Christopher Fernandez hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

It is entitled:
Rethinking Retirement: Transforming retirement for the Modern Boomers

Student's name: Christopher Fernandez

This work and its defense approved by:

Committee chair: John Eliot Hancock, M.Arch.

Committee member: Michael McInturf, M.Arch.
rethinking RETIREMENT
Transforming Retirement for the Modern Boomers

A thesis submitted to the Graduate School of The University of Cincinnati in partial fulfillment of the requirements for the degree of

Master of Architecture
in the School of Architecture and Interior Design of the College of Design, Architecture, Art, and Planning

Christopher Fernandez
B.S in Design of Architecture
University of Florida, 2007

Thesis Chair | Professor John E. Hancock
Second Chair | Michael McInturf

April 2014
Abstract

A large proportion of the U.S. population will enter retirement within the next two decades. Due to this pressing demographic shift, reevaluating the concept of “retirement community” is vital for accommodating the core values of the Baby Boomer generation that will be retiring. These values include: health and wellness; community engagement; public service; and recreation. As a highly demanding, innovative, and technologically savvy group, Baby Boomers will demand innovative retirement communities. They will expect facilities that will allow them to: (a) “age in place” while retaining access to all levels of medical care; (b) carry out activities of their daily lives with “walkable” access to everyday commerce; (c) participate in socially and intellectually stimulating intergenerational activities; and (d) reflect the values of sustainability and environmental ethics in their life choices.

This thesis presents a design for an innovative retirement community in Naples, Florida. The design is based on existing interdisciplinary research on the major problems associated with aging, in particular social isolation, the changing nature of retirement, and illness. Through a contemporary, vibrant urban district approach, this design will promote living facilities for the elderly that support walkable, intergenerational, healthy, and active communities that will prolong and enrich the independent active lifestyle for individuals in the third-stage of life, addressing both the problems and the expectations of the aging Boomer generation.
Acknowledgments

Writing this thesis has been an amazing journey, and it would have not been possible except for special individuals whom I have been fortunate to be around. I would like to take the opportunity to express my heartfelt gratitude to the following persons who in one way or another have contributed in making this thesis possible...

**God** for directing me and surrounding me with wonderful people.

**Joseta Fernandez**, my abuela - who has inspired and fueled my interest in the third stage of life.

**John E. Hancock**, a teacher, a mentor - for his inspiration, knowledge, support, advice, suggestions, late night weekend email recaps. Thank you, for going above and beyond in helping with the completion of this thesis.

**Michael McIntruf, Aarati Kanekar, and Udo Greinacher**, Thesis faculty, for insights, knowledge, suggestions, advice, and direction.

**Rebecca Nychyk**, fiancée - for being patient, loving and supportive for the past three years.
As part of my college co-op experience, I accepted a six-month internship in Miami, Florida. During that time, I also looked after my grandmother who lived alone in Miami in an unsafe area of the neighborhood of Little Havana. At the age of 84, my grandmother was still capable of taking care of herself. Her daily routine consisted of waking up at eight in the morning to let her nurse in. Typically, the nurse would take her blood pressure, give her a shot of insulin, and finally arrange her medication for that day. My grandmother was usually exhausted after taking her basketful of medication, and would remain in bed until lunchtime. Around one in the afternoon she would get up, and prepare the same meal that she had every day for lunch. She would then take out what she planned to cook for dinner that night, and place it on the counter. Then she would head to the recliner where she remained staring out the window until six o’clock when her favorite show “Caso Cerrado” would come on the television. I would arrive home from work around that time. From the front door I could hear her television blaring loudly. Since my grandmother was hard of hearing, she turned the volume up to the maximum level. I noticed that my grandmother was at her most energetic and excited when cooking dinner for me. She enjoyed preparing a warm meal for me, even though I knew the multiple medications that she took left her exhausted. Family members who visited were amazed at the energy that grandma displayed during the time that I stayed with her. Once my co-op internship ended, I had to return to Cincinnati for school. Although the family hired a nurse to keep my grandmother company and assist with her daily needs, within a month she became bedridden, and eventually passed away.

Throughout the six months that I lived with my grandmother, I noticed a dramatic change in her energy. She had more energy when she had the purpose of taking care of me. People need a...
purpose in life, even after they have passed their prime. The community and city that she lived in played a large role in my grandmother's social isolation. She lived in an unsafe neighborhood where all homes were decorated with jail-like bars on the windows, and had gated driveways, which kept my grandmother from being able to reach her mailbox. Also, due to heavy traffic in the neighborhood, she felt intimidated and became afraid to drive. The pressing issues that evolved from this situation were an example of the isolation endured by many elderly people, due to lack of contact with their community out of concerns for neighborhood safety. The non-stimulating nature-less environment allowed my grandmother to spend more time focusing her attention on her chronic pain. The poor food that she consumed, while unaware of healthier alternatives, resulted in the need for her to take a shot of insulin after every meal. Her inability to drive resulted in dependency on alarmingly dysfunctional and undependable bus transportation. This forced my grandmother to depend instead on family members to deliver her daily necessities. Due to the inability to easily go from place to place without feeling that her life was at risk, she gradually became more isolated. The lack of activities or participation in social events began to reduce her brain's neuroplasticity, which is the ability of the brain to adapt to new experiences. This in turn can result in reduced cognitive and physical functioning.
Tracing the roots of Retirement

Reflecting on history to anticipate the future.

1889 Germany became the first nation in the world to adopt an old-age social insurance program in 1889, designed by Germany's Chancellor, Otto von Bismarck.

"... those who are disabled from work by age and invalidity have a well-grounded claim to care from the state."

Figure 4: Timeline

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neanderthals</td>
<td>30,000 years ago</td>
</tr>
<tr>
<td>Neolithics</td>
<td>8500 BC to 3500</td>
</tr>
<tr>
<td>Classical Greece and Rome</td>
<td>500 BC to 500 AD</td>
</tr>
<tr>
<td>Medieval period</td>
<td>500 AD to 1500 AD</td>
</tr>
<tr>
<td>Victorian</td>
<td>1850s to 1900</td>
</tr>
<tr>
<td>Baby Boomers</td>
<td>1940s to 1960</td>
</tr>
</tbody>
</table>

Beginnings of Retirement

- Neanderthals: Rock falls, hunting accidents, malnutrition, and diseases from animals
- Neolithics: Agriculture, irrigation, and urbanization problems, cholera, small pox, typhoid
- Classical Greece and Rome: Tuberculosis, typhoid fever, small pox, and scarlet fever within denser urban areas
- Medieval period: Life expectancy grew with urbanization, but famine caused by crop failures and bubonic plague
- Victorian: Typhus, typhoid fever, rickets, diphtheria, tuberculosis, scarlet fever and cholera raged in cities
- Baby Boomers: Better health care, sanitation and living conditions boosted life expectancy

Death:
- 30 Neanderthals
- 38 Neolithics
- 35 Classical Greece and Rome
- 48 Medieval period
- 40 Victorian
- 70-75 Baby Boomers

History of Technology

- Birth of the Baby Boomers
- Hospice
- Family Home
- Hospital

Evolution of Levels of Care

One facility
Tracing the roots of Retirement

Individual Components serving one Function

World Wide Web begins to connect us around the globe

United serving multiply functions


The Computer

Assisted Living Facilities
Skilled Nursing
Special Care
Rehabilitation

Assisted Living Facilities
Dementia Facilities
Independent Living
CCRC

82 MEN
85 WOMEN

Multitude of Specialized Facilities

iPhone
iPad
iPad Mini

1990 2000 2005

The Computer

The Computer

The Computer

The Computer

The Computer

The Computer

The Computer
Background

Before “rethinking retirement” it is important to review the evolution of retirement throughout history, in order to understand how it has become what it is today. Humans have constantly adapted their environment to better position themselves, especially for the third stage of life. By understanding the perception of retirement throughout history and the how peoples’ views of retirement have changed, we can better understand the causes and effects of the current situation.

In prehistoric times, the human life expectancy was only about thirty years. Retirement was not a concern since no one lived past their 20s.\(^1\) Death came from unnatural causes, such as starvation, poor shelter against winter, or attacks by wild animals. As centuries passed, the average life expectancy increased, due to improved hygiene, nutrition, medicine, and shelter. By medieval times it was becoming apparent that something would have to change with large numbers of elderly people. It was not until 1883 during the reign of Chancellor Otto von Bismarck of Germany, that the idea of “retirement” began to spread.\(^2\) As a reaction against the Marxists who were threatening to take control of Europe in the mid 1800’s, the German government attempted to pacify the situation by offering pensions to all non-working Germans over the age of sixty-five. This age was selected knowing that the average life expectancy was fifty-five, and most people worked until the day they died.\(^3\)

By the late 1800’s and early 1900’s, elderly parents still lived in the same household as their children. The husband would provide the household income, while the wife would take care of the home. The wife’s responsibility was to look after the children and the grandparents as well. At this time children usually lived at home until marriage, and they would also work in the family business. As a college education became more common, parents encouraged their children to pursue a degree in the hope that it would lead to a successful career. During the time away from the home at college, students gained a taste of independence, and returning back home was not an ideal choice.

Technology such as the telephone played a large part in allowing people to live on the other side of the world and still maintain regular contact with family members. The trend of the wife staying at home also began to diminish. As women gained civil rights, they

became interested in working, even as home appliances and automobiles facilitated the ability to go outside the home. With the entry of women into the work force, less time and energy was available to care for the elderly at home. The combination of students leaving to go to college, advancements in technology, and women leaving the home to go to work frequently resulted in the decision to place elderly relatives in an institution that would provide constant attention, service, and company.

