires a model that can account for and incorporate the cultural and social context of an example. Without the contextual inclusion afforded by a case study, a full understanding of the structure cannot be obtained and the underlying lessons may be overlooked. The lessons that can be learned from intergenerational examples are best described as casual links because their complexity renders it impossible to determine solid causal relationships. A case study model that incorporates multiple data sources best teases out these casual links and allows for the formulation of design concepts. Finally, the formation of a set of design concepts requires that a set of disparate examples be generalized into a usable theory. The case study model is the most effective way to take a group of very different intergenerational structures and generalize their characteristics into a coherent design theory.
The case studies used to examine intergenerational home architecture could come from any number of sources both historical and contemporary. Any place and time where people of different generations lived and thrived side by side has the potential to hold useful information. However, many of these potential structures would be difficult to study due to the numerous design biases that arise from the mind of a single architect. In order to reduce these individual biases, this study focuses on three distinct vernacular examples, each of which illustrates a culture in which intergenerational living is or was natural and expected. Focusing on these natively intergenerational cultures and their “direct and unself-conscious translation” (Rapoport, 1969, 2) into buildings allows this study to reduce the cultural distance between the natural practice of intergenerational living and the vernacular architecture that results. Architecture that is more intimate with its source culture provides more useful answers about how buildings can enforce a cultural practice. In order to explore what architecture can do to facilitate intergenerational living, this study examines the vernacular buildings of cultures that have already answered the question through years of organic design evolution.

Each case study begins with an overview of the cultural and historic context from which the vernacular structure derives its form. This information provides the critical backdrop upon which the physical architecture may be analyzed. The information is derived from a selection of the many sociological, anthropological, geographical, and historical studies that have been conducted on each of the
three examples. A basic understanding of the cultural context of a building reduces the confounding variables present in subsequent analysis, making the discussion and conclusions that may be drawn immensely more valuable.

Following the basic cultural information is a documentation section for the specific structure that is selected for study. Drawings are included to gain an understanding of the layout, structure, and construction technique of the building. Wherever possible spaces within and around the dwelling are described by their particular use, occupancy, and other specifics as appropriate. Photographs are used to help illustrate specific details and spatial characteristics throughout the documentation. The history of the development of the home (especially if built in stages) and occupant group over time is also explored. The organization of the site including other buildings that may be present is also an important piece of information that is recorded where available and appropriate.

The final section of each case study is an analysis of the structure previously documented with a special focus on physical and cultural features that encourage intergenerational interaction. In order to shed light on the physical characteristics of intergenerational architecture, a number of potential design concepts have been distilled from the diverse body of relevant literature. This list is composed of ten architectural design concepts that likely contribute to the suitability of a structure for intergenerational habitation. The response to each of these ideas is individually evaluated and recorded for each vernacular case
study. This data coding technique will lend comparable variables to the three distinct studies while also focusing the analysis of intergenerational architecture on issues that have been suggested by previous research in other fields. Each of the ten intergenerational design concepts is described below.

INTERGENERATIONAL DESIGN CONCEPTS

Generational Integration
Generational integration is critical to understanding how different generations interact within a building. Successful intergenerational relationships rely upon an exposure and familiarity with people of different ages. The design of a building has a strong effect on how integrated the different generations of a family are. This design factor focuses specifically on the existence of age-segregated sectors of the house and spaces that are shared between generations.

Spatial Hierarchy
An examination of the underlying structure that exists in successful intergenerational architecture is important in order to understand how the design of the building functions and its experiential qualities. The spatial hierarchy is primarily examined by identifying areas of the home that are commonly used by all generations and that serve as a gathering place or centerpiece for the design. A study of the focal points illuminates the architectural hierarchy present in the design.
Interior Connections
The organization of spaces within a house and how these spaces connect to one another has the potential to reveal important information about how an intergenerational home functions. This examination of internal connections focuses on the relationship of the various generations living quarters to one another and to shared common areas. The form that the circulation spaces between rooms takes is another factor that is considered.

Exterior Connections
The experience of arrival and departure in any living environment has significance for the inhabitants and is especially telling in a multiple generation dwelling. Separate entrances and exits for different generations would indicate a high degree of independence, while a single entry/exit could suggest a more dependent relationship.

Outdoor Extensions
The relationship of buildings to different landscape elements on the site of a house are important to understanding how it facilitates intergenerational living. Only a portion of the daily lives of an intergenerational occupant group takes place indoors, therefore it is critical to account for the arrangement of surrounding buildings and outdoor spaces which often serve as informal gathering, work, and play areas.
Private and Public Spaces

Often cited in intergenerational research, a degree of privacy is apparent in most intergenerational designs. An examination of how vernacular architecture balances privacy with more public family spaces is important. Additionally, many vernacular homes include spaces that are designed to host both formal and informal gatherings from the community.

Work and Play Spatial Juxtaposition

All houses have utilitarian “work-spaces” that are critical to the function of the house and “play-spaces” that serve as the primary living area for the occupants. Many vernacular structures have additional workspaces that contribute to an economic or social effort. The relationship between these work and play spaces and the people who use them, is an important characteristic of intergenerational architecture that warrants further examination.

Relationship to Primary Occupation

In societies without abundant transportation infrastructure, the home is often closely related to the primary occupation and source of income for the family. While this model is not as applicable in the same sense today, understanding this relationship is critical to understanding the architecture and could suggest ideas for future intergenerational dwellings.
Expandability

Many vernacular buildings were constructed in a number of phases due to changing spatial needs and limited resources. This is especially true when intergenerational designs are considered. Some buildings are designed to expand while others expand more organically. Rather than looking at a building as a homogenous whole, it is important to understand the phases of its development and construction.

Accessibility

Today, accessibility is considered as one of the most important features of intergenerational architecture. Due to different societies and time period’s ideas and practices of aging, these design features may not be as important to the design case studies included here. It is interesting to note the degree of accessibility exhibited by examples of successful intergenerational vernacular design.

Following an individual analysis of each case study, the insights and observations are compared and contrasted. Similar connections between vernacular intergenerational designs could suggest that the similar elements are linked to the success of the design. All three case studies and their responses to the ten design concepts are considered together and additional analysis and subsequent conclusions are in Chapters Four and Five.
This case study examines an Amish farmhouse originally built in 1805. Additions were made to the original house to accommodate retired generations. This particular house is part of an educational center in Lancaster, Pennsylvania called *The Amish Farm & House*. Established in 1955, the farmhouse was the first Amish home to be open to the public.

**CULTURAL CONTEXT**

Facing religious persecution following the protestant reformation, the Amish began settling in Pennsylvania around 1730 and continued to do so for the next 100 years (McKusick, 1980). Today the Amish represent a large community located throughout Pennsylvania and the Midwest. This close-knit community is still defined by their strict adherence to the Anabaptist faith and its many well-defined practices and values. John Hostetler describes the uniqueness of the Amish in his book *Amish Society* when he writes, "although the Amish have lived with industrialized America for centuries, they have moderated its influence on their personal lives, their families, their communities, and their values" (Hostetler, 1993, 3). While many immigrant groups that came to the United States during colonial times are nearly indistinguishable today, the Amish have retained most of the characteristics that define them as a group. Many of these characteristics stem from the Amish charter, which establishes the beliefs, traditions, and collective wisdom by which community members live (Hostetler, 1993).
Adherence to the charter manifests in many different ways throughout the Amish community lifestyle. On the surface, the charter defines the well-known appearance of the Amish people and their settlements. Most of these visual characteristics are due to a strong effort to avoid expressions of vanity through decorations, clothes, and architecture. This means that both men and women wear plain clothes (zippers and even buttons are seen as vain) and their architecture follows a similar trend. The Amish are also famous for their rejection of many modern technologies such as electricity and automobiles. This is a conscious effort to mitigate the influence of outsiders and more importantly to keep the community close and interconnected (Hostetler, 1993).

One very powerful theme resulting from the charter is the strong sense of community that pervades the Amish social structure. To the Amish, “the church” is not a place to worship, but rather a community’s effort to actively live the teachings of Jesus every day. In fact, the Amish do not have specific places of worship and ordained ministers; instead, collective worship rotates to the homes of different community members and all Amish men are expected to be willing to step in as minister if the need arises. The Amish see “community-building [as] central to the redemptive process; salvation is not an individualistic effort to be practiced when convenient” (Hostetler, 1993, 75). The core belief in the importance of the faith community leads to many communal practices among the Amish such as “the church” covering a member’s unpaid medical bills or helping to rebuild a barn destroyed by fire.
This strong sense of community also scales down to the individual family. Most Amish families occupy and run their own farm within the community. Babies are looked after by all members of the family and young children shadow their parents to learn the trade and be useful whenever possible. All education traditionally took place within the family, but United States law has forced the Amish to create official schools for their children, which are staffed by local community members. Children of school age take on significant jobs on the farm or around the house and are constantly learning from other family members. These duties escalate in proportion to the young person’s ability as they grow up and socialize in the community.

Upon marriage, an Amish man will either purchase his own farm with assistance from his parents and “the church” or take over the full time operation of his parent’s farm. Once a son takes over his father’s farm, the father frequently moves with his wife into an attached residence (“grossdaddyhaus” or “dawdy haus”) while the son and his family takes over the main farmhouse and its operation. Retirement for an Amish person does not mean idleness and isolation; instead a retiree simply slows work to a more comfortable pace and continues to provide assistance and advice to the younger generations. Inversely, the younger generations constantly seek the wisdom of their elders because “the duty to obey one’s parents is one of the main themes in Amish preaching” (Hostetler, 1993, 167). The overwhelming prevalence of respect for
the authority of the aged leads to a very stable social structure that keeps all members involved and active from birth to death.

What makes the Amish particularly interesting for this study is the congruity of the aging process with social and physical organization.

The integrity of the extended family remains intact; there is no conflict of generations. Amish activities embrace all ages that interact naturally and easily. There are no day care or old age centres. There is meaningful work and responsibility for all ages. Everyone is important and needed. With retirement the old step aside for the next generation but continue to live in adjacent premises. There is always work for the aged as well as great deference to their wisdom and experience. (O’Neil, 1997, 1135)

This unique subculture offers a look into the vernacular architecture of a group that has successfully integrated intergenerational living into everyday contemporary American life for the last 280 years. It is the strong community ties and accommodation of all generations that makes the Amish vernacular an interesting and useful architectural study.
The Amish Farm and House Museum is located just east of the city of Lancaster in Lancaster County, Pennsylvania. The state of Pennsylvania has the second largest population of Amish and Lancaster County has the highest concentration of any Pennsylvania county. The original portion of the farmhouse was constructed in 1805, but the farm was established by a direct land grant from William Penn as early as 1715 (The Amish, 2014). The Amish occupants built two additions to the original stone house, one of which was an attached *dawdy haus*. Although the exact dates of the two additions are unknown, the three different construction methods makes it possible to establish the order of construction.

Figure 3.1 – front of Amish farmhouse (author’s photo).
The oldest portion of the house is constructed of 16-inch-thick load-bearing stone walls and makes up the southeastern half of the home including the two main church rooms, the master bedroom, and the original kitchen as well as four of the eight bedrooms upstairs (see figure 3.2). The first addition is evident in the plan of the house due to the slightly thinner brick construction type that was used. This addition added a much larger kitchen, a brand new summer kitchen in the rear, and a second staircase. On the second floor, the first addition added boy’s and girl’s bedrooms as well as a second floor porch. The final addition was the dawdy haus, which was constructed with wood framing at a later date. This addition includes an independent kitchen, church room, two bedrooms, and staircase within the two-story construction on the west side of the farmhouse.
The floor plan of the finished farmhouse is essentially two offset squares that are each subdivided into four quadrants. There are no hallways between the rooms except for a small landing on the second floor of the original house. This lack of hallways was not uncommon for the time period and is not surprising in a community such as the Amish who, “when designing new homes or additions to an existing structure, the practicality of the interior arrangement is valued above outward form” (Scott, 1992, 11). This tendency is also evident in the complete lack of formal spaces for reception and entertaining anywhere in the plan. In fact, the Amish do not even include rooms for eating in their houses, instead preferring an eat-in kitchen (see figure 3.4). By doing away with formal hallways, entrance areas, and dining rooms, the Amish maximize the useable floor area and utilitarian function of the house.

The Amish are known for having large families with many children and consequently their architecture reflects this lifestyle. The farmhouse in this case study has six bedrooms dedicated to the children of the couple that was the primary operator of the farm. Since sharing bedrooms was very common, especially with younger children, this house could have easily housed upwards of ten children in addition to the parents and grandparents. The master bedroom is traditionally located on the ground floor to allow easy access and control over the farm and its activities at all hours of the day.
The “church room” or parlor of an Amish house is interesting because of its multiple uses. During everyday life, this room was often divided in half with a large partition and used as two separate rooms for sewing or other household chores and activities (see figure 3.3). Whenever there was a community gathering at the home such as a worship service, wedding, funeral, or social event the partition was opened and the room was used as a single large space. This room could be furnished with a variety of seating such as benches, which allowed for maximum flexibility. Often a source of heat such as a large fireplace or stove was located near the center to make visitors comfortable all year round. The main entrance to the home generally opens into this space, making it the most public room inside the house.

Figure 3.3 – Amish farmhouse church room and partition (author’s photo).
The kitchen was one of the most important spaces in the house. Many of the household activities and farm related chores revolved around the production and preparation of food. In addition, eating was always a central part of community gatherings that generally took place at a private home. Due to the fluctuation of necessary kitchen capacity, many homes had multiple cooking and food preparation areas. In this example, there are three kitchens that were used in some capacity. The main kitchen for the house was the one located in the first addition with the adjacent summer kitchen. This kitchen is the largest and could be further expanded with the use of the summer kitchen. These two rooms would have been the center of the home when the Amish occupied it.

Figure 3.4 – Amish farmhouse main kitchen (author’s photo).
The *dawdy haus* was the last addition to the farmhouse. The addition was intended to “provide living quarters for the grandparents of the family who have gone into semi-retirement and relinquished the major responsibility of the farm to the younger generation” (Scott, 1992, 17). Essentially, the *dawdy haus* contains all of the same functions of the main house, but on a slightly smaller scale. On the ground floor for example, the *dawdy haus* has its own kitchen and church room, which both could have functioned independently from the main house. Both of these ground floor rooms also have their own access to the outside.

In addition, the semi-retired residents of the Amish farmhouse have their own staircase and bedrooms on the second floor. All of these independent facilities are important because the retired generation continued to operate their own household (including the preparation and consumption of their own meals) but on a much reduced scale. The close proximity and structural integration of the *dawdy haus* ensures that the oldest generation is available to the younger generation while also providing a sense of social security to the retirees. The separate functional and living spaces on the other hand provides a high degree of privacy for the grandparents and the middle generation. Upon the death of an elderly resident, the *dawdy haus* was sometimes rented out to other Amish community members or farm helpers until the current responsible generation was ready to relinquish the farm to their own children.
In addition to the farmhouse itself, the Amish farm had a number of other buildings on the grounds and large agricultural fields. As in any farming community, the family’s main livelihood came from the production and processing of food crops and animals. The cluster of smaller buildings around the farmhouse includes utilities that would be used on a daily basis such as for baking, water drawing, tobacco drying, and sanitary functions. The only bathroom present on the grounds is an outhouse located slightly away from the home. Later Amish houses would have included indoor bathrooms. A short distance away from the house is the main barn, which would have held most of the farming equipment, supplies, and animals. This range of distance from the house also includes additional animal housing and corn storage. Furthest away are the springhouse (due to the topography of the stream) and the limekiln, which was used to produce fertilizer and building materials.

Figure 3.5 – Amish farmhouse site plan (author’s survey).
Figure 3.6 – Amish farmhouse child’s bedroom (author’s photo).

Figure 3.7 – Amish farmhouse dawdy bedroom (author’s photo).
ANALYSIS

Generational Integration

The Amish farmhouse exhibits a high level of generational integration through the distribution and organization of rooms. In addition, Amish society makes learning from ones elders a critical piece of every youth’s education and socialization. The most private rooms with the highest potential for age segregation are the upstairs bedrooms. While the inhabitants of these spaces are organized by age, the physical uniformity of the rooms and the direct connections between them ensure that they do not become off-limits to any specific generation.

Interaction is at its highest level in hybrid spaces on the ground floor such as the kitchens and church rooms. In these spaces, the younger Amish are learning all of kinds of skills from their parents and grandparents that they will use and pass down for the rest of their lives. These truly intergenerational spaces allow for levels of interaction that are higher than many other types of homes. The presence of community spaces within the house and the frequent visits from community members that made these spaces necessary would also ensure that every child in the community had a similarly high level of intergenerational exposure integrated into the home experience.
Spatial Hierarchy

The Amish farmhouse exhibits a clear spatial hierarchy with the main focal points being the combination of the kitchen and the church rooms. Between these two areas, connections are made directly to nearly every room in the house. Regardless of age or daily activity, every member of the household would pass through this central core each day. Additionally the kitchen and church rooms serve as the public buffers between the outside and the relative privacy of the bedrooms on the second floor. The dawdy haus can be seen in the hierarchy as a second unit with a primary connection to the main house through the kitchen area.

![Figure 3.8 – Amish farmhouse Spatial Hierarchy Diagram (author's drawing).]
Interior Connections

The rooms contained within the Amish farmhouse have a high degree of connectivity. This is in part due to the three separate staircases and the nearly complete lack of dedicated circulation space. A number of the bedrooms have doors that connect directly to other bedrooms while also having direct access to one of the stairways. This high degree of connectivity could be in part due to the additive nature of a farmhouse that was built in three phases. It was probably easier, for example, to transform a window into a door than to seal it completely when an adjacent addition was constructed. Although some of the bedrooms do have connections to each other, special effort appears to have been made to ensure that all of the rooms can get to a staircase without passing through another bedroom. This effort is evident in the way that the main kitchen staircase splits at the landing to service two separate rooms.

On the ground floor, the moveable partition that separates the church rooms is of particular interest. This arrangement allows the room to be subdivided into two smaller functional spaces when not being used as a public gathering room. The added flexibility ensures that there is no wasted space inside the home and consequently that there is plenty of space for different intergenerational activities/chores and for community gatherings when needed. The use of a moveable partition also allows for the temporary seclusion of spaces that could otherwise be difficult in a house without a hallway.
Exterior Connections

The Amish farmhouse has numerous exits, with only five of sixteen rooms lacking a door directly to the outside. Every room on the ground floor has an exterior door and three of the upstairs rooms have a door that connects to a balcony, which has external stairs to the ground level. This high degree of connectivity with the outdoors is probably a result of the presence of an outhouse rather than an indoor bathroom and the fact that most of the daily jobs of an Amish person involve the many other structures on the property. The direct connection to the outside in both the dawdy haus and the children’s bedrooms indicates that both the elderly and the young had a relatively high level of independence on the farm.