As the human lifespan was extended through better medical care, and a larger proportion of the population survived into the 65 and above bracket, so did the complexity of retirement communities. The transition from retirement spent at home in the care of one’s family to residence in an institutional facility became a common experience for elderly individuals. These facilities once provided care for all, but as medicine and knowledge of aging progressed, so did the diversification of retirement facilities, until each became oriented to various combinations of the ‘levels of care’.
Table of Contents

Abstract ................................................................. iii
Acknowledgments ...................................................... v
Preface ................................................................. vi
  Motivation
  Significance
  Background

PART 1: Research
01 Statement of the Problem .......................................... 1
  Who are the Boomers
  Core values
  Demographics and Challenges
  “Aging in Place” in Suburbia

02 Literature Review .................................................... 7
03 Precedent Citations .................................................. 9
04 Assistive Technology for Elderly .................................. 13
  Independent Living
  Assisted Living Level 1 & 2
  Dementia Facility

05 Home Design and Aging in Place ................................ 19
  Universal Design

06 Levels of Care: Types of Facilities ............................. 21
  Assisted Living
  Alzheimer’s care
  Skilled nursing home
  Hospital care
  Hospice care

07 Proposition .......................................................... 24
08 Case Study - De Hogewey ................................................................. 25
  Wandering
  Nostalgia
  Dependence, Independence
  Isolation, Community
  Role of nature
  Biophilic Design
  Institutional, Individualism

09 Changing nature of Retirement Communities ..................................... 39

PART 2: Design

01 “Aging in place” while retaining all levels of medical care ...................... 46
  Building Type
  Clients

02 Walkable access to everyday commerce .............................................. 51
  Choosing a locale
  Analysis contextual fabric
  Select a site that promotes walkability
  Site Conjectures
  Design walkable community

03 Stimulating intergenerational activities ............................................... 81
  Program

04 An environmentally responsible community ....................................... 89
05 Individuality and Customization .......................................................... 99

Appendix ................................................................................................. 103
Illustration/Image ..................................................................................... 107
01 Statement of Problem

John Hancock, Professor at the University of Cincinnati, and Patricia Mezinskis, Professor of Nursing at Raymond Walters College, contributed research to the pressing issues of the aging “Baby Boomers” by looking at “Innovative, interdisciplinary approaches and strategies for the creation of university affiliated, urban aging-in-place, continuing-care retirement facilities and communities.”[4] They began by defining:

WHO ARE THE BOOMERS?

The Baby Boomers can be defined as citizens of the United States who were born during 1946 and 1954. They are “The best educated, most innovative, most skeptical generation in history. They are open to change. They will do research, experiment, change brands, and use the web. They are re-conceptualizing “retirement” as an opening up to a multiplicity of opportunities and life-fulfilling directions; it is a revolution … This generation marks the first that has lived through the technological advancements, they will seek.”[5] Research continues to elaborate on the core values, trends, and fears of aging among this demographic group.

WHAT ARE THEIR Core VALUES?

The retirement residence concerns of Boomers are based on seven core values: “(1) health; (2) sense of community; (3) service; (4) recreation; (5) self-reliance; (6) entitlement; and (7) idealism”. With health being an important factor in quality of aging, a majority of Baby Boomers are likely to remain involved in fitness and will choose to be located in close proximity to a variety of activities as well as medical support. They will look for a community that shares these core values, making social interactions and involvement easy. Social service is important to Boomers, as is being connected to the world and to resources in general. They are not ready to give up on being active as they age, but will continue to work as they are able, and educate themselves and give back to society. Location is also key for this generation. They will choose to situate themselves in recreational environments, which provide close proximity to their hobbies, i.e. fishing, golfing or skiing. For these reasons, Florida is one of the most sought-after retirement destinations. Retired Boomers favor “places that give a sense of independence and choice.”[6]
Fig 6. This diagram was produced from Hancock's list of the Baby Boomers Seven Core Values, and questionnaires that diagnosed behaviors occurring in Scarlet Oaks retirement community.
DEMOGRAPHICS & CHALLENGES

The overall design of retirement facilities needs to be reevaluated to promote a positive perception of retirement. This includes socializing, non-segregation from other age groups, adequate transportation for daily activities, and incorporation of the latest technology to strengthen these functions along with reducing the workload for health care personnel and encouraging healthy eating. With a large amount of the American population expected to enter retirement within the next two decades, reevaluating the perception of a “retirement community” is vital to accommodating the core values of the “Baby Boomers”, the most skeptical, innovative, and technologically savvy generation who have ever entered retirement.

Demographics shows that currently 15% of the U.S. (United States) population is over the age of 65, and by 2025 the number will have risen to over 30% percent. “The baby boomer generation is the largest in the U.S. history, with more than 77 million people born between 1946 and 1964.”[7] Specifically in the state of Florida, “adults over the age of 65 [comprise] 60% (12 million) of its population. By 2025, according to demographic researchers, that number will increase to 70 % (19 million).”[8] The perception of present day retirement communities in the eyes of the Boomers in America is unfavorable. The average lifespan is growing longer, and there are not

---

enough appropriate housing or services to meet the needs of this projected population of older Americans. This unprecedented number of aging people will begin to reshape America and focus attention on improving communities, diversifying housing types that support for physical and cognitive aging, fixing a dysfunctional medical care system, and improving transportation options.

What are pressing problems of the future? We will start from a broad overview of the United States, and then focus on Naples, Florida. Traditional retirement communities are socially and economically flawed in care of the elderly. They breed isolation, are separated from younger generations, with few options for service, work, and contact with family. Typical retirement communities have an age requirement, thus promoting generational separation. These negative perceptions of traditional retirement communities play a large role in where Boomers will choose to retire. “According to several national research studies, most Boomers plan to stay exactly where they are, as long as they can. A 2011 study by AARP found that 84 percent of Boomers want to stay in their current homes. A 2010 survey by retirement community developer Del Webb found that 64 percent of Boomers had not even thought about where they will live during retirement.”[9] According to the census, the Boomers primarily want to age-in-place, yet not everywhere is “aging-in-place” friendly.

AGING-IN-PLACE IN SUBURBIA

The infrastructure of transportation plays a large role in why aging in place is not suitable for many elderly, and why they experience isolation in suburbs. As people age, mobility, reaction time, and vision may deteriorate, and the ability to drive long distances to access daily necessities becomes unsafe. Urban cities provide alternate modes of transportation: subways, trains, light rails, and trolleys. This allows urban residents to continue their daily activities, unlike elderly residents of suburban or rural neighborhoods. Suburban and rural neighborhoods are the result of the rapid economic growth and adoption of car-dependent lifestyles after World War II. These neighborhoods in the United States were formed according to universal dependence on automobiles, and not for walkability. As a result today, once an aging suburbanite loses the ability to drive, they become stranded. They are dependent on family and friends to help with their daily necessities, as seen in my grandmother’s story and Figure 11.

Research shows that access to transportation will be a main factor in the quality of life for seniors desiring to age in place. Therefore this project will focus on one of the most popular aging destination in the United States - Naples, Florida. According to City-data.org, Florida has the highest
concentration of people over the age of 65 in the United States. In addition, Florida is also a vehicle dominant state, where it is necessary to possess and drive an automobile in order to perform routine daily tasks. As seen in Figure 15 & 16, the state lacks alternate modes of transportation. Yet, Florida is a destination that will continue to attract future generations, and those which already live there, with its seasonal warm temperatures, multitude of outdoor activities, and so on. One of the main contributions to the lack of public transportation, for instance a subway system, is because Florida is a huge plateau that is located just above sea level.

The sources used for this study included detailed data and information on De Hogewey, an exemplary “dementia village” in the Netherlands. De Hogewey comprises the case study that will be used as a paradigm for my own project. Other sources include information from the Alzheimer’s Association, studies conducted by governmental and non-governmental action groups, books on design for the elderly, and professional journal articles.

Figure 12: (top) Diagram demonstrates how people in suburban neighborhoods are dependent on a vehicle to access daily activities.

Figure 13: (bottom) Illustrates the inability to drive, thus relying on family and friends for daily activities, because they are at an un-walkable distance.
In *Design Innovations for Aging and Alzheimer’s* (2005) Elizabeth C. Brawley asserted that as the U.S. population begins to age, it is necessary to increase knowledge of design for aging in order to create better care environments. She focused on Alzheimer’s disease, a progressive brain disorder that gradually destroys cognitive and functional skills. Brawley noted that although Alzheimer’s is not curable, its progress can be slowed down, and environment is instrumental in supporting the slower progression of the disease.

Brawley proposed that by maintaining alertness regarding textures, light, and colors, the symptoms of Alzheimer’s can be exponentially reduced. The book provided numerous examples of changes in light fixtures, wall colors, carpet patterns and acoustics that can significantly reduce confusion and increase mobility and functional abilities. For instance, by contrasting the floor with the wall, Alzheimer’s patients can more easily differentiate spatial elements. Yet it is important to understand that floor patterns, if made of two strongly contrasting materials, may also appear to patients as holes in the ground. These are basic design strategies that can be easily incorporated within a non-dementia community as well.

Joseph Coughlin, head of the MITage group, and Lisa D’Ambrosio highlighted the pressing issues around mobility and transportation for an aging society in the book, *Aging America and Transportation* (2012). They emphasized that “the only way that we are able to sustain this large aging society shift is with strategic technology”. The authors emphasized that the inability to drive can drastically alter an individual’s lifestyle, especially for residents of suburban communities. In dense urban cities with multiple modes of transportation, the individual’s daily lifestyle may not be as strongly affected.