Outdoor Extensions

As farmers, the Amish depend on the land on which they live. This being the case, the Amish farmhouse is really only the center of a much larger agricultural operation. The house itself has many connections to the outside as discussed above, but it also has a number of covered porches and enclosed semi-outdoor spaces. There is a porch on the front and rear of the main house that would have served as an intermediary space between the farm activities and home activities. The lack of air conditioning in an Amish farmhouse creates an added appeal to a porch and creates the need for the summer kitchen. The summer kitchen was basically an extension of the primary kitchen that had more windows that could be opened to reduce the heat created by cooking.
The lack of indoor plumbing in the original house also meant that the main bathroom was an outhouse located a short distance from the house in the backyard. Additionally a number of smaller utilities such as a bake oven and windmill-powered well were also located in this area. The small outdoors space between the back of the house and the utility buildings would likely have served as an informal “room” of sorts when the weather was favorable.

Public and Private Spaces
For a society that has intentionally secluded itself from the general public, there is not a lot of privacy within the Amish home. This general lack of privacy stems primarily from the connections between bedrooms, the lack of circulation space, and the high probability that bedrooms were shared. Additionally the presence of public community gathering spaces that are also the largest family living spaces limits the availability of private family space outside of the bedrooms. It must also be considered that an Amish person would have spent a fair amount of time away from the house (out in the fields or otherwise occupied), which could lend a degree of privacy to an individual’s day. There is a relatively high degree of separation between the retired couple and the rest of the family, which allows for the younger couple to operate the main house with a relatively high degree of privacy from their parents. The public nature of the space within the house limits the privacy of the residents, but the farmhouse architecture also suggests that the Amish have respect for autonomy that does lead to a degree of privacy.
Work and Play Spatial Juxtaposition

The ground floor of the Amish farmhouse contains a variety of functional workspaces including the kitchen as well as functional gathering spaces like the church rooms. All of these spaces would have been used for daily tasks, with no space specifically designated for play or relaxation (like a living room). This does not mean however that “play” did not happen but rather that it most likely occurred simultaneously with work. Young children would play in the same spaces in which their parents and siblings worked. This sort of environment leads to a high degree of intergenerational interaction on a daily basis and allows for the natural passing of practical knowledge between generations. It must also be remembered that both work and play occurred outdoors to a high degree for much of the year.

Social events occurring with multiple families from the community would also be an opportunity to socialize and play. These events typically encouraged the younger generations to interact with one another and while the main purposes of the gathering were attended to by the older generations. Many times work was again mixed with play at these sorts of gatherings—the most well-publicized type being a traditional community barn raising.
Relationship to Primary Occupation

The Amish rarely work outside of their own home, electing rather to work on the family farm or as part of another family business. The Amish community will sometimes form small businesses such as cabinet making, construction, or buggy manufacturing that employ their members, but most work at home. This tendency makes the farmhouse the headquarters of the primary business of each Amish family. The close tie between home life and business operations likely contributes to the high degree of intergenerational involvement that the Amish are known for.

The architecture of the home itself reflects its business side through the presence of the large kitchen and functional workspaces. The kitchen of an Amish house is generally much larger than would be needed to simply prepare meals for the family. This is because it was also used as one of the primary food processing areas for the family business, which sometimes involved preserving, baking, storing, cooking, and other activities. Additionally, “cottage industries” and household tasks such as quilting, clothes making, wood carving, and others were often executed on the main floor of the farmhouse.

Expandability

The Amish have no hesitation to expand upon their home if needed. This particular house was built in three separate phases to include larger working spaces and bedrooms for an expanding extended family. These additions are
essentially two story rectangles built adjacent to the previously existing structures. Openings in the existing walls became doors between rooms. This willingness to expand could stem from the Amish’s focus on functionality, close connection the building trades, and obligation to care for their elderly at home.

Accessibility

No particular accessibility features appear in the Amish farmhouse. The *dawdy haus* contains basically the same layout as the main house but at a smaller scale, including a second floor bedroom and a steep set of stairs. The existence of the *dawdy haus* itself could be considered as a specific feature designed to make living easier for the elderly, but the architecture itself makes few concessions.
This case study focuses on the Pascual Martinez House near Taos, New Mexico—one of the best-preserved intergenerational haciendas and a compelling specimen of vernacular architecture. Very few original examples of this type of architecture exist today due to the biodegradable nature of adobe construction and the limited effort to preserve vernacular structures. The Martinez House was nearly destroyed by erosion, but was repaired and reconstructed by Taos Historic Museums before being designated on the National Register of Historic Places by The Department of the Interior.

Figure 3.9 – Martinez hacienda reconstruction drawing (Bunting, 1992, 31).

CULTURAL CONTEXT
The Spanish Colonial era of the Americas and what is now the United States began with the 1492 expedition of Christopher Columbus. During this time, Spanish settlements were limited to small relatively unsuccessful attempts at colonization in the Caribbean and South America. Over the next ten years however, the Spanish presence rapidly increased and many settlements became permanent. Early in the 16th century, the Spanish began an aggressive campaign to claim the lands held by the Incan and Aztec Empires. By 1700, both
of these main sources of resistance had fallen and New Spain was firmly established throughout South America, Central America, and the southwestern portion of the modern United States. Over time, the Spanish spread northward and all the way to the Mississippi River, but eventually lost most of their claims to the newly established Mexican state (American, 2014). All of the land west of the Mississippi and north of the Rio Grande became part of the United States of America via the Louisiana Purchase (1803), Texas Annexation (1845), Mexican Cessation (1848), and a number of smaller expansions.

Frequent conflict in the southwestern United States created an interesting mix of people and cultures. Early Spanish settlements were primarily of the mission typology, meaning that they were agricultural estates centered on a church and led by Christian friars. The main goal of this type of New World settlement was
to “instruct the inhabitants in the Catholic faith” (Newcomb, 1990, 17), creating law abiding tax paying citizens out of the native population. This type of settlement guaranteed that the population of the southwest region consisted of a vibrant mix of Mexicans, Native Americans, Spanish, and the offspring of every possible combination. The architecture of the missions is as much an amalgamation of cultures as the population, described as “almost equally Indian and Spanish; Spanish in plan, form and idea; Indian in methods of construction and detail” (Newcomb, 1990, 19). Eventually the mission system was secularized and sold off by the Mexican government, effectively releasing the diverse population and building traditions into the regional economy and paving the way for the expansion of the private family hacienda and ranch style settlement.

With the end of the mission system, “the citizens of New Mexico began to express a new entrepreneurial spirit not based on the old Spanish class system but centered more on individual achievement” (Hacienda, 3). This new spirit led to the establishment of a number of ranches in the region that became the economic strongholds of newly established powerful families. The largest of this type of freestanding ranch structure was known as the hacienda. Each hacienda became the home of an important family and an economic center of the surrounding region. Many of these structures served multiple purposes such as home, trading post, corral, chapel, fortress, and meeting point. The family that owned and operated a hacienda was necessarily intergenerational as the
hacienda was the center of a thriving family business that relied upon members of all generations. In addition to serving all members of a family, the hacienda also served as a hub for the very diverse population of the area and any travelers passing through. The dense combination of functions and people was also in part due to the fear of Native American raids, although a lasting peace was established in the mid 1800’s (Bunting, 1992).

While the diversity of the population makes it difficult to identify prevalent social trends within the New Mexican family, it also ensures that these types of families had an unusually high level of intergenerational exposure. The amalgamation of home, place of business, and community center are a rare combination that indicates involvement on the parts of all family members. The hacienda architecture itself also expresses this integration through the presence of economic and community spaces alongside private residences. It is this spatial and societal integration through vernacular design that makes the study of the Spanish-Colonial hacienda interesting to the development of an intergenerational architecture.
The Martinez Hacienda is located just outside of Taos, New Mexico along the banks of the Rio Pueblo de Taos. The majority of the house was built between 1824 and 1827 but a small portion is significantly older (see figure 3.13; rooms 3, 4, 5, 6). Native Americans built the oldest portion of the house before it was purchased and added onto by the Martinez family over time. The single story structure consists of adobe walls roughly 12 feet high and 18 inches thick spanned by a wooden roof structure topped with a layer of adobe to keep out the elements. Due to limitations in the length of spanning timber available, nearly all rooms in this region are about 15 feet wide, but the length can vary considerably (Bunting, 1992). The Martinez Hacienda consists of two adjacent square courtyards defined by 21 typical modular adobe rooms.

Figure 3.11 – Martinez hacienda reconstruction of main section (Foster, 2004, 201).
Initially, Severino Martinez purchased the house, expanded it, and lived there with his wife and six children. Five of the children moved on to other pursuits and Severino’s son Pascual Martinez took over the operations of the hacienda with his wife and growing family (Chavez, 1981). After the death of his wife, Severino occupied two of the residential rooms (see figure 3.13; rooms 1 and 2)—treating them as a separate apartment—while Pascual and his family resided in the four rooms adjacent (see figure 3.13; rooms 3, 4, 5, 6). In addition to the Martinez family, the hacienda would have been home to a number of servants, workers, and guests that resided in rooms off of the second courtyard. The hacienda was home to successive generations of the Martinez family for over 100 years when it was finally abandoned in 1926.