*Aging America and Transportation* also assigned a large amount of the blame for the issue of elders who are no longer able to drive to federal and local governments in the U.S., which have fostered automobile transportation rather than public transport. The authors proposed that the government adjust these policies, so that adequate funding would be directed to projects that will create alternative modes of transportation. This move may not be visible to the Boomer generation, but will be to future ones. In order for these public systems to work and be effective densifications are needed within cities, and the

---


placement of these is crucial. In conclusion, the only way that we can as a society respond quickly to this large aging shift is through the use of strategic technology.

In *Therapeutic Landscapes: An Evidence-Based Approach to Designing Healing Gardens and Restorative Outdoor Spaces* (2013)\(^{12}\) Naomi A. Sachs and Clare Cooper Marcus present a broad range of landscapes that promote well-being for individuals of all ages. The book is possibly unique in using evidence-based guidelines that can be used by designers to create the landscapes. It does address the particular needs of patients in twelve different health categories. These include residents in acute care or residential facilities, specifically, the needs of burn patients, hospice patients and Alzheimer's patients for contact with green spaces.

Sachs and Marcus provide guidance on the perspective of planning and obtaining funding this as well. The book also addresses participatory design in an attempt to make these restorative spaces more widely available, and longevity and maintenance budgets are also addressed in the text. The authors emphasized that for patients, a health care facility represents a controlled and clinical environment, which also can represent pain, fear and loss.

In *Designing and Delivering Dementia Services* (2013)\(^{13}\), Hugo de Waal, Constantine Lyketsos, David Ames and John O'Brien discuss the design and implementation of care services for Alzheimer's patients. The book provides an edited review of current trends in services for these patients, with an emphasis on research-based methodologies for human services. This approach to providing human services can be expected to yield valuable evidence-based insights into humane care for these elderly individuals. The text also addressed methods for increasing efficiency and productivity with regard to these services, which in turn relates to cost controls.

Rather than a generalized focus on the United States or Europe, the book includes articles and studies from 17 different countries located on 4 continents regarding dementia care. This diversity of studies and articles indicates that the trend toward longer life and need for care when the body survives but the mind is weaker is growing globally.

The works reviewed above indicate the intense research focus that is being contributed to humane care of the elderly, and provision of an environment for care that is affordable and supportive of well-being.

---


03 Precedent Citations
This section will examine a variety of retirement communities. Based on the interdisciplinary design principles extrapolated from the research, we will examine the aesthetic qualities of six buildings in the context of how the elderly might experience living in them.

INTRODUCTION
SCARLET OAKS, CINCINNATI OH

was built in 1897 with later additions, and is located within a suburban neighborhood. The building is situated on the top of a hill approximately two miles away (an unwalkable distance) from commerce and retail stores. Therefore, the community is isolated and residents are limited to the activities that are available within it. The community lacks intergenerational contact, which results from its remote location. The overall aesthetics are not attractive to the Boomers, perhaps due to the reminders of their grandparents and parents’ final years. The building overrides the natural landscape. The community is isolated from that of the younger generation. Finally, residents are under direct supervision and because of the isolated location they must rely on staff to provide daily necessities.
Unlike Scarlet Oaks, individual homes allow users to customize the interior and exterior. Even though this concept may be appealing while residents are active and healthy, there will likely come a time that they would not be able to maintain their home. In particular, when the elderly person become unable to drive, they usually become dependent on family members for daily necessities. Suburban homes that are not designed with the concept of Universal Design can have a negative impact on the quality of life for the elderly.

**SUBURBAN SINGLE FAMILY HOME IN NAPLES, FL**

Figure 20: Rural homes

Figure 21: Aerial of Naples, Florida
BELLA TERRA, IN ESTERO, FLORIDA

Although this style of institutional cookie cutter housing makes economic sense from the cost point of view, from a psychological perspective it does not support well-being. This development conveys a lack of personalization to the individuals living there. The layout of the development is erratic and dispersed, requiring residents to use a vehicle to access daily activities. Bella Terra exhibits poor integration of scale, and vegetation. This discourages residents from walking through the landscape which appears static. The same building design is duplicated throughout the site, making it difficult for residents to walk about without getting lost or confused. A positive quality of Bella Terra is that it does provide a sense of security and cleanliness. The community collects money every month which is used to repaint, trim and clean the development. Also money is put toward the community Park which encompasses pools, tennis courts, basketball, and so on.

Figure 22: (top) Static landscape, Bella Terra, Estero, FL.
Figure 23: (bottom) Aerial image of Bella Terra, Estero, FL. Not an age-friendly community, because is structured on the need of a vehicle to reach daily activities.
ARBORS RETIREMENT COMMUNITY

Another form of cookie-cutter housing, yet it does use density and color to soften the institutional feel. The community is located several miles away from retail and commerce, however and so requires a vehicle for shopping or other activities outside. The overall aesthetics are copied throughout the complex, thus providing little interest for residents with regard to variety or stimulation.
RETIRED COMMUNITY IN NAPLES, FLORIDA

Similar to the previous housing, yet it’s situated within a vibrant golf course. Without the golf course context, this building would appear to be institutional, yet the landscape has transformed the feeling of the building to that of a resort. In addition, the buildings are cookie-cutter, but due to being large, few, spaced, and integrated within the landscape, this is not as noticeable. Each building is distinguished by landscape features, for example when asked where someone lives, a resident would be likely to tell me “across from the ninth hole.” The golf course serves as a way-finding element in addition to street signs. However, the buildings still do not give the residents a sense of identity with the facade. The complex still requires vehicles to navigate, although a majority of residents do use golf carts for this purpose. The community is intentionally isolated from other generations by requiring prospective residents to be 55 and older. Due to its association with Moorings Park, this development provides residents with numerous amenities and restaurants throughout its five sites.
RETIREMENT COMMUNITY IN CHICAGO

Although the use of contemporary modern architecture and soft colors gives the building an approachable feel, it's still not much different from Scarlet Oaks. The landscape seems to be an afterthought, and secondly, the building is of a particular generational style and as time goes on this would turn into the same scenario as Scarlet Oaks. An advantage is that it is situated in an urban context, with shops and commerce on the bottom floor, so that residents do not require a vehicle. The city provides multiple types of transportation, and plenty of shops are located nearby.

Figure 28: Proposed Retirement Community.

BACKGROUND SUMMARY

The trend toward increased life span is expected to accelerate as improved health care is available to more elderly individuals in the developed world. Numerous countries are working with an approach that includes evidence-based research as well as social and ethical concerns to address this demographic shift. This shift will rapidly become a crisis if it is not addressed now. The research that was uncovered in the process of constructing this paper indicates that the shift will be addressed efficiently.
04 Assistive Technology for Elderly

A negative perception of the traditional retirement home is common among Baby Boomers. Baby Boomers were the first generation to be able to use advanced technology to expand their life choices. They expect to live wherever they please in retirement, partly due to the availability of advanced technology. Chapman’s belief that “because technology will advance significantly in the future, it will not be necessary to live in a retirement community” is a challenge that this thesis will take another step further. We propose that it will not be necessary for the elderly to move in order to obtain progressive levels of care such as independent living, assisted living, or Alzheimer’s care. Currently, retirement care systems are set up so that once a patient requires the next level of healthcare support, they must move to a new unit, or even to a new community. This can be detrimental to the well-being of the individual. Recent advancements in technology have created excellent opportunities for reducing the load on health institutions, allowing all levels of care to be provided in one retirement setting. The following are some ideas and concepts of how technology can merge all levels of elderly care into one.

INDEPENDENT LIVING

Body Sensor or Patch - Device that is implanted or placed on the wrist that will inform the user of blood levels, sugar levels, cholesterol, etc. through a cellphone or tablet device. It will also inform hospitals nearby if high levels of stress, loss of blood, heart attack or other health emergency should occur.

Google Driverless Car - A project by Google that involves developing technology for autonomous cars. Florida is

one of five states in the United States that are allowing testing of driver-less cars on public roads.

**ASSISTED LIVING LEVEL 1 & 2**

Body Sensor or Patch - With similar features mentioned above, but will also alert the nursing staff within the care community of patient needs.

Home Sensors – Pressure-sensitive devices that are placed on furniture and beds that will inform the nurses of how long someone has remained in a certain place. For example, the sensor would alert a nurse if the patient has been lying down for more than twelve hours.

Voice Activation Emergency Sensors- Devices that are dispersed throughout the home. If the user were in danger they would be able to yell a code word that would alert nurses within the community. This system can also be taken a step further allowing the nurses to use visual capabilities that are normally only accessible in a combat situation.

Medication Dispenser - A device that alerts the user when it is time to take medication and dispenses the correct medication to them throughout the day.

**DEMENTIA FACILITY**

Trash Can Sensors- A system that will catalog, record, suggest and order food based on the user’s desires and diet. This system will alert health care staff when a resident fails to eat their meals, averting health consequences such as dehydration and excessive weight loss. It will also help prevent waste.

Body Tracker - This device can be worn by a user or implanted in order to track the user’s whereabouts. Dementia patients have a tendency to wander and become lost; therefore, this system would alert nurses if the user is in any kind of danger. It can also be used by the patient to help them navigate.

This thesis will not focus on the design and development of these technologies, but acknowledges the possibility of merging all levels of care by integrating these choices into elder care. Further, technology does not provide a complete solution, but is a small portion of the answer. We must look to other disciplines for answers in relieving the problems of aging. Advancements in technology may give the impression that aging in place is possible anywhere. However, there are some major concerns aside from technology that would need to be addressed as well when choosing to age in place.
While Boomers frequently express a desire to age in place in their suburban homes, at some point in the aging process, health problems are likely to take their toll on both the homeowner and the ability to maintain the home. The responsibility of maintaining a home for appearance as well as cleanliness and well-being can become onerous for elderly homeowners. If a home is not universally designed, it can be difficult to maintain. For instance, in my grandmother’s case, she was unable to use her dishwasher due to its location near the floor. Therefore she used it as a spot to place all the plastic bags that she accumulated over the years, and would instead wash her dishes by hand, since the kitchen counter provided the extra support that she required to remain standing. Another issue with most homes is that doorways are a standard width of 30”. This prevented my grandmother from accessing her bedroom, bathroom, or kitchen with a wheelchair. She had difficulty handling doorknobs because of her arthritis, and preferred lever door handles. Finally, the subtle level shifts in the floors of her home were dangerous, leading to the risk of tripping and falling.

UNIVERSAL DESIGN

A universal design approach was the focus of Ellen D. Taira and Jodi L. Carlson’s book *Designing, Adapting, and Enhancing the Home Environment*. The universal design approach focuses on producing environments and products that encompass the needs of people with disabilities. The philosophy of universal design is that all people are aging. People with disabilities are aging, and healthy people are also aging with the prospect of a time when they may be at least slightly disabled. This large shift in the functionality of the American population calls for universal design of living spaces. Applying universal design to homes allows people to age in place by (a) reducing the need for assistance and (b) reducing the work load of caregivers, therefore preserving the elderly individual’s sense of independence.

Unfortunately, while the concept of universal design is a 21st century idea, most of the existing housing supply was built in the 20th century and is not suitable for use by an aging population. Action needs to be taken

in all social tiers: local government, designers, and homeowners, to prepare homes for aging in place. Local
governments have enforcement power through enactment
of building codes. Designers tend to view the standards
required by the federal law of Americans with Disabilities
Act (ADA) as an afterthought within design, because
meeting these standards can be aesthetically displeasing
as well as costly. Instead of resisting these standards
as a last-minute decision within the design process, the
standards can be included within the architecture from
the beginning stages of design. The opportunity for
industrial designers, architects and interior designers
to redesign handrails, ramps, and other elements to be
more aesthetically pleasing can overcome the negative
implications of ADA standardized handrails or other
devices. This will provide encouragement for designers,
developers and homeowners to incorporate these designs
within building plans, thus allowing the elderly to age in
place safely.
06 Levels of Care: Types of Facilities

Independent Senior Living (55 and older) - Residents do not require assistance with daily activities or skilled nursing assistance. They benefit from convenient services, senior-friendly surroundings, and increased social opportunities as independent seniors.\[^{16}\]

Assisted Living - Residents require minimal nursing supervision or assistance with Activities of Daily Living (ADLs). They are mobile and able to leave the facility on their own. Assisted living facility provides three meals a day. Residents do receive supervision 24/7 to ensure that they eat properly and take their medication.

Alzheimer’s Care - Residents suffer from “memory loss and other intellectual abilities serious enough to interfere with daily life.”\[^{17}\] They require 24-7 nursing supervision and assistance to ensure that they are taking their medication, eating properly and staying active. Facility provides three meals a day. These facilities are isolated from the community with monitored exits. Patients may not leave the facility on their own.

Skilled Nursing- A nursing home provides the highest level of skilled medical care for seniors outside of a hospital. Care includes custodial assistance with daily activities such as getting in and out of bed, meals, personal hygiene, and dressing. Patient care is supervised by a licensed physician and a nurse or other medical professional is always on the premises. Skilled nursing care is continuously available and other medical professionals, such as occupational or physical therapists, are also available. “This allows the delivery of medical procedures and therapies on site that would not be possible in other housing.”\[^{18}\]

Hospital Care - Residents who enter this facility have suffered a serious injury or illnesses. They require 24/7 supervision by doctors and nurses. Residents are unable to walk or care for themselves.

---


Hospice Care - “End-of-life” care is provided by a team of health care professionals and volunteers who give medical, psychological, and spiritual support. The goal is to offer the dying, by controlling pain and other symptoms; as a result, a person can remain as alert and comfortable as possible. Hospice programs also provide support for a patient’s family. A hospice patient usually has a life expectancy of six months or less and requires constant care in hospice center or at home.

Figure 31: Consolidating the levels of care with the help of technology and biophilia.
RETHINKING RETIREMENT

With a large percentage of the U.S. population expecting to enter retirement within the next two decades, designers must integrate design based on planning for the worst case scenario, which is dementia. “Dementia is defined as an ‘umbrella’ term used to describe the symptoms of a group of more than 100 conditions that impair memory, behaviors and thinking.”[20] The most common type of dementia is Alzheimer’s disease. According to the Alzheimer’s Association, a voluntary health organization that focuses on the care, support, and research of this disease, Alzheimer’s has become an epidemic, and is the 6th leading cause of death in the United States. The Association has stated that “Alzheimer’s is the only cause of death among the top 10 in the United States that cannot be prevented, cured or even solved.”[21] Currently one in three seniors dies as a result of Alzheimer’s or another type of dementia. There is a disconnection between designers of elder care facilities and researchers in other disciplines of human environmental studies that has allowed the need for this type of design to be overlooked. It is necessary for medical, industrial, and psychological research to be integrated with the design of elderly residential facilities to help alleviate the problems of aging.

DEMEN'TIA

Figure 32: (top) Alzheimer’s patient

21. Ibid.
07 Proposition

Understanding the key issues that will arise as the Boomers retire and then go through the levels of care, even implementing strategies to assist dementia patients to remain in their communities, would reduce demand for specialized facilities. In addition, moving due to medical needs can be detrimental to the well-being of elderly, and may place a strain on their families. The ideal goal of this thesis and its Vibrant Urban District approach, is to allow the elderly to age-in-place as long as possible. If we design an attractive retirement destination that is also seamlessly able to accommodate the extreme scenario of dementia or disability, we will help the retiring Boomers to prolong the time that they can remain in their communities and reduce the burden of care for their families.

Although De Hogewey is specifically a dementia facility, we will use it to illustrate several key design principles that are more broadly applicable to a multiple-levels-of-care, Vibrant Urban District retirement destination.
DESIGN OF RESIDENCES FOR THE ELDERLY

Although De Hogewey is specifically a dementia facility, we will use it to illustrate several key design principles that are more broadly applicable to a multiple-levels-of-care, Vibrant Urban District retirement destination.

DE HOGEWEY IN WEISS NETHERLANDS

Design of residences for the elderly must integrate the behavioral issues that are associated with the most advanced form of cognitive impairment, which is Alzheimer’s disease. Four behaviors are associated with Alzheimer’s disease: (a) wandering; (b) nostalgia; (c) isolation; and (d) dependence. We will highlight solutions to these problems using a case study of De Hogewey in the Netherlands. De Hogewey is a community for seniors suffering from Alzheimer’s disease. Every feature of De Hogewey is designed to create a navigable, home-like, socially active, and independent lifestyle for residents.
Figure 33: Courtyard of Hogewey Dementia Facility, Weesp, Netherlands Source: http://www.vivium.nl/hogewey
DE HOGEWEE- WANDERING, ORIENTATION, NAVIGATION

Human perception of space is dynamic, and it is dramatically influenced by nodes, edges, and boundaries. Based on the proximity between points in space, the human body activates certain senses in order to analyze spatial conditions. Clarity of vision can become skewed while focusing on details within a space. Kevin Lynch lists these details as: path, edges, district, nodes, and landmarks,[22] which are used by the viewer to orient and navigate.

The wandering behavior that is a characteristic of Alzheimer’s plays a large role in the introverted layout at De Hogewey. Locating all activities along a loop-like path that transitions from sidewalks to trails to streets is intended to assist residents with spatial perception. What is unique about this is that the design of each courtyard or district is based on a theme. The themes provide residents with additional visual stimuli that facilitate orientation and location within the site. Within each district, there are landmarks that inform the user about their location. For example, the Pond District has a large pond in the center, and Theatre Square is a square-shaped space with an amphitheater located in the center. The variety of courtyards at De Hogewey not only characterizes the space, but takes into account cultural proxemics. Edward T. Hall proposed that the distances needed to create intimate, personal, social and public spaces vary from culture to culture.[23] The design of De Hogewey takes this into account with a variety of community designs for different cultures of the residents: East Indies, Christian, Dutch/Indonesian, and so on.[24] These themes are not just applied to building exteriors but are also incorporated into the living units. (We will later explain the reasoning for these themes.) A typical institutional building has paths, districts and landmarks which are not apparent to someone walking through the building, making signage necessary for navigation. In a dementia facility, design flaw can result in residents becoming disoriented, wandering, becoming agitated, and choosing the apparent safety of isolation rather risk getting lost.

Figure 34: Each courtyard has a theme that relates to the space: 1) The prolonged boulevard 2) River park 3) Theatre 4) Boulevard 5) The passage 6) Groenhof 7) The Great Square Oosthoek. Source: http://www.mbvda.nl/Hogeweyk.html.

Figure 35: Hogewey floor plan Weesp, Netherlands. Source: http://www.mbvda.nl/Hogeweyk.html.
Humans tend to associate a place with the experiences and the identity that they have established there. As an individual approaches retirement, they often imagine their home as the place where they will spend the rest of their lives. These notions are derived from positive experiences and the changes that took place as the individual matured in the home. De Hogewey's overall concept was based on creating a sense of place for individuals from six types of cultures that are common in the Netherlands: Christian, Upper Class, East Indies, Dutch/Indonesian, and Farming class. Within each district, the architecture, furniture, landscapes and types of activities reflect the nostalgic values of that culture. This facilitates a transition from the resident's original home to the new environment of the residential facility. “By designing their environment based on their cultures, memory to define who they are, and create a sense of belonging”[25] the overall style of the architecture does not resemble an institution, but is more like individual residences. David A. Kopec states that personalization often reflects self-identity. When a patient suffers from memory issues, it is helpful to situate them in an environment that appears to be familiar. Kopec discusses the negative connotations and feelings of institutional buildings, noting that “Place identity is fundamentally formed by our experiences and is an important factor in our emotions and self-regulation.”[26]

Figure 36: (left) Prolonged Boulevard.