Figure 3.12 – Martinez hacienda main elevation in 1923 (Bunting, 1992, 26).

At the peak of its prosperity, the hacienda was “the headquarters of a 10,000 acre ranch” (Bunting, 1992, 23), a center of regional trade, and the home of a three-generation Martinez family. The economic success of the Martinez family was based on the profits from running the ranch and from the sales of goods imported and exported by Pascual to and from Mexico. These two businesses are apparent in the architecture of the house in a number of ways. The shape of the building is beneficial to cattle ranching because it allows for a protected place in the courtyard (*placita*) to be used as a corral. In addition the rooms
surrounding one of the courtyards hold many of the functions of a ranch including the tack room and the blacksmith. On the other hand, the trade business is also evident in the fact that the main point of sale for Pascual’s goods is located right in the center of the house. Additionally, the two entrances to the hacienda (north and east zauan) are designed specifically to accommodate the width of the carts that were used to transport the goods to and from Chihuahua, Mexico.

Figure 3.13 – Martinez hacienda floor plan (Hacienda, 2).
Because of the climate of New Mexico, the majority of a person’s time at the Martinez hacienda was spent outdoors in the courtyards or on the ranch *(Hacienda, 1)*. Consequently the indoor spaces are marginalized while the courtyards are the organizational, occupational, and social centers of the design. In part due to defensive requirements, the importance of the courtyards is evident in the plan, as every room has windows and doors facing exclusively into one of the courtyards. While both courtyards are similarly central to the surrounding structure, they are actually very different in the way that they are used. The
original courtyard serves mainly as the public and social area of the hacienda. The Martinez family living quarters, the place of business, the chapel, and the public gathering area define the walls of this courtyard. Consequently, one can imagine the type of interaction that would have taken place between family members, employees, visiting traders, and local residents in this courtyard. On the other hand, the second courtyard was much more focused on ranching operations, goods production, and general services. Here, the employees of the Martinez family produced many of the items that Pascual would sell and trade with his contacts in Mexico, such as processed woolen goods and animal hides (Hacienda, pp 3). In addition, livestock were kept in the second courtyard as well as raw materials.

Figure 3.15 – Martinez hacienda west wall of courtyard in 1923 (Bunting, 1992, 28).

Frontier settlements—such as the Martinez hacienda—were relatively plain out of necessity. Even when owned by a wealthy family, the scarcity of materials made excessive decoration or even extra furniture uncommon. Additionally, the adobe construction did not allow for much embellishment of detail beyond the inclusion
of wooden window and door framing that occasionally displayed a high level of craftsmanship. The Martinez Hacienda is no exception to this rule. The walls of the interior spaces are plain, flat, and unpainted, featuring the occasional shelf or wall mounted hook. The floors of the entire hacienda are made of packed and swept dirt except for the public gathering room; this indicates the importance of visitors and guests. One detail that begins to define a hierarchy of rooms is the distinctive adobe corner fireplace (see figure 3.16). These are located in rooms that were used primarily at night, such as bedrooms.

Figure 3.16 – Martinez hacienda adobe fireplace (Bunting, 1992, 28, 60).
Figure 3.17 – Martinez hacienda typical family room (wikimedia commons).

Figure 3.18 – Martinez hacienda father and son by grist mill (Bunting, 1992, 31).
ANALYSIS

Generational Integration

The architecture of the Martinez hacienda suggests a high level of generational integration. The very limited space dedicated solely to sleeping suggests that the family shared rooms. It is also possible that the living areas of the house were also used as sleeping quarters at night. In either case, there is essentially no space within the house that would be considered adult or child specific. The near complete lack of other homes nearby and a coherent community would also cause the different generations present in the hacienda to be closer to one another and to share tasks. At the time, there where no schools for the hacienda dwelling children to attend, so the education of a child must have been based off of learning from family, guests, and hands-on experience.

The inward-facing organization of the hacienda around two courtyards extends the generational integration beyond the sharing of tasks. At any point during a day, a child would be able to see the adult activities occurring anywhere in the house and vice versa. This constant exposure to people of other generations would have spawned a deep sense of intergenerational familiarity. A high level of familiarity such as this could have led to children participating in adult activities such as ranching, manufacturing, construction, or trade at a younger age than other less exposed children. On the other hand, adults and the elderly exposed to children’s play on a daily basis would have been more likely to engage with the children.
Spatial Hierarchy

The Spanish-Colonial hacienda and specifically the Martinez hacienda exhibit a very clear spatial hierarchy. There are two main focal points, the west and east placitas. Each placita is a large open courtyard with doors to nearly all of the surrounding rooms. The evident lack of internal connections between rooms emphasizes the centrality of the palcitas. The division of purpose between the two center points serves to concentrate the majority of the intergenerational interaction on the much more public east placita. This area would have been very lively during the day and would work as a lens to focus the many divergent activities of the hacienda into one space.

Figure 3.19 – Martinez hacienda Spatial Hierarchy Diagram (author's drawing).
Interior Connections

Not considering the courtyards as interior space, the hacienda is almost devoid of interior connections. Almost all of the seven interior access doors are between living space and sleeping spaces. Even these doorways did not include a closeable partition in all cases. This interesting lack of connectivity inside creates a modular spatial system and lends significant independence to each interior space—with the hacienda functioning more like a tiny city than a house. This sort of spatial independence could help to give family members and workers a degree of privacy within the intergenerational structure.

Exterior Connections

Exterior spaces and connections are extremely important to the Martinez hacienda. As discussed above, the main focal points of the hacienda are the two courtyards formed by the surrounding rooms. Each room then has a connection to one of the courtyards depending on its function. Rather than including internal circulation space, the hacienda uses the outside edge of each courtyard as circulation, building a roof over part of it. This form of external circulation creates a large communal intergenerational space that everyone must use everyday. Such centrality of an outdoor space is only possible in a favorable climate like that found in New Mexico. The courtyard spaces would have been hubs of activity and contained resources such as the well. Much of an individuals time was spent outdoors and specifically in the courtyard.
On the other hand, the hacienda has extremely limited access to the outside world. Two gates were originally the only access points to the hacienda—one for each courtyard. These gates were just wide enough to allow for the trade carts to enter and were strong enough to prevent Native American attacks. While the attacks were not a problem for most of the hacienda’s life, the inward focus remained. The controlled access to the courtyards coupled with the favorable climate made them function more like an interior room than an outdoor space. This type of hybrid space could help both visitors and residents of all ages feel more comfortable due to the protected yet informal nature of a courtyard.

Outdoor Extensions

As previously mentioned, the courtyards are extremely important outdoor extensions of the hacienda. In addition, the hacienda would have had a number of buildings external to the house that helped support the ranching operations. These types of buildings would not have housed anything extremely valuable due to the chaotic and uncertain social scene in New Mexico at the time. Structures like the nearby gristmill expanded the functionality of the ranch while other important facilities like an outhouse were also located nearby. In general, the majority of the activity and physical structures on the grounds of the hacienda were contained within the housing structure itself. This architectural focus brought the economic activities into the home where different generations could observe and be involved where appropriate.
Public Spaces and Privacy

A self-contained structure centering on a public courtyard like the Martinez hacienda would seem to offer little privacy to the residents, but the architecture of the house takes steps to counter this problem. The issue of privacy is addressed by the lack of connections between private and public rooms. The sleeping areas of the house do not have doors directly to the courtyard, which adds an additional layer of privacy to the home. This sort of compartmentalization allows hacienda residents to retreat to their more private quarters anytime they desire.

The privacy provided by the location of the bedrooms contrasts sharply with that of the public courtyards. These spaces are public for family members, but also for other community members who travel to the hacienda due to its economic and social centrality. The balance of privacy and public space seems to have been important when the hacienda was originally constructed.

Work and Play Spatial Juxtaposition

The Martinez hacienda has a relatively clear division of work and play spaces with some areas falling in between. The primary elements that divide the two types of spaces are the courtyards. The west courtyard is surrounded almost exclusively by workspaces such as the blacksmith and weaver area, while the east courtyard has the social “play” spaces including the residential quarters and community gathering space. While it is also likely that social activities occurred in the workspaces and vice versa, the division served to focus and insulate
activities by type. Both of the courtyards themselves could be considered both as work and play spaces. The courtyard was the largest shared open space, which would have made it critical for many ranching operations, but also a social center for the workers and residents.

Relationship to Primary Occupation
The hacienda served as the center of a successful ranching operation, but also as a hub of the local economy. The single structure of the Martinez hacienda housed the family in charge, some of their workers, their animals, goods processing and storage facilities, social gathering space, trading space, and other functions. Many of the spaces in the home would have served people in the surrounding area as much as they served the actual inhabitants of the home. This sort of centrality would expose the intergenerational family to an extremely diverse group of people on a daily basis.

Expandability
The Martinez hacienda was constructed in phases as the ranches success grew and the spatial needs of the occupants changed. This was not an uncommon practice in hacienda architecture. Typically a hacienda would start as a linear bar of rooms before slowly expanding to an “L” shaped configuration. If the family was successful enough, the “L” could eventually wrap all the way around to create an enclosed courtyard (see figure 3.20). The Martinez hacienda was so successful that it eventually encompassed two courtyards of equal size. This
The type of expansion is effective because it allows the house to automatically grow its public social space alongside the necessary functional spaces without dedicating any additional resources.

Figure 3.20 – Typical Hacienda Growth Diagram (McAlester and McAlester, 1996, 133).