Figure 37: (top right) The Passage

Figure 38: (bottom right) Oosthoek courtyard
DEPENDENCE, INDEPENDENCE

As people age, their mobility begins to decrease, and driving is frequently rendered unsafe for them. Due to poor city transportation infrastructure, many elderly are forced to become dependent on others. This burden not only affects the well-being of the elderly due to debilitation of their self-image as they become dependent, it also affects their families or caregivers who must perform daily chores for them. Independence is a crucial component for maintaining a healthy lifestyle. Studies illustrate that once the elderly become dependent, their bodies begin to lose muscle mass and their brain adaptability declines\(^\text{27}\). The importance of performing mental activities such as challenging puzzles or reading, is crucial to maintain brain function. Therefore the environment plays a crucial role in stimulating the brain. Creating an environment that promotes mobility and thirst for knowledge is the utopian goal in designing communities for the elderly.

The goal is to allow the user to think that they still have some control of the choices in their lives. For example, De Hogewey has incorporated a grocery store into the residential complex, allowing residents the ability to continue their daily lifestyle activity of shopping for their own food. As seen in (Figure 40), the elderly lady assumes that she has a family and children waiting for her at home, resulting in a surplus of groceries within her cart. The role of the nurse is not to intervene during the selection process, but stop by the resident's home later in order to return the unnecessary goods to the grocery store. This is a compassionate way of providing a multitude of choices, and types of activities that represent choice for residents. In contrast, the typical dementia institution maintains a strong nursing staff that routinely intervenes in all the activities of the elderly and caters to their daily needs. By removing constant intervention by nursing staff from the equation and substituting design elements that foster independent action, De Hogewey allows residents to make choices. “Increase independence of the residents by providing surveillance and utilization of technology to help separate the residents from the nursing staff.”\(^\text{28}\)


Figure 39: (top left) Restaurant in De Hogewey.

Figure 40: (bottom left) Care taker overlooking elderly with grocery shopping.

Figure 41: (top right) Resident Art Work.

Figure 42: (bottom right) Musical Activities.
ISOLATION, COMMUNITY

Moving to a dementia facility at a later stage of life can be difficult, and making new friends may be a challenge. A new resident may become depressed and tend to remain isolated in their room. In order to encourage people to be social, De Hogewey creates co-housing units where the faculty will pair the new resident with people who share similar backgrounds and interests; this facilitates a smooth transition. Each co-housing unit contains six bedrooms, all of which have visual adjacency to the bathroom as a reminder to use it. Each resident has a private bedroom, with a view of activities occurring in the courtyards. The rooms and communal spaces are rather small, thus encouraging residents to venture out of their rooms, with a multitude of activities occurring throughout the site, including intergenerational activities. These intergenerational activities reduce the negative resistive approach stigma that is present in the younger generation.
ROLE OF NATURE

Studies show that people living in a natural environment experience significantly less chronic illness. De Hogewey is a prime example, in which each courtyard features different types of plant and water features. After a few years, residents within De Hogewey require significantly less medication than residents of nearby dementia facilities. Ulrich stated that, “Viewing scenes of natural environments reduces disturbingly high levels of physiological arousal.”

Figure 46: Green Courtyard.


BIOPHILIC DESIGN

“Biophilic design is an innovative approach that emphasizes the necessity of maintaining, enhancing, and restoring the beneficial experience of nature in the built environment.”[31] Biophilia is the study of the human relationship to nature. Biophilia is not a design style, but a design process. It is a process that strives to reintegrate the built environment with the natural environment, and to restore to wholeness the human living in the natural world. This process considers the physiological and psychological well-being of the inhabitants in and around buildings. Throughout history, this been shown to provide psychological healing as well as the ability to increase the rate at which people regenerate. Ulrich concluded that “patients in healthcare environments briefly viewing nature settings can produce substantial and rapid psychological and physiological restoration from stress.”[32]

This idea proposes that nature has a restorative quality that can positively affect the mentality of human beings. As seen in the dementia case study above, the variety and abundance of landscapes within and outside the facility, not only encourages residents to explore, but those residents consume nearly a third less pain medication than people in closed nature-less institutional dementia facilities.[33] In addition, research has shown a drastic reduction of fights and arguments between the patients and nurses in a nature-rich environment.

This thesis project will strive to integrate the built and the natural environment, using nature as a medication to relieve the stress of aging. The landscape’s relationship to the urban project will not be considered as a separate issue, but rather as part of a greater whole in which codependence is a force that will inform the design.

Kopec has proposed that institutional buildings are not the correct design for sustaining human well-being. Buildings that are less monolithic and more residential in scale support well-being and comfort. De Hogewey has succeeded in avoiding an institutional facade. For example, whereas institutional facades typically utilize windows that are replicated throughout the building, De Hogewey has subdivided and shifted forms inside and out. In addition, the non-repetitious variety in the size of the windows undulates throughout the facade. A multitude of materials helps what is really only a single building appear like twenty different buildings. The variety of materials and formal shifts in the facade help to create a residential feel.

Even the entry into the “dementia village” of De Hogewey is inviting. A large steel frame at a residential height highlights the main entrance, utilizing transparency and creating a welcoming appearance. The entrance frames a wide public corridor that runs throughout De Hogewey. This non-institutional quality of the building

35. Ibid., 374.
continues into the interior, which offers a multitude of places to eat, in contrast with most institutions which concentrate dining in one central space. Kopec proposed that when dining spaces are concentrated in a central area, residents are more often agitated, with more behavioral problems occurring during entry to the dining room. “Aggression among residents- assaults decreased by over 40 percent when residents dined in the unit rather than being crowded into elevators to reach centralized dining rooms.”[34] Also “Social interaction and improved eating behavior increased among residents following the adoption of less institutional dining arrangements (i.e. substitution of family-style dining at small dining tables.”[35]

In conclusion, De Hogewey is a successful example of a dementia village. The De Hogewey designers have successfully created a community that allows a healthy, home-like, social, and independent lifestyle that gives the user choices, thus prolonging comfort in the third stage of life. The only area in which De Hogewey could improve is with additional vegetation in some courtyards. Otherwise, they have successfully transformed what typically appears to be an institution into a vibrant urban village, illustrating design principles widely applicable to environments for retirement and aging, in general.
Changing Nature of Retirement Communities

Traditional design concepts for retirement communities are based on the previous generation's nostalgic aesthetics. Therefore, retirement communities are usually rendered undesirable once that generation has passed. Each generation's values are affected by their experiences and notable events that occurred during their lifetime. Generation GI and the Silent Generation willingly offered to give their lives for their country during World War II and in the Korean War. Once World War II concluded, prosperity began, and the arrival of the Baby Boomers and the sexual revolution changed the country.

New suburban developments flourished, which were completely dependent on automobile ownership. Universities and colleges multiplied at a rapid rate. People of this generation learned to fight for what they wanted and to question authority. Certainty was not acceptable to them; instead they learned to question the world around them. They have experienced life during a time when it was believed that anything was possible. The Boomers have brought this innovative mindset to the question of retirement.

Where will the Boomers nest? Will they follow the tradition of their parents and settle within a traditional retirement community?

This paper evaluates current retirement communities from a macro scale of site placement to the micro scale of individual spaces within facilities. The evaluation criteria are based on the previous research on core values and interdisciplinary principles to judge the success and failures of three projects. The result will highlight the direction of a potentially near type of retirement architecture.

Buildings need to be positioned within a context that provides commerce, retail, and educational opportunities within walking distance. Secondly, the natural landscape is necessary for mental well-being and needs to be integrated with the buildings. Thirdly, the site requires density to promote and sustain retail, commerce, and alternative modes of transportation. Finally, the buildings should allow the individual an option of expressing themselves through an option to customize the exterior of their home. The combination
of all these constituent parts will create a whole that communicates social, cultural, tradition, and ownership of the community.

Amalgamation of the research will produce a retirement destination that is a walkable, intergenerational, and health-promoting community with the intention to prolong an independent active lifestyle for the residents in the third-stage of life by merging all levels of care. The project will be approached in three components taking into account the concepts and principles depicted in the interdisciplinary research and case studies: (a) a macro perspective of choosing a site with the intention of satisfying the “program-age” and “walkability-criteria”; (b) creating a master plan emphasizing the community connection to city features, nature, and activities; and (c) a building design exploring the relationship between private, semi private, and public connection.
rethinking RETIREMENT...
Thesis yields the following problems with retirement communities in suburbia:

1. Not age-in-place friendly, requiring them to move based on the needed levels of care
2. Segregated from everyday commerce
3. Lack of socially and intellectually stimulating intergenerational activities
4. Lacks the values of sustainability and environmental ethics in life choices.
5. Institutional.
Start by rebranding the idea of retirement to attract the Boomers sooner. Throughout generations, Retirement Communities have carried a negative perception. This project will undertake several procedures that will transform retirement communities into an Urban Vibrant District.
Figure 52: Rebranding
rethinking RETIREMENT...

"You never change things by fighting the existing reality. To change something, build a new model that makes the existing model obsolete."  R. Buckminster Fuller
"Age in place" while retaining access to all levels of Medical care
01 “Age in place” while retaining access to all levels of medicare

Figure 53: Top set of diagrams illustrates the framework of Retirement Communities. As you age and require additional assistance the individual is moved to a new location. The proposed project amalgamates all these specialized fields, so the individual can age-in-place gracefully. This is done with the help of interdisciplinary fields and future technology.
**BUILDING TYPE**

Based on the research, 70% of the aging population would rather age in place than move to a retirement community. Retirement communities and "aging-in-place" in suburban and rural areas tend to promote isolation. The idea of a retirement "community" needs to evolve by amalgamating the desires of Boomers into buildings which express their core values, respect for the individual, and naturalistic qualities. This thesis will focus on a hybrid building type; combining the spatial organization, way finding, and social atmosphere of a campus with the medical services and future technology of a CCRC (Continuing Care Retirement Center). The mutigenerational non-institutional scale of a suburb, and the density and varied activities of a city form an "Vibrant Urban District" that also has the ability to support aging-in-place.

A community which is located in a social environment includes a sense of community, a variety of age groups, and integration of a variety of socioeconomic classes. It should include the convenience of being walkable and navigable using multiple types of transportation; with access to continuing education, quality health care, and a diversity of activities including entertainment, outdoor recreation, and shopping. It should offer assurance and safety from a medical perspective, with design features that alleviate the risk of falling, while being a warm and attractive environment. It would allow the resident a peaceful independent lifestyle with a variety of options that allow residents to participate in society and the larger world.

What is unique about this approach is that it derives positive qualities from many types of buildings, and draws from research that is incorporated in the design. The layout and design of the community and homes incorporate principles to support all levels of care, thus making it desirable for residents who do not yet require extensive support.
MEET THE CLIENTS

There is currently a multitude of clients and organizations that are interested in the next phase of retirement community design; e.g. non-profit organizations such as AARP (American Association of Retired Persons) which focus on the well-being of the elderly aging.

Understanding of the client’s interests is most important; and due to its mission statement, core values and site location in Naples, Florida, Moorings Park, would be the best candidate to develop this project.

“A not-for-profit organization that strives to create the best facilities and services for successful aging with professional and compassionate care to each person. They are the premier provider in Southwest Florida of services, facilities and health support to enable successful aging. Moorings Park provides the peace of mind, security and knowledge that should the need arise, the highest quality of healthcare is available.”[36]

The trend of accommodating the housing needs of the elderly supports interest in innovative, technologically-savvy, aging friendly communities. Moorings Park maintains an 83 acre campus within Naples, FL that accommodate all types of care and activities. With Florida being a primary retirement destination, and a large demographic shift toward an aging population that is expected to accelerate by 2020, the need for elderly housing is expected to grow. Design values will need to change in order to adapt to the core values of the Baby Boomers which include a healthy and independent old age. Currently, elder care facilities neglect independence, with stimulation-poor environments, and little access to “smart gadgets.” It is necessary to re-imagine a new type of retirement community with a focus on healthy aging, where design serves to alleviate the difficulties. Retirees today often embrace emerging trends such as computer technology and social media. This facility will embrace the latest technologies that the Boomers use on a daily basis.
02 Carry out activities in their daily lives with walkable access to everyday commerce.
a) Selecting a site that meets the "walkability" criteria.
CHOOSING A LOCALE

Selecting a site to develop a Retirement Community in the United States was derived from several sources: U.S. Census data, AARP polls, and Boomers’ Ideal Desires to Retire articles. According to the 2012 demographic census Figure 60, illustrates the percentage of the population that are over the age of sixty, displaying Florida as the most prominent location.\(^{37}\) According to the 2013 census, Florida accounted for 37.6 percent of its total population of 18,674,425, as being over the age of 60.\(^{38}\) This number may be inflated because of “snow birds” a common term for people who live up north and move down during the harsh winters.

Florida provides Boomers warm weather year round, allowing them the ability to be outside and enjoy common desirable activities: fishing, golfing, swimming and so on. Within the state of Florida, locating a city to position was the next task. Florida is topographically flat and sprawled out, making it a bit difficult to find, yet information taken from AARP highlighted Naples as the most sought after retirement destination in Florida. Naples provides a variety of popular elderly activities: within a twenty mile radius lies over ten golf courses, the Gulf of Mexico to the west provides canoeing, sailing and fishing, over ten shopping malls and outlets for people who love to shop, and plentiful inlets, rivers and ponds to go fishing year round. Finally, the main attraction is the warm climate throughout the year, so these activities can be enjoyed year round, keeping their bodies active and healthy.


Figure 59: People over the age of sixty-five in the United States.
Figure 60: (Image on the right) Illustrates the location of Naples. Naples has the highest concentration of people over the age of sixty-five. source: www.city-data.com
Yet even though Naples sounds like a great destination, it has its drawbacks. Naples is basically a suburban city, and residence there involves use of a vehicle for daily activities. The images to the right illustrate the sprawling quality of the city. This project could become a beacon to inform the public of the issues that the elderly face living in a suburban city, by showing that it is desirable to commute by walking. This idea would not only be attractive to residents who are from Florida but also those who are from cities in the North where public transportation is more common. The project will demonstrate that it’s possible to live without an automobile. The correct FAR ratio (density of people to land) will promote the development of alternative transportation. At present, the density seen on the images to the right is so dispersed that the cost of trains, trolleys, and so on would be prohibitive. Therefore, it is important to select a site that is tangent to the large artery. Since Naples is a young city, it does have the capital and land to begin planning for multiple modes of transportation.

Figure 61: Aerial view of suburban and rural communities in Naples, Florida.
1.5 SQUARE MILES = 960 ACRES
340 HOMES
2.82 ACRES PER HOME

4 SQUARE MILES = 1280 ACRES
1,500 HOMES
.85 ACRES PER HOME

Walkable access to everyday commerce
ANALYZING CONTEXTUAL FABRIC

The following diagrams isolate the residential, industrial, parks, preservations, and commerce in order to understand the DNA makeup of Naples and begin to narrow the site selection. The older grid follows the contours of the Gulf of Mexico giving it an organic grid system. As it moves inwards, an orthogonal grid begins to establish in between two main arteries, US-41 and Goodlette-Frank Rd, slicing through Naples. In between the two arteries is a mix of retail, commerce, residential, and parks. Moving farther inland, the grid begins to
deteriorate and grow in scale. Within these outward lands is where residents face isolation and the industrial area. The following information begins to establish nodes in the areas where zones overlap and touch that will lead to possible sites for the Vibrant Urban District. 

Figure 62: (1) Grid
Figure 63: (2) Retail & Commercial
Figure 64: (3) Recreation, and preservations.
Figure 65: (4) Residential
Figure 66: Mapping potential sites in Naples, Florida.
SELECTING A WALKABLE SITE

Walkability Criteria:
A person is willing to walk up to a quarter of a mile (15 min travel time) to reach a desired destination; therefore, based on the type of transportation system provided in the area will determine the area of a circle in which someone could cover. The daily necessities should fall within that area.

The evaluation process started by drawing a quarter mile circle on each site, and then scoring each site based on fulfilling the qualifications within each circle must be the following: (1) grocery stores, (2) commerce, (3) places for services such as church schools, and zoo, (4) alternative transportation.
THE SITE

The selection was rather clear, and a site was chosen right off one of the main arteries that cut through Naples, Goodlette-Frank Road. Surrounding the site is a variety of retail, commercial, and outdoor activities, including The Naples Zoo located to the South, a place they can go for entertainment or to volunteer. Several schools to the West of the site provide many intergenerational opportunities; one being that the students could participate within the retirement community. The elderly can also volunteer and or work at the school. Finally the schools can host after school continuing education programs for the elderly. Also to the West of the site is a shopping mall, providing a variety of retail shops and restaurants. Finally to the Northeast and across from the Zoo are parks, where the elderly can go to walk, bike or even coach little league baseball and football. Within a two mile radius from the site are six golf courses. Finally the waterway access that runs along the East side of the site leads directly into the Gulf of Mexico. This site provides a variety of water sports and activities, such as fishing. This site serves as the gateway to a plethora of amenities, shopping malls, zoo, and high schools.

Figure 67: Walkability Map
DOCUMENTING THE SITE
Figure 68: Aerial Map of site selection
Figure 69: Street View 01 - On Goodlette-Frank Rd looking S.E. towards Freedom Park.

Figure 70: Street View 02- On Goodlette-Frank Rd facing S.E. with Freedom Park to the left and Iberiabank on the right.
Figure 71: Street View 04- On Goodlette-Frank Rd facing S.E. with Hess Gas station to the left and site located in the foreground.

Figure 72: Street View 05- On Goodlette-Frank Rd facing S.W. with the mall located behind the vegetation, and with the site to our backs.
Figure 73: Street View 03- Intersection of Goodlette-Frank Rd. and Golden Gate Parkway facing S.E. with Hess Express at the intersection, farther back there are retail shops, car wash and the site in the background.

Figure 74: Street View 07- On Golden Gate Parkway facing S.W. with Coast Land Mall in the background.
Figure 75: Street View 06- On Goodlette-Frank Rd facing S.E. with Naples Zoo in the background.

Figure 76: Street View 10- Looking down Golden Gate Parkway with the site completely covered with variety of types of trees the entire way.
Figure 77: Street View 08- On Golden Gate Parkway facing N.W. at Naples High School Football/Track Field.

Figure 78: Street View 09- On Golden Gate Parkway facing S.E. with the site to the left and Car Wash on the far right.
Figure 79: Street View 11- On Golden Gate Parkway facing directly at the site.