Accessibility

No particular accessibility features appear to have been specifically designed into the Martinez hacienda. The single story nature of hacienda architecture is certainly beneficial to the elderly and young children, but is also a product of the adobe construction type utilized. A somewhat separated apartment was created for the oldest resident of the hacienda, sharing a kitchen and other facilities with the rest of the house. The shared nature of cooking and other responsibilities would have also been helpful to the physically limited.
CS3: The Industrial Alley House

This case study examines a set of three residences located on a single typical lot between Fig Street and West 4th Street in Mount Carmel, Pennsylvania. Two of the residential units share a party wall and are located on the main road (W. 4th St.) while the third is a freestanding structure built with alley frontage (Fig St.). All three houses were built in the early 20th century by the landowner for coal mine (and supporting industry) workers. This type of industrial alley house can still be found on nearly every lot with alley frontage in Mount Carmel. Most of the existing alley houses are still occupied today and were originally built during the period of expansion that came with the industrial revolution.

CULTURAL CONTEXT

The anthracite and bituminous coal beds beneath the earth’s surface culturally defined much of Pennsylvania and the surrounding region. The extraction and utilization of this natural resource created a microcosm within the industrial revolution that influenced every aspect of a “coal town” and its occupants. By the year 1850, coal replaced wood as the leading fuel source in the United States and Pennsylvania was the largest producer of coal. By 1890 the industrial revolution was well underway and Pennsylvanians were mining around eight times more coal than any other state. In this respect, the majority of the country’s industrial product had its roots in a Pennsylvania coalfield. Despite the heavy national reliance on their product, coal miners led a difficult life. Miners
worked long hours in a very dangerous environment for little pay. Additionally, the large coal companies that operated the mines also ran the towns in which the workers lived, leading to many interesting urban and architectural issues (Lindermuth, 2013).

Coal mining in the Shamokin Valley was originally a very small-scale operation due to the difficulty in transporting the product to market. After the Philadelphia & Reading Railroad connected to the area in 1844, many large companies and land speculators came to the area, which sparked an explosion of coal production and population growth. The rapid expansion and influx of a population seeking riches from the earth has been compared to the California gold rush five years later (Lindermuth, 2013). Unlike the gold rush, there was huge wealth potential actually present in the Pennsylvania coalfields. However, this wealth was primarily funneled to some of the richest men in the country who owned the railroads and the coal companies. The early individual coal miner on the other hand, often had nothing to his name, in some cases being compensated directly with goods from the company store. Many miners were forced to live in company housing, with the rent automatically deducted from their salary. In addition, miners were often forced to purchase necessities on credit, which resulted in binding debt. Coal companies originally created these company towns because the presence of organized and stable communities was a way to draw laborers to the region that was otherwise untamed wilderness in the early years.
Mount Carmel was not a true company town in the extreme sense described above because it was one of the later towns developed in the anthracite coal region. The Mount Carmel Borough was not incorporated until 1862—well after the draw of steady employment in the mines had been established. However, the existence of the town was completely dependant on the operation of the coal mine that surrounded it on all sides. In the case of Mount Carmel, the large landowners saw it as more profitable to sell off individual lots to the labor class and small-scale developers than to develop the property themselves. This led to a much less uniform housing scene than would be found in a true company town and eventually to the rise of the alley house.

Life was still difficult in Mount Carmel with low paying, difficult, and dangerous work as the only option. Coal miners worked a very physically strenuous job, often for 12 hours a day six days a week. At the time, accidents were common and death not an unlikely result of a long day in the mine. In the neighboring town of Shamokin, 27 accidents and seven deaths were reported for a single month of 1883. The families of the victims of fatal accidents such as these were sometimes compensated as little as 250 dollars—the life of a worker being worth very little at this time (Lindermuth, 2013). Outside of the mine, workers had few options and little time with which to pursue independent activities. This led to a common pattern across the region of stopping at the local bar on the way home from work. This sort of difficult and monotonous spartan existence did spawn a sense of solidarity among workers, which encouraged the growth of numerous
organizations and secret societies—some like the infamous Molly McGuires participated in violent guerilla campaigns against the industrial complex. Eventually this sense of solidarity solidified in an organized labor movement towards unionization under the United Mine Workers of America in 1890.

Home for a miner and his family was a place of refuge from the struggles of a day in the mines, but was not absent of difficulties. The wife of a miner was responsible for the maintenance and upkeep of the home as well as preparing meals, caring for children (and sometimes the elderly), doing the wash, and numerous other tasks. The woman of the household was often left to take care of these many tasks with very little assistance because all of the men and male children were employed in the mines. The huge task of taking care of a house and family and the financial difficulties of starting a new household, coupled with the prevalence of alley houses in Mount Carmel led to a relationship forming between the occupants of the front houses and the alley houses.

Figure 3.21 – Age-sex profile shows generation divide (Mosher and Holdsworth, 1992, 185).
In a study on the phenomenon of the alley house, Mosher and Holdsworth determined that the “age-sex profiles of the alley dwelling population in Mount Carmel support the idea that younger workers and their families occupied alleys”. By looking at specific census data, the study was also able to identify numerous occasions where the “older front street population was linked to the back house via kinship” (Mosher and Holdsworth, 1992, 184). This suggests that an older couple living in a front house would rent the alley house to their married children. Perhaps most telling is the description provided below of a specific instance of intergenerational living in Mount Carmel.

The Rogers family who lived at 329 West Fig rented an alley house to their 24-year-old son, his 20-year-old wife and their 1-year-old daughter. Alleys thus became a place where the grown children (or parents) of front-street dwellers could enjoy the benefits of their parents’ (or children’s) property investment. By building alley houses, property owners could ease a child or parent’s entry into society or old age. Alley houses allowed nuclear and extended families to maintain spatial proximity as children grew up. Moreover, the women of front-street/alley clusters who were not employed outside the home could more easily share the jobs of cleaning, cooking, babyminding and looking after aging or sick relatives (Mosher and Holdsworth, 1992, 185).

Rather than sharing a single home, the alley houses of Mount Carmel created a family compound in which different generations could remain close, but also maintain a certain distance. This distance allowed both the young and the old to keep a sense of independence while still benefiting from having family nearby. Additionally, the almost universal adoption of the alley house in Mount Carmel created entire streets (the alleys) of neighbors that were in a similar stage in life,
and consequently had a lot in common. In this respect, alley dwellers shared familial ties with the front house and situational ties with the alley houses on either side. While relatively undocumented, this stratified housing situation must have had a powerful impact upon the cultural and societal norms that shaped ideas about aging.

It is the balance of dependence and independence between generations coupled with the presence of a large volume of intergenerational families that makes the alley houses of Mount Carmel an interesting vernacular to study. The interwoven nature of this particular housing scene has the potential to offer many lessons towards intergenerational architecture.
The architecture and urban planning of Mount Carmel is heavily influenced by the large coal companies that dominated the economy of the region for most of modern history. Beginning in the late 1860's, the Mount Carmel Locust Mountain Coal Company began to sell residential lots within an urban grid they surveyed in previous years. These lots were primarily sold to small-scale land investors resulting in a heavily “atomized” property market with many different landowners (Mosher and Holdsworth, 1992). Additionally, most of the land surrounding the town of Mount Carmel was also owned by the coal companies, which affected the ability of the town to expand and contract. This inhibited ability to grow and shrink with the spatial needs of a rapidly fluctuating population led to the formation of an artificially dense community much in the same way that a town wall would increase the density of the enclosed town (Mosher and Holdsworth, 1992).

Figure 3.22 – Alley house evolution in Mount Carmel (Mosher and Holdsworth, 1992, 178).
The already dense town of Mount Carmel faced the challenge of adding even more people as the demand for coal—and consequently the number of coal mining jobs—increased dramatically throughout the industrial revolution. The growing population was forced to reside in a static land area because of the restricted residential land allowance of the coal companies. This imbalance between population and land available forced the many atomized property owners to be creative in how they filled their lots. Subdivision became the strategy that most landowners in Mount Carmel utilized to grow the number of renters an individual property could hold. This strategy was widely used throughout Pennsylvania coal country to varying degrees, with Mount Carmel being one of the most subdivided (see figure 3.23).

Figure 3.23 – Prevalence and arrangement by town (Mosher and Holdsworth, 1992, 177).
Standard blocks planned by the Mount Carmel Locust Mountain Coal Company consisted of two back-to-back rows of 25 feet by 150 feet lots separated by an internal alleyway. In this system, each individual lot faced a main street (numbered, for example 3rd, 4th, etc) and an alleyway (named after trees such as Fig Street) intended to provide rear service access to the lot. As landowners expanded the occupancy of their lots, they began to divide both widthwise and depthwise, creating a “rear house” or “alley house” that only had direct access to the alley (see figure 3.24). Unlike the more decorative front house, the alley house typically had no separation from the surface of the street and was “part and parcel of a backyard clutter that in many communities included bake ovens, piggeries, rabbit hutches, tinsmiths, shops, breweries, and even slaughterhouses” (Mosher and Holdsworth, 1992, 181).

Figure 3.24 – Alley house lot division in Mount Carmel (author’s drawing).
The specific lot under examination in this study was probably subdivided into four equal components at one point before one of the alley quadrants was cleared to accommodate parking. Both of the buildings on this lot were built between 1890 and 1920 and follow a pattern typical of Mount Carmel development. The structure of each house consists of a stone basement level with two stories of wood framed construction on top. In addition each house has an attic space, which is used as an additional bedroom in the alley house. The walls of each house consist of vertical wooden studs with an exterior layer of horizontal siding and an interior wall consisting of wooden lath covered in a finished plaster surface. Insulation in the walls was very uncommon at the time, so any thermal properties of the wall come from the air gap that is left between the studs.