Figure 80: Street View 12- On Golden Gate Parkway across the street from the site looking at Freedom Park community center.
The temperature range in Florida averages above the comfort zone of 75 degrees throughout the majority of the year; winters reach an average low of 60 degrees and summers can reach in to the high 90’s. The ability to keep a building shaded from the southern light, and therefore heat, is a main concern. However, due to its close proximity to the ocean and abundant water sources that cut through the land, Naples stays relatively cool compared to the inland areas of Florida which makes this area desirable. Major environmental concerns include hurricanes. With Naples standing six feet above sea level, flooding becomes a problem as well.
The Psychometric Chart above illustrates the human comfort level. The dots represent each day's temperature from January to December. The dots that fall within the highlighted blue box are in the human comfort zone. However, as shown, the majority of the dots fall outside of the comfort box, indicating the need for a large amount of active and passive strategies to control the comfort. A significant number of dots lie above the comfort level which express that dehumidification is needed. Dots to the left of the blue zone require cooling; whether it is from natural winds, fan forced ventilation or conditioned air. The dots to the right of the blue box require heating.
Figure 83: Fall average wind speeds and direction of wind  EPW-weather.com)

Figure 84: Summer average wind speeds and direction of wind  EPW-weather.com)

Figure 85: Spring average wind speeds and direction of wind  EPW-weather.com)

Figure 86: Winter average wind speeds and direction of wind  EPW-weather.com)
THE PREVAILING WINDS

Primary wind direction is from West to East with wind speeds averaging eight miles per hour. The bulk movement of air is chilled by the Gulf of Mexico and directed inland. Unfortunately, Florida is relatively flat in topography, and the wind speeds at the pedestrian level deteriorate by vegetation and buildings as it charges inland. As a result, there are cooler temperatures closer to the coast line. With the climate in Naples demanding eight months of conditioned air, the utilization of wind is imperative. If the building was to exceed the pedestrian and vegetation height, then the building would be able to take advantage of passive strategies in cooling.

Hurricanes are a major concern that can yield deadly and destructive winds, which these charts do not account for. Naples Florida has been brushed or hit by eighteen hurricanes, averaging one hurricane approximately every 2.71 years. Besides bringing dangerous wind speeds, hurricanes produce heavy rains and large waves that eat away from the coast line, and transform vegetation and objects on the ground level into projectiles.
SITE CONJECTURE

Figure 87: Twenty two acres site.

Figure 88: Excavating river to meet 8'-0" NGVD.

Figure 89: Views and connection to the site.

Figure 90: Views and connection to the site.
TRANSPORTATION

ACCESSIBILITY

Figure 91: Accessibility Diagram
SITE : GRID STRATEGY

The most efficient and used concept throughout the world, an ortho grid relies on numbering. However, as people age their memory begins to deteriorate, and remembering whether you live on 52nd St or 52nd Ave can frustrate people. In addition the scale of spaces is too repetitive and similar. Streets all begin to look similar.

Organic grids allow for diversity of spaces and changes, yet navigating is not as intuitive as a grid. Typically each road has a random name, requiring time for the user to get a holistic understanding of the community. This results in people not venturing off due to the worry of getting lost, or entering unfamiliar territory. Also the efficiency of going from one point to another is two to three times as long.
Form grids amalgamate the number concept from the orthogonal grid and the spatial recognition of the organic grid; allowing the elderly to quickly understand the holistic configuration of the site. Each shape is different, yet shares similar DNA to the tangent shapes. This allows new visitors and residents to quickly get acquainted and encourages wandering. There is a high degree of diversity, exchange and complexity.
Walkable Access to everyday commerce

Shopping
Site provides over 60 places to shop.

Continuing Education
Learning should not stop after retirement. It is imperative to be continuously stimulating your brain to reduce the rate of neoplacitity. Naples High School is not being used after 3pm, and can be used to hold classes for the elderly.

Service Attractor
Attract Younger Generations
The zoo can play a large role in providing the elderly a job looking after the animals. and can also be used to attract the younger generation. The worst thing to do when you are retired is to sit at home bored. The elderly should continue to stay activated and moving.

Work
Community that offsets the cost of Aging
Allowing residents the ability to purchase retail and commerce space on the site as an investment. Where they will be able to overlook and collect income every month. This will allow them a steady income and sense of ownership within the community.

Figure 96: Urban Vibrant District
03 Participate in socially and intellectually stimulating intergenerational activities by:
a) Diversifying of Spaces
b) Integrating range of programs
THEMED SPACES

Themed spaces follow the logic of the form grid; where orientation is not only confirmed by the street address, but the contextual building form. With each space's design based on a particular theme, the user gets a holistic picture of the campus. Elderly are less likely to venture into unknown territory, yet this campus-like organization encourages people to wander and explore with the comfort that they would be able to return.

Figure 97: Housing Community in the Netherlands.

Figure 98: Artpop Ball Watershow

Figure 99: Destin, FL
The Great Circle
The Great Circle is exactly a circle, which informed the shapes of the master plan. This zone encompasses community activities, shops and restaurants the bottom level. Some of the best vantage points can be found here with all of the major axes coming off this point.

The Harbor
The harbor houses the residents’ watercraft vehicles. There is retail space that runs along the boardwalk, ranging from coffee shops to bait supplies, and canoe renting. At night this space is activated with a light show from 8pm to midnight.
Figure 102: Greek Island Village

Figure 103: The River District

Figure 104: Schematic outdoor shopping mall

Figure 105: Schematic outdoor shopping mall
Art District

This section comprises commerce relating to art galleries, shops, and museums. The work within the galleries is produced by the residents; where each week a selected resident is able to show off their work to the community. The characteristic of the buildings in this zone have more of a parametric design with fractural perforating screens that truly speak of the district.

Water District

This zone is comprised of small coffee shops and restaurants. The building style alludes to Italian precedents in honor of namesake Naples, Italy; each home is differentiated by the exterior color. This zone carries a quiet, romantic feel, with gondolas lined up along the water passage for residents to hop in and sail away.
**PROGRAM**

The program is one of the main components to creating a socially gated, intergenerational environment. Due to the density of the site and its unique attractive aesthetics, the Vibrant Urban District will naturally draw people from all over. The program is what will truly bring those people back. Since, that the site's existing context does not provide everything within a walkable distance, other desired programs that are not nearby needs to be provided within the community.

---

Figure 108: Program Diagram
**Community Spaces**
- Event Space
- Parks
- Recreational fields
- Courtyards
  - Public
  - Semi-Private
  - Private
- Pier

**Activities**
- Putt Putt, Driving range, Rock Climbing wall, bicycle routes, Boating piers, 1-Basket ball Court, Football field, Tennis court, Theatre, Art Room, Fishing, Chapel, Bird Sanctuary

**Associate School Programs**
- University Programs
- Satellite FGCU Vet School
- Satellite FGCU Nursing Program
- High school/Elementary Programs
- Tutoring rooms
- After-school Programs

**Retail**
- Restaurants (3-5) 1,500 - 2,500 sq. ft.
- Coffee Shops (2-3) 500-900 sq. ft.
- Grocery Store (1) 3,000

**Private Resident Rooms for 500-residents**
- 1 Bedroom, 1 Bath - 1200 sq. ft.
- 2 Bedroom, 2 Bath - 1500 sq. ft.
- 3 Bedroom, 2 Bath - 2500 sq. ft.
- 4 Bedroom, 2 Bath - 3000 sq. ft.

**Wellness & Therapy**
- Waiting Area/Receptionist/Restrooms/Office
- Wellness/Physical Therapy Gym
- Hearing/Speech/Occupational Therapy
- Hair Care/Manicure “Day Spa”/Restrooms

**Building & Staff Support 6,000**
- Staff Dining/Vending/Lockers/Toilet
- Kitchen/Office/Food Storage/Receiving Kitchen
- Maintenance Shop/Building & Housekeeping
- Offices & Supplies
- Central Washer/Dryer/Sewing/Repair
- Mechanical & Electrical
- Trash/Recycling Shed

**Administration & Conference Space 3,000**
- Admin. Offices/Meeting Rooms
- MDS Room/Records Room
- Meeting/Classroom
04 Reflecting the values of sustainability and environmental ethics by:
a) Creating an environmentally responsible community
b) Consolidating vehicular parking
c) Stitching together the built and natural environments
04 An environmentally responsible community

“We have met the enemy and he is us.” Pogo, by Walt Kelly

The section illustrates the co-dependent relationship between the built and natural environments. “We humans are now a ‘superspecies’, making personal and national choices that together will determine the world our children will inherit and the fate of the world’s other species.”[39] The urban layout makes use of more human power and creates a less-resource intensive lifestyle. Renewable energy technology and nature’s processes are expressed throughout the design, from geothermal systems that heat and cool the infrastructure to solar panel systems that take advantage of Florida’s sun throughout the year. In addition, natural systems are used, such as outdoor wastewater treatment, natural detentions, intensive and extensive green roofs, and rain gardens to cleanse the ground water. These simple functions that may have a large upfront cost, but have proven to pay for themselves in the future. Statistics show that homeowners are willing to spend up to 20% of their home value to incorporate these systems.[40]

An environmentally responsible community

Reflect the values of sustainability and environmental ethics

- Solar Panels
- Smart car parking
- Grey Water & Geo thermal Storage
- Bike lane
- Walking path