This type of construction is very widespread in the region in part because of its affordability and simplicity. Most of the alley housing structures in Mount Carmel were built "by labour for labour" (Mosher and Holdsworth, 1992, 175) and consequently are not complicated constructions that would have required high levels of skill to build. These self-built vernacular structures are functional solutions for an industrial population during a housing shortage. The hardworking population that built and resided in the alley houses of Mount Carmel could not spare the money, time, and effort required to implement more detailed or advanced housing designs. Despite this, many of the original front houses and alley houses have survived and continue to house the inhabitants of Mount Carmel after more than 100 years.
Figure 3.25 – Front and alley house floor plan (author’s survey).

1. kitchen
2. dining room
3. living room
4. bedroom
While the structures remain in Mount Carmel, very little information about the occupants beyond general demographics is readily available. The houses however do give some insight into the lives of the intergenerational families that shared a subdivided lot. Both the alley house and the front house have a linear ground floor plan with a living room near the front door and a kitchen in the back. Traditionally the kitchen was located in the rear of the house (facing the alley) to make the acceptance of deliveries and the disposal of waste more convenient via the alley. However, this concept was challenged when additional houses were built on the alley side of the lot. This arrangement meant that the two kitchens of the front and alley house faced each other rather than an accessible alley.

A steep set of stairs leads up from the center of the house to the second (and third) floor. This floor consists solely of small bedrooms and the only bathroom in the house, which would not have been originally included. The limited living space downstairs and the lack of an indoor/public bathroom suggests that guests and visitors were most likely infrequent. The presence of all necessary facilities in both the front house and the alley house indicates that each was treated as an independent dwelling (and family). However, the shared backyard and adjacent kitchens—with doors to the outside—does suggest a level interaction between the occupants of the front and alley houses. The existing architecture is a product of a system in which related occupants of front and alley houses benefitted from the presence of an intergenerational family while still maintaining a high degree of independence.
Figure 3.26 – Front house street facade (google earth image).

Figure 3.27 – Front house dining room (realtor.com).
Figure 3.28 – Front house kitchen (realtor.com).

Figure 3.29 – Front house typical small bedroom (realtor.com).
The main house has more architectural details and fronts on 4\textsuperscript{th} Street. This house also includes a porch, which serves to separate the house from the street. On the other side of the lot, the alley house has an almost completely flat façade with only a few feet separating the front of the house from the street. Both houses contain small living areas and extremely tight bedrooms. The functional yard space between the houses would have been used for tasks such as drying laundry and was shared between both households.
Figure 3.31 – Alley house dining room and kitchen (realtor.com).

Figure 3.32 – Alley house master bedroom (realtor.com).
ANALYSIS

Generational Integration

The physical separation of the alley house and the front house suggests that the generations were less integrated than they would be if they shared a single structure. The older generation would have occupied the front house while renting the alley house to the young family of their children. While this scheme does create two very clear zones defined by age, it doesn’t account for the interaction between the two zones that must have taken place.

In Mount Carmel, both the elderly and the very young would have required caretakers, which most could not afford to hire. The close proximity to family indicates that there likely was a system of reciprocal caretaking between generations as required. The elderly helped take care of their grandchildren while they could and were cared for in return when they needed it. The system of two houses sharing a backyard gave each generation their own space on a day-to-day basis while also facilitating interaction when desired or needed. It is possible that the feeling of solidarity described above encouraged this system of mutual support and independence among family members. The many difficulties of a coal miners lifestyle could also be somewhat mitigated by spreading out the load among the different generations.
Spatial Hierarchy

The combination of the front and alley house exhibits a very clear spatial hierarchy. Essentially the lot contains two nearly identical houses that are the mirror image of one another when reduced to a diagrammatic form. Both houses have a linear ground floor that has a kitchen facing the backyard. This backyard area is the only space that would be officially shared, but it is likely that members of both households would have frequented the entire linear element of the ground floor. The entire composition shows no clear focal point, but the kitchen and dining room combination serves as the focal point for each individual house. On the second floor, each bedroom opens up onto a narrow hallway, which in turn connects to the stairway.

Figure 3.33 – Front and alley house Spatial Hierarchy Diagram (author’s drawing).
Interior Connections

The living quarters of different generations do not share interior connections. In fact, the bedrooms of the oldest and youngest residents are located in separate buildings. Similarly, within each house the bedrooms are separated by a designated circulation space (hallway). On the ground floor, both houses have a set of three rooms that open up into one another. It is possible that these spaces were more conventionally divided when they were originally constructed, but no hallway on the ground floor was ever present. The stairs and second floor hallway serve as the main element dividing the family living space downstairs from the more private bedrooms upstairs.

Exterior Connections

Both houses have two connections to the outside. The primary entrance is located on either the street or the alley and the secondary entrance is located in the rear of the kitchen. The lack of connections between any bedrooms and the outside suggests that each household operated as a coherent unit. Residents of the house would have been aware of the comings and goings of other residents. Again, the existence of separate structures for the elderly and young indicates a high degree of independence from one another. The kitchen doors on the back of the houses most likely served as the main connection between the two homes. These doors provide easy access to the functional centers of the homes that could be used whenever assistance was rendered.
Outdoor Extensions

Because of the spatial restrictions of an urban lot, there is limited potential for outdoor extensions of the Mount Carmel living space. In the case of the front and alley house, there are two primary outdoor areas. The first is the utilitarian backyard that connects the two homes. This space was used for many of the tasks that were carried out by the household during a day as well as being the primary connection between the front street dwellers and the alley dwellers. The front house also has a covered porch on the street side, allowing for a social connection with the neighborhood. The alley house lacks a porch and is essentially touching the alley. This relationship suggests that the large number of people that lived on each alley may have used the alley itself as an informal social space.

Public and Private Spaces

Both the front and alley house have a similar distribution of public spaces and private spaces. The ground floor of each house has three open rooms that are the only area that could be used for public interaction. Upstairs there are very small bedrooms, which were exclusively for the family. The limited internal public space suggests that the majority of social interaction took place outside the home in places such as bars or similar establishments. The connection between the front and alley house does provide the opportunity for informal social interaction between residents (and generations), much like neighbors dropping in to lend a hand.
The division between the two houses and the presence of individual bedrooms with isolating circulation space contributes to a high degree of privacy for all generations and individuals. This setup allows the elderly to continue living independently and the young to raise their family without the oversight of a parent. The close proximity does however allow either generation to seek the help or advice of the other very easily.

Work and Play Spatial Juxtaposition

The functional core of both houses is the kitchen on the rear of the house. This space contained most of the utilities required for the daily activities within the home other than sleeping. Both of the houses’ kitchens border on the same backyard, which also contained various functional elements such as outhouses and bake ovens. Immediately adjacent to each kitchen was a dining and living space that served as the primary family “play” area. All members of the family as well as visitors inhabited these rooms. Small children were likely kept in this space during the day to allow for supervision from the functional areas of the house. A child in this central space could be watched from the kitchen or anytime the stairs were used. The isolation and extremely limited dimensions of the bedrooms suggests that very few waking hours were spent on the second or third floors of the house. Most of the activity was concentrated on the ground floor.
Relationship to Primary Occupation

Both the front and alley house in Mount Carmel served as a respite from a hard days work in the coal mine, where nearly every family in the region earned the majority of their income. At the same time, the residents and their homes were completely dependant on the coal mine. This situation both separates the home from the industry, but also ties the residents back to the same industry. Because of this interesting relationship, the home of a coal miner does not contain space for the production or processing of any particular goods, but rather almost functions like storage space for the humans that worked within the coal mining system.

Expandability

The alley house itself was a strategy of expansion. While this means that the lot as a whole could house more people, it also means that the architecture of the individual home is not designed to expand. There are some examples of similar houses in Mount Carmel where an additional room was added onto the back of the house, but this was not a significant spatial addition. The limited expandability is probably due to the restricted lot size and the strong sense of independence that seems to have been prevalent at the time. Choosing to build an entire separate house rather than expand an existing one does have the benefit of proportionally expanding all of the utilitarian spaces (kitchen, bathrooms, etc.) along with the bedroom space as well as maintaining privacy.
Accessibility

There are no obvious design choices to make either the front or alley house more accessible to those with limited mobility. Both contain only second floor bedrooms, steep and narrow stairs, very narrow circulation space, and tight bathrooms. The two separate houses with close proximity would allow for children to be cared for by family members most of the time and the elderly to age in place for as long as physically possible.
Chapter 4. INTERPRETATION AND DOMAINS OF EXPERIENCE

The three distinct case studies selected for this investigation of intergenerational housing are very different from one another but share some characteristics that became more obvious when the structures were distilled through analysis in the previous chapter. Each case study offers individual suggestions for successful intergenerational housing, but higher-level domains of experience become apparent when all three are considered side-by-side. It is these domains that will allow contemporary designers to make use of their vernacular heritage—beyond aping existing structures.

A matrix that includes all ten of the framework design concepts for each of the case studies is the primary tool for identifying the overarching lessons available in this research. Figure 4.1 on the following page includes an individual row for each of the ten concepts previously identified and a column recording the results for each case study. This distilled presentation of the analysis from the previous chapter makes comparing and contrasting the various structures much easier and more fruitful. A careful examination of this matrix yields multiple reoccurring elements and themes that suggest core domains of experience. These experiential domains of intergenerational architecture are described in the following section and illustrated with elements of a speculative intergenerational design.
<table>
<thead>
<tr>
<th>CS1: Amish Farmhouse</th>
<th>CS2: Spanish-Colonial Hacienda</th>
<th>CS3: Industrial Alley House</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generational Integration</strong></td>
<td>high level of integration. many hybrid spaces for work and play. large community presence inside home.</td>
<td>high level of integration. hybrid courtyards. large community presence inside home.</td>
</tr>
<tr>
<td><strong>Spatial Hierarchy</strong></td>
<td>focal point = kitchen and living area. mostly independent &quot;dawdy haus&quot;.</td>
<td>focal point = two courtyards. single coherent building.</td>
</tr>
<tr>
<td><strong>Interior Connections</strong></td>
<td>many connections direct between rooms. no dedicated circulation space. moveable partitions</td>
<td>almost no connection between rooms. no dedicated circulation space. most rooms connect to courtyards.</td>
</tr>
<tr>
<td><strong>Exterior Connections</strong></td>
<td>almost every room connects to outside.</td>
<td>almost every room connects to courtyard. few connections from courtyard to outside.</td>
</tr>
<tr>
<td><strong>Outdoor Extensions</strong></td>
<td>many outdoor extensions. porches. farm, utilities, summer kitchen.</td>
<td>integrated outdoor extensions. courtyards are main space of house.</td>
</tr>
<tr>
<td><strong>Public Versus Private</strong></td>
<td>limited privacy. public spaces within the home. connections between bedrooms</td>
<td>medium privacy. central public courtyards. private living and sleeping areas.</td>
</tr>
<tr>
<td><strong>Work-Play Juxtaposition</strong></td>
<td>integrated work and play spaces.</td>
<td>one courtyard each for work and for play.</td>
</tr>
<tr>
<td><strong>Primary Occupation</strong></td>
<td>headquarters of family operation. contains many supporting workspaces. cottage industry.</td>
<td>headquarters of family operation. contains main processing and storage. hub of local economy.</td>
</tr>
<tr>
<td><strong>Expandability</strong></td>
<td>functional volumetric expansion. three phases with no master plan.</td>
<td>expanded to encircle courtyards.</td>
</tr>
<tr>
<td><strong>Accessibility</strong></td>
<td>no specific features. &quot;dawdy haus&quot; helps with aging in place</td>
<td>no specific features. single story construction. communal facilities.</td>
</tr>
</tbody>
</table>

Figure 4.1 – Summary of all data collected in analysis phase.
Hybrid Spaces

The Amish farmhouse and the hacienda both exhibit a number of highly integrated hybrid spaces within the home. In the Amish farmhouse the ground floor area is almost exclusively a hybrid between kitchen, dining room, public gathering, and workspace. The hacienda has the two courtyards that not only serve as the primary circulation spaces, but also the primary gathering, living, and activity spaces. These hybrid spaces not only contained a broad spectrum of activities, but also served as the core of the two homes. The industrial alley house on the other hand had much more specialized rooms, less integration with diverse activities, and a lower level of overall generational integration. These observations suggest that the presence of hybrid space near the organizational core of a dwelling for multiple generations is a key factor to the intergenerational effectiveness of the architecture.

Effective intergenerational architecture encourages interaction between generations. Hybrid spaces facilitate natural interaction through the capability to house many different types of formal and informal activity at the same time. This broad spectrum of possible activities essentially ensures that different generations have a high level of interaction on a day-to-day basis. This concept is supported by the lower level of interaction that is found in the alley house, which lacks the same level of central hybrid space.
Future designers of intergenerational homes should consider including a hybrid element as the main organizational device or focal point. It is not as important what specific functions are included in the hybrid, but rather that the element includes a range of both formal and informal activities for members of each generation. Figure 4.2 below is an example of a potential hybrid between circulation, play, relaxation, and social space. An expanded hybrid corridor such as this has unlimited potential for intergenerational activity.

Figure 4.2 – Hybrid interior intergenerational “street” (Miller, 2013, 6.7.0).
Productive Activities

All three cases studies were closely tied to the primary occupation of the family that occupied the home, and two contained primary workspaces for a productive family business. The Amish farmhouse includes multiple large kitchens as space not only for preparing family meals, but also for the processing of food produced on the farm and for the preparation of meals for community events. The hacienda has an entire courtyard that is formed by rooms housing primary ranch functions such as a blacksmith shop and a weaving room. The alley house does not contain any space that was specifically used in coal mining, but the entire community existed almost exclusively to support the mine and miners. A dwelling’s relationship to activities that are productive is an important design concept that appears to affect the intergenerational quality of a home.

Studies have shown that productive activities lend a sense of purpose to both the young and the old. This is a major benefit that home architecture can encourage by simply facilitating this kind of activity. In Amish country and rural New Mexico productive activity meant farming, but urban and suburban structures could also embrace this concept through ground level business and digital opportunities. Additionally, communal services such as educational facilities and daycare could be used and/or operated by family members if the appropriate space was included in the design of the home—much like the care giving that took place in the alley house.
Space designed to facilitate productive activities could increase the quality of intergenerational architecture by allowing all generations to contribute in a meaningful way. In a multifamily intergenerational setting, this concept could be expanded beyond individual business operation to include public amenities and services run by the occupants. Additionally, a space that is designed to encourage entrepreneurship such as a library or computer lab as shown in figure 4.3, could greatly increase the possibilities of intergenerational groups maintaining productivity throughout the spectrum of aging.

Figure 4.3 – Library and computer space to encourage activities (Miller, 2013, 7).
Community Presence

All three case studies included in this research were part of a strong community. The Amish are a famously tight knit group and their houses are the main social and gathering venues for all occasions. The hacienda was essentially a frontier outpost for most of its history and served as a hub of economic activity, point of defense, and social gather place for the entire region. The alley house system spawned from a group of working class people of similar circumstance. In all three cases, the architecture represents the form of the social structure in which it is built and encourages a community presence. A strong sense of community is likely a factor in bypassing age-based stereotypes and fostering intergenerational interaction.

In the modern United States, vast diversity, information technology, and readily available transportation have wildly expanded the types of communities that are available, but at the same time have essentially eliminated these communities’ presence from the home. The architecture of our homes—both single and multifamily—encourage extreme privacy often at the expense of community. The designers of future intergenerational homes can reintroduce a strong community presence, which in turn encourages the types of interaction desired. Higher levels of intergenerational interaction within a community should lead to a strong sense of belonging and significance—both of which are shown to lead to healthier and happier lives.
One possible way an architect can reintroduce community presence in intergenerational housing could be to create multifamily structures instead of detached extended family homes. This strategy would create a “built in” community much as is present in each of the case studies. The key to creating an intergenerational community for multiple families is to encourage interaction between residents by using other intergenerational design concepts throughout the building. This strategy, when successfully implemented, could create a large community of families with similar multigenerational needs. At the same time, each generation within the structure has a group of age-peers with whom to interact outside of their own immediate family. The community likely reduces conflict within a family unit by increasing each member’s social circle and encouraging diverse activity. The balance of public community space and private retreat space is of paramount importance.

Figure 4.4 – Exploded view of multifamily home (Miller, 2013, 6.6.1).
Informal Spatial Systems

Two of the case studies had strong connections to the outside through many doors, while the third had limited connection. The two structures with higher connectivity to the outside also had higher levels of generational integration. Both the Amish farmhouse and the hacienda had a connection directly outside from nearly every room in the house. The front and alley house each had two doors outside and none from private rooms. This structural difference suggests that connections to the outside are tied directly to independence and intergenerational interaction. A higher degree of connectivity breaks down the formal hierarchy of the family while a low degree enhances the formal order. Less age hierarchy and stereotypes leads to more effective intergenerational living.

The Amish farmhouse and the hacienda also exhibited a number of different outdoor extensions, which allow the home to grow beyond the space enclosed within the walls. These spaces—both courtyards and back yards—foster a much less formal social ordering system, encouraging the kind of informal interaction that is so important to intergenerational housing. These types of outdoor extensions also generally serve as multipurpose space that expands upon the range of functions that the home can support. In both cases, the outdoor spaces also served as the main community receiving area. Architects should consider enhancing connectivity and outdoor extensions as a method to create informal spatial systems.
Today, lot size is generally much more of an issue in home construction than it was in the farmhouse or hacienda’s case. Architects must invent creative ways to enhance outdoor spaces within a limited footprint. One possibility is the utilization of rooftop terrace space, which does not require any additional site square footage, but rather, a modified home design. When the weather is favorable, people of all different generations can make use of an outdoor space without the formal social and spatial constraints that exist indoors. Additionally, architects should consider increasing the frequency of connections to these outdoor spaces.

Figure 4.5 – Outdoor terrace as an informal spatial system (Miller, 2013, 6.5.1).
Plan for Expansion

All three vernacular case studies exhibited at least one expansion over the course of its history. While each house at least doubled in size as the family within grew, they each utilized a different design strategy to expand. The Amish farmhouse grew by simply adding rectangular volumes to the sides of the existing home. The hacienda added individual rooms off of the original home that eventually grew enough to encompass two courtyards. The alley house is itself an expansion of the front house, but with a higher degree of independence than either of the other case studies. The ability to expand and be flexible is an important characteristic found in successful intergenerational architecture, although the method of expansion is not as critical.