Private | Private terrace | Semi-Private
CONSOLIDATING VEHICULAR PARKING

There are architectural strategies that also enforce a greener lifestyle. The Vibrant Urban District takes a few positions towards this vehicular dominating society in hope of drawing awareness and increasing walkability. The public parking garage will be suitable for full size vehicles, smart cars, and electric cars; and centrally located to reduce the sporadic scaring on the landscape. For the residents, each building will have parking at the basement level, understanding that it is not possible to completely remove the vehicle from our dependent society. The residents’ garage will only support electric cars. Electric cars when connected to the building will serve as an energy reservoir and provider during peak times. There will be only one vehicular parking spot per household. Florida’s location above the water table does permit underground parking, but the ability to have a typical 12 foot garage below grade is costly, whereas limiting parking to smart cars only requires a height of only seven feet. This will force people to downsize their vehicle to one that is more efficient for the environment or they will have to park in the public garage.
Figure 111: Walkability Map
STITCHING TOGETHER
THE BUILT AND NATURAL ENVIRONMENTS

Using nature as a medication to relieve the stress of aging, integrating the built and natural environment is a key element. The landscape's relationship to the urban project will not be considered as a separate issue, but rather as part of a greater whole in which codependence is a force that will inform the design.
An environmentally responsible community
05  Customizable to adapt to all levels of care and Generations
a) promoting Individuality through customization
05 Individuality and Customization

**PROMOTING SELF-IDENTITY**

Current retirement facilities are institutional. The following diagrams illustrate design strategies to help prevent an institutional quality. Beginning on the left (monolithic), all the windows are duplicates of each other; there isn’t any facadial variation to inform or welcome visitors. Individuality increases in the columns to the right, where the spaces become more of a representation of the user inside. There is a sense of welcome brought through this aesthetic. By slicing the volume, it begins to break down the scale and reduce its apparent mass. Shifting also plays a role in breaking the scale. To the far right, an irregular system is also unfamiliar, so that it

<table>
<thead>
<tr>
<th>Institutional</th>
<th>Individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vertical</td>
<td></td>
</tr>
<tr>
<td>Monolithic</td>
<td>Slice</td>
</tr>
<tr>
<td>Horizontal</td>
<td>Shift</td>
</tr>
<tr>
<td>Hybrid</td>
<td>Irregular</td>
</tr>
</tbody>
</table>

![Diagram showing design strategies](image)
causes curiosity, and begins to entice visitors. There are other methods that can be applied to these figures. By changing the materiality, creating breaks, and intermixing the program, things move closer towards an individualistic building aesthetic. This methodology can be used to design all the buildings.
Figure 113: North Elevation
Individuality and Customization
Figure 114: South Elevation
APPENDIX: REFERENCE AND RESOURCES


SELECTED RESOURCES AND ORGANIZATIONS

American Association of Homes & Services for Aging
http://www.aahsa.org/about-aahsa/default.asp

American Association of Retired Persons http://www.aarp.org

Alzheimer’s Disease Association http://www.alz.org

Civic Ventures http://www.civicventures.org/

Congress for the New Urbanism http://www.newurbanism.org

Dementia Care - Dementia Doctor - Dementia Clinic - King County Dementia- Snohomish County Dementia. Alzheimer’s & Dementia Care, 1 Jan. 2013. Web. 11 Dec. 2013.


The Eden Alternative http://www.edenalt.org

Environment and Gerontotology Network http://www.usc.edu/dept/gero

Environmental Design Research Association http://www.edra.org


The Gerontological Network http://www.geron.org

Osher Life Long Learning Institute http://www.usm.maine.edu/olli/national/about.jsp

National Institute on Aging http://www.nia.nih.gov

University of North Carolina Institute on Aging http://www.aging.unc.edu

University of Wisconsin Milwaukee, Institute on Aging & Environment http://www.uwm.edu/dept/IAE


<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Source(s)</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>“Grandmother’s house.”</td>
<td>Google Earth. 29 March 2014</td>
<td>vi</td>
</tr>
<tr>
<td>2</td>
<td>“Little Havanna in Miami Florida.”</td>
<td>Google Earth. 29 March 2014</td>
<td>vii</td>
</tr>
<tr>
<td>3</td>
<td>“Vehicular dominating society.”</td>
<td>Google Earth. 29 March 2014</td>
<td>vi</td>
</tr>
<tr>
<td>4</td>
<td>Fernandez, Christopher. “Retirement Timeline.”</td>
<td>2014</td>
<td>viii</td>
</tr>
<tr>
<td>6</td>
<td>Fernandez, Christopher. “Baby Boomers seven core values diagram.”</td>
<td>2014</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>“Diagram shows the population that prefer to age-in-place.”</td>
<td>2014. <a href="http://www.aarp.com">www.aarp.com</a></td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>“Golf Community.”</td>
<td>Google Earth. 29 March 2014</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>Fernandez, Christopher. “Dependent on a Vehicle to access Daily Activities.”</td>
<td>2014</td>
<td>6</td>
</tr>
<tr>
<td>15</td>
<td>Coughlin, D’Ambrosio. “Aging America and Transportation.”</td>
<td>2014.</td>
<td>7</td>
</tr>
<tr>
<td>17</td>
<td>Waal, Hugo. Designing and delivering dementia services. Chichester, West Sussex: Wiley-Blackwell, 2013.</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>18</td>
<td>Fernandez, Christopher. “Personal Photograph.”</td>
<td>2014.</td>
<td>10</td>
</tr>
<tr>
<td>19</td>
<td>“Scarlet Oaks.” Google Earth. 29 March 2014.</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>20</td>
<td>Fernandez, Christopher. “Personal Photograph.”</td>
<td>2014.</td>
<td>11</td>
</tr>
<tr>
<td>23</td>
<td>Fernandez, Christopher. “Personal Photograph.”</td>
<td>2014.</td>
<td>13</td>
</tr>
<tr>
<td>26</td>
<td>“St, Manchester, CT.” Google Earth. 29 March 2014.</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>27</td>
<td>“Moorings Park golf retirement community”</td>
<td>&lt; <a href="http://www.mooringspark.org/">http://www.mooringspark.org/</a> &gt; 29 March 2014.</td>
<td>15</td>
</tr>
</tbody>
</table>
Figure 28  “Naples, Florida” Google Earth. 29 March 2014.
Figure 29  “Proposed retirement community” <http://www.mooringspark.org/> 29 March 2014.
Figure 31  Fernandez, Christopher. “Personal Photograph.” 2014.
Figure 32  Fernandez, Christopher. “Consolidating the levels of care.” 2014.
Figure 34  “Courtyard of Hogewey Dementia Facility.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 35  “Themed Spaces” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 36  “Prolonged boulevard.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 38  “Oosthoek courtyard.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 39  “Restaurant in De Hogewey.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 40  “Care taker assist elderly with grocery.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 42  “Musical Activities.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 43  “Activities for Younger Generation.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 45  “Floor plan.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 46  “Building plan” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 47  “Green Courtyard” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 49  Fernandez, Christopher. “Personal Photograph.” 2014.
Figure 50  “De Hogewey Entrance.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 51  “Dinning Room.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 52  “De Hogewey Restaurant.” Accessed 29 March 2014. <http://www.vivium.nl/hogewey>
Figure 53  Fernandez, Christopher. “Rebranding.” 2014.
Figure 54  Fernandez, Christopher. “Framework of Retirement Communities.” 2014.
Figure 55  “AARP logo.” Accessed 29 March 2014. <http://www.aarp.org/>
Figure 87  "Summer average wind speeds." Accessed 29 March 2014. <www.epw-weather.com> 73
Figure 88  "Winter average wind speeds." Accessed 29 March 2014. <www.epw-weather.com> 73
Figure 89  Fernandez, Christopher. "22 Acre Site." 2014. 75
Figure 90  Fernandez, Christopher. "Excavate River." 2014. 75
Figure 91  Fernandez, Christopher. "Connection to site." 2014. 75
Figure 92  Fernandez, Christopher. "Connection to site." 2014. 75
Figure 93  Fernandez, Christopher. "Public Transportation." 2014. 76
Figure 94  Fernandez, Christopher. "Public Transportation." 2014. 76
Figure 95  Fernandez, Christopher. "Ortho Grid." 2014. 77
Figure 96  Fernandez, Christopher. "Organic Grid." 2014. 77
Figure 97  Fernandez, Christopher. "Form." 2014. 78
Figure 98  Fernandez, Christopher. "Urban Vibrant District." 2014. 79
Figure 99  "Housing Community in Netherlands." Accessed. 18 March 2014 83
Figure 100  Artpop Ball Watershow. Accessed. 18 March 2004 83
Figure 101  "Destin,FL" . Accessed. 18 March 2004 84
Figure 102  Fernandez, Christopher. "The Great Circle." 2014. 84
Figure 103  Fernandez, Christopher. "The Harbor." 2014. 84
Figure 104  Fernandez, Christopher. "Schematic outdoor shopping mall." 2014. 85
Figure 105  "Venice, Italy." Accessed. 18 March 2004 85
Figure 106  Fernandez, Christopher. "Schematic outdoor shopping mall." 2014. 85
Figure 107  Fernandez, Christopher. "The River District." 2014. 85
Figure 108  Fernandez, Christopher. "Zoom in of the Art District." 2014. 86
Figure 109  Fernandez, Christopher. "Water District." 2014. 86
Figure 110  Fernandez, Christopher. "Program Diagram." 2014. 87
Figure 111  Fernandez, Christopher. "乌鲁m Vibrant District section." 2014. 89
Figure 112  Fernandez, Christopher. "Program Section." 2014 95
Figure 113  Fernandez, Christopher. "Walkability Map." 2014 95
Figure 114  Fernandez, Christopher. "Stiching together the build and natural environments." 2014 96
Figure 115  Fernandez, Christopher. "Instituional Diagram." 2014 99
Figure 116  Fernandez, Christopher. "North Elevation." 2014 101
Figure 117  Fernandez, Christopher. "South Elevation." 2014 103