A household today may not start out as an extended family, but rather, may find that more space is needed when the elderly no longer wish to remain on their own or the young return. Therefore, the ability of a home to grow with the spatial requirements of the family is important to its ability to house the intended occupants. Families can also shrink over time, which suggests that a house could become more effective by also having a method to reduce space if necessary. Architects should design homes with a plan for expansion (and perhaps contraction) in mind to make sure that future needs can be adequately met with as little effort as possible.
As with outdoor expansions, the limited space available to most residential structures (especially urban structures) and more strict building ordinances presents a challenge for the design of an expandable home. One possibility is to design for expansion within the structure. In a single multigenerational home, extra living space could initially be built with the intention of converting it to a separate apartment at a later date. This concept can be extended when applied to a multifamily setting. Figure 4.6 illustrates how the individual units within a multifamily structure could expand and contract by claiming and reorganizing space from neighbors that don’t need it. This strategy minimizes required renovation and eliminates external building expansion while facilitating changing family spatial needs.

Figure 4.6 – The many options for a flexible floor plan (Miller, 2013, 6.4.0).
Active Lifestyle Across Generations

All three case studies represented the cultures of a group of people that led an active lifestyle. None of the three vernacular homes made any traditional accessibility design choices such as intentionally avoiding stairs. The Amish farmhouse and the hacienda were both the centers of large farming/ranching operations that utilized as much physical labor as each family member could contribute. The history and system of hard physical work likely kept both the young and the old healthy—minimizing the necessity of special accessibility features. Even though the Amish farmhouse had a separate addition for the grandparents, the bedroom was still located on the second floor, indicating that physical mobility of the elderly was not much of a concern.

Rather than simply accepting that accessibility features are necessary, architects should consider how their designs could encourage an active lifestyle to prolong the mobility and health of the elderly. Unlike the societies on which the case studies are based, most people today do not get adequate exercise from their occupation or employment. An active lifestyle could very easily be a strong complement to some of the other intergenerational design concepts and ideas that are discussed above. For example, “productive activities” are often somewhat physical in nature. By including architectural and planning elements that encourage such activities, a home can be made more effective for an intergenerational occupant group.
There are many possible ways that the design of a home and the surrounding area can encourage physical activity. Figure 4.7 illustrates a situation in which a community garden is installed adjacent to the home to encourage garden-related activities. Designing proper facilities into a home can support active intergenerational activities such as gardening. Architects should strive to think of creative ways in which their designs can facilitate and encourage an active lifestyle among intergenerational groups.

Figure 4.7 – Community garden supported by intergenerational home (Miller, 2013, 6.5.0).
Chapter 5. DISCUSSION

The need for truly effective intergenerational architecture is growing in the United States. It could be argued that Americans already know and have known how to build this way for a very long time; it is simply a matter of rediscovering the techniques. In furtherance of this goal, intergenerational vernacular architecture was chosen as a medium for investigation. The vernacular homes of subcultures that led effective intergenerational lives are an indispensible source of practical knowledge. The lessons learned from an analysis of this type of architecture are still relevant today and provide a solid foundation on which to improve and enhance the rebirth of the American intergenerational home.

Three individual homes were selected for analysis from the broad range of vernacular housing types available in the United States. Each spawned from a different subculture and time period, but was selected because it represented a unique architectural solution to the problem of supporting an intergenerational social structure. The Amish farmhouse is the product of a society that intentionally isolates itself by creating a powerful community. The architecture of the farmhouse supports this community, while also encouraging a stable generational system that fosters high levels of interaction and effective intergenerational living. The Martinez hacienda of New Mexico is a western frontier outpost whose architecture spawned from decades of conflict, diversity, and a powerful entrepreneurial spirit. The design of the home allowed it to
become a centerpiece of the regional community while also housing an intergenerational family and a thriving business. The industrial alley house itself was a solution to a generational housing crisis in the midst of the adversity that came with coal mining during the industrial revolution. An alley house allowed intergenerational families to remain close and also provided independence and mutual security.

Surviving examples of each vernacular housing type were identified for study and thoroughly documented through a variety of techniques. The physical structure of the home was placed into a historical and social context—assembled for each from a variety of accounts and studies. Each case study was then analyzed with respect to an intergenerational design framework consisting of ten potentially critical design concepts. The list of concepts was assembled from the diverse body of research available in related fields and consisted of the following: Generational Integration, Spatial Hierarchy, Interior Connections, Exterior Connections, Outdoor Extensions, Public and Private Spaces, Work and Play Juxtaposition, Relationship to Occupation, Expandability, and Accessibility. Individually, each case study was examined point-by-point to determine how and to what degree each design idea was incorporated in the vernacular structure. This analysis resulted in a series of observations and discoveries for each vernacular home that potentially contributed to the intergenerational success of each dwelling.
Viewed individually, the results of the case study analysis are useful, but lack focus and run the risk of being anomalous. In an effort to derive a more useful conclusion from the vernacular analysis, the results from each case study were distilled and combined, allowing them to be compared and contrasted effectively. This process yielded a smaller series of domains of experience that are each expanded to include specific ideas for implementation. This research and analysis suggests that intergenerational home design could be improved if architects designed to incorporate the following: Hybrid Spaces, Productive Activities, Community Presence, Informal Spatial Systems, a Plan for Expansion, and an Active Lifestyle Across Generations.

This research is an initial step towards the development of effective intergenerational design concepts and strategies; consequently, it does have limitations that could be improved upon in future efforts. The main limitation is the relatively small scope of the case study portion used to support findings. While three examples are enough to identify elements that are recurring and therefore important, a larger sample would help identify design concepts that are universally more reliable and useful. A larger sample would also allow for the inclusion of a wider variety of subcultures, which would invariably lead to a larger array of useful architectural insights. The paucity of research conducted in intergenerational architecture presented a formidable challenge in identifying the relevant concepts used for analysis. The design attributes compiled and used for this study were derived from related research, but could definitely be refined now
that the technique has been executed and tested within the realm of architecture. An examination of the design concepts and how relevant they were to the case studies in this research could enhance the framework for future investigations. This thesis is an opening into a field of architectural research that is consistently gaining currency and importance as intergenerational living becomes more prevalent. The suggestions made here are relevant in their own right, but more research is needed to further clarify what makes home architecture encourage a healthier and happier intergenerational existence.

The resurgence of the multigenerational family requires an adequate architectural response to facilitate intergenerational living. The suggestions and experiential domains presented in this thesis are critical steps towards the creation of an architecture that encourages family members of multiple generations to live in a healthier intergenerational fashion. Designers and students of design can use this research material to generate and support their own specific design ideas. While the concept of studying vernacular architecture is not new, investigating it to gain new insights into the design of intergenerational homes is a concept that can be substantially expanded. Successful designs from other subcultures have many lessons to offer in addition to the ones identified in this study.
The main challenge ahead for early developers of a contemporary intergenerational architecture is translating the ideas from this type of research into the built environment. The domains of experience discussed in this thesis represent suggestions on how to solve architectural and spatial issues, but do not necessarily account for a number of important hurdles that still exist such as restrictive building policies, planning ordinances, and unfavorable housing subsidies. The illustrative use of the architectural design project in this study is intended to provide critical insights into intergenerational architecture. This project, however, was based on academic objectives and should be examined in conjunction with the potentials and possibilities inherent in such an endeavor. The project is not based solely on current policy and would be difficult to build, as it would not pass code in many areas of the country. Outdated housing rules and policies need to be addressed as recognition grows for the intergenerational home in the United States. The value of intergenerational living must be promoted to an audience beyond social scientists and architects in order to prompt the necessary changes.

A number of municipalities in the United States have already implemented a system of rules that encourages increased intergenerational density. One popular method is to allow construction of secondary non-attached dwellings on a single residential lot. This simple rule is embraced by municipalities in many cities across the country (Austin, Texas; Seattle, Washington; Boulder, Colorado; Portland, Oregon; and others) and lends a high degree of flexibility to home
designers seeking to create intergenerational architecture. There is no shortage of creative people with the capacity to innovate in the field of intergenerational living, but they must first be afforded the opportunity to explore.

Similarly, many potentially innovative intergenerational housing initiatives never reach fruition due to a lack of support from relevant government agencies. The United States Government offers many forms of housing subsidies, but most of these are designed to assist the owners of single-family homes. For example, a single homeowner can deduct a portion of their mortgage payments from their income tax bill each year. This is a helpful tax break, but it is only effective for a single person or a couple who file jointly. With today’s trend of reconsolidation, a revised financial support system for intergenerational homes could be very beneficial to a significant part of the population. Encouraging the adoption of more universal intergenerational living could reduce the nation's financial burdens of caring for the elderly by creating a happier and healthier population that cares for and is cared for by their families. The federal government needs to earnestly review its housing support policies in order to update and include support for intergenerational occupant groups and homes.

Most importantly, proponents of intergenerational living must initiate and engage in a serious dialogue with the community, professionals, and decision makers. Many people in the United States could benefit greatly from an intergenerational dwelling, but—on a grander scale—the American way of life could benefit from
an intergenerational makeover that breaks down age-based barriers and promotes interaction. In today’s fast paced environment, the aged have many important lessons for the young, but the young also have—more than ever before—an abundance of knowledge to share with the old. Intergenerational living is the first step towards an intergenerational society.
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