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## Continuation of a Life Worth Living: Empathetic Design for the Alzheimer's Community

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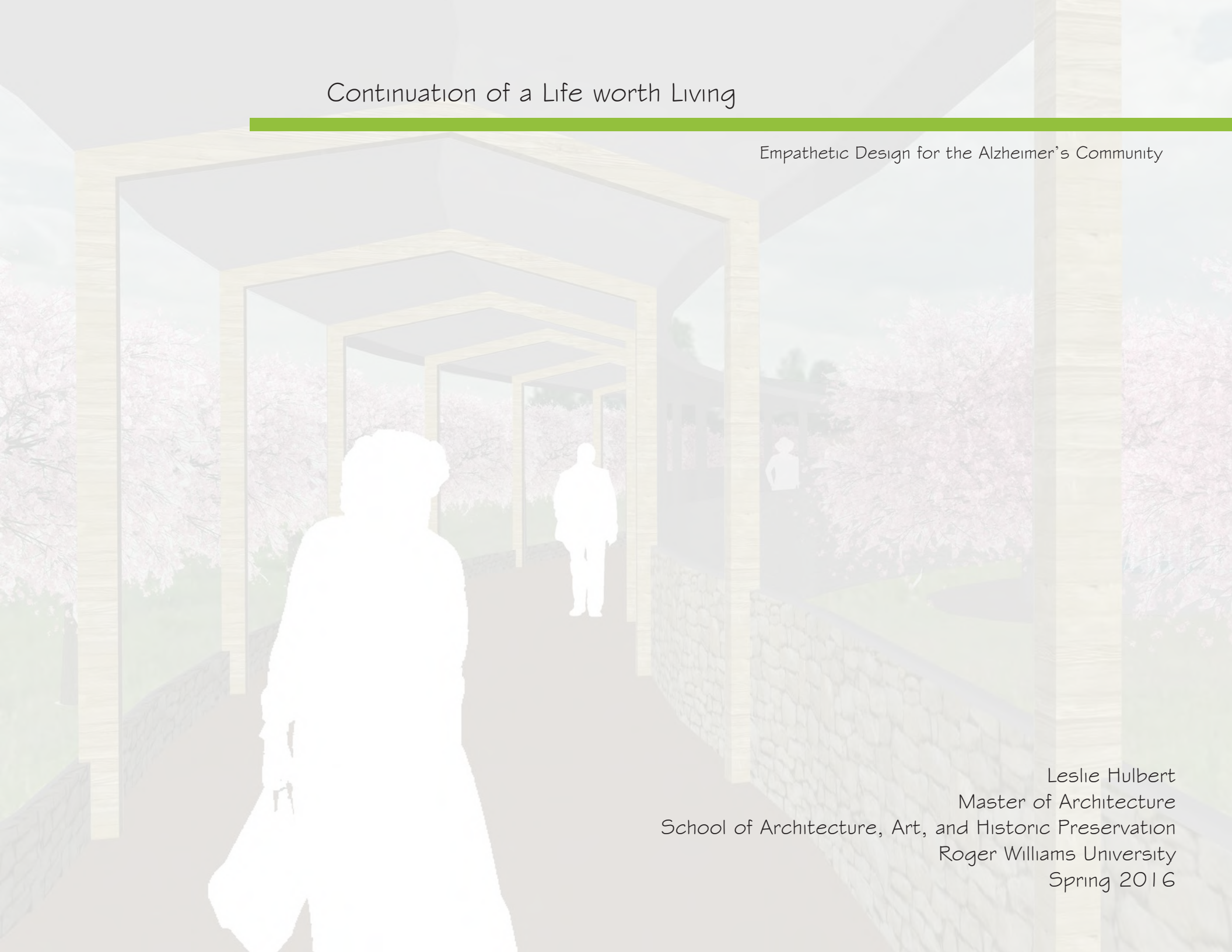
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# Continuation of a Life worth Living

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Empathetic Design for the Alzheimer's Community



Leslie Hulbert  
Master of Architecture  
School of Architecture, Art, and Historic Preservation  
Roger Williams University  
Spring 2016



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# Continuation of a Life worth Living

Empathetic Design for the Alzheimer's Community

Submitted in Fulfillment of the Requirements for the Master of Architecture Degree May 2016

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Author, Leslie Hulbert

Date

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Advisor, Hasan-Uddin Khan

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# Acknowledgments

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For my Grandmother, may she rest in peace.

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For my Father, who helped her the most.



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## Abstract

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This thesis' mission is to create a comfortable environment for those suffering with Alzheimer's and dementia. The institutional environments of the past are not sufficient for such individuals and their families. A community atmosphere is what they need; an entire complex just for them. The victims of this terrible memory defeating disease just want to go home. For many, this is not possible, therefore they should be given an environment that reminds them of home. They should have their own space that is customizable and warm. They should also be free to wander at their leisure. Their freedom should not be taken away. Certain security measures should always be incorporated to create a flexible environment that they can enjoy without constant supervision. They should be able to enjoy the outdoors in every single space. It will help them to feel more comfortable, relaxed, and free. Though they are relegated to the large community, they are able to go on scheduled supervised trips to different locations around the area. This will help to give them something to look forward to, and to keep them interacting with modern society. This will, in turn, help to decrease the desire for escape. Family members will want to visit more often since the community is such a welcoming atmosphere. This will help to make everyone feel more comfortable and at ease during this inevitably difficult situation.



## Preface

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Donny Higgins

Seven Years Ago, I was exposed to the reality of adult facilities and nursing homes. Before I had started my architectural education, I was already concerned with the well-being of the people who felt trapped in this type of living situation. It was obvious that these “patients,” affected by dementia and Alzheimer’s disease wanted to escape. My grandmother was no exception, having successfully escaped from every home she was in, including a hospital. At a young age, I was already interested in architecture and knew that the type of environment she was living in was not empathetic to making her feel at home. These environments were sterile, dismal, and institutional; with only a limited sense of a community.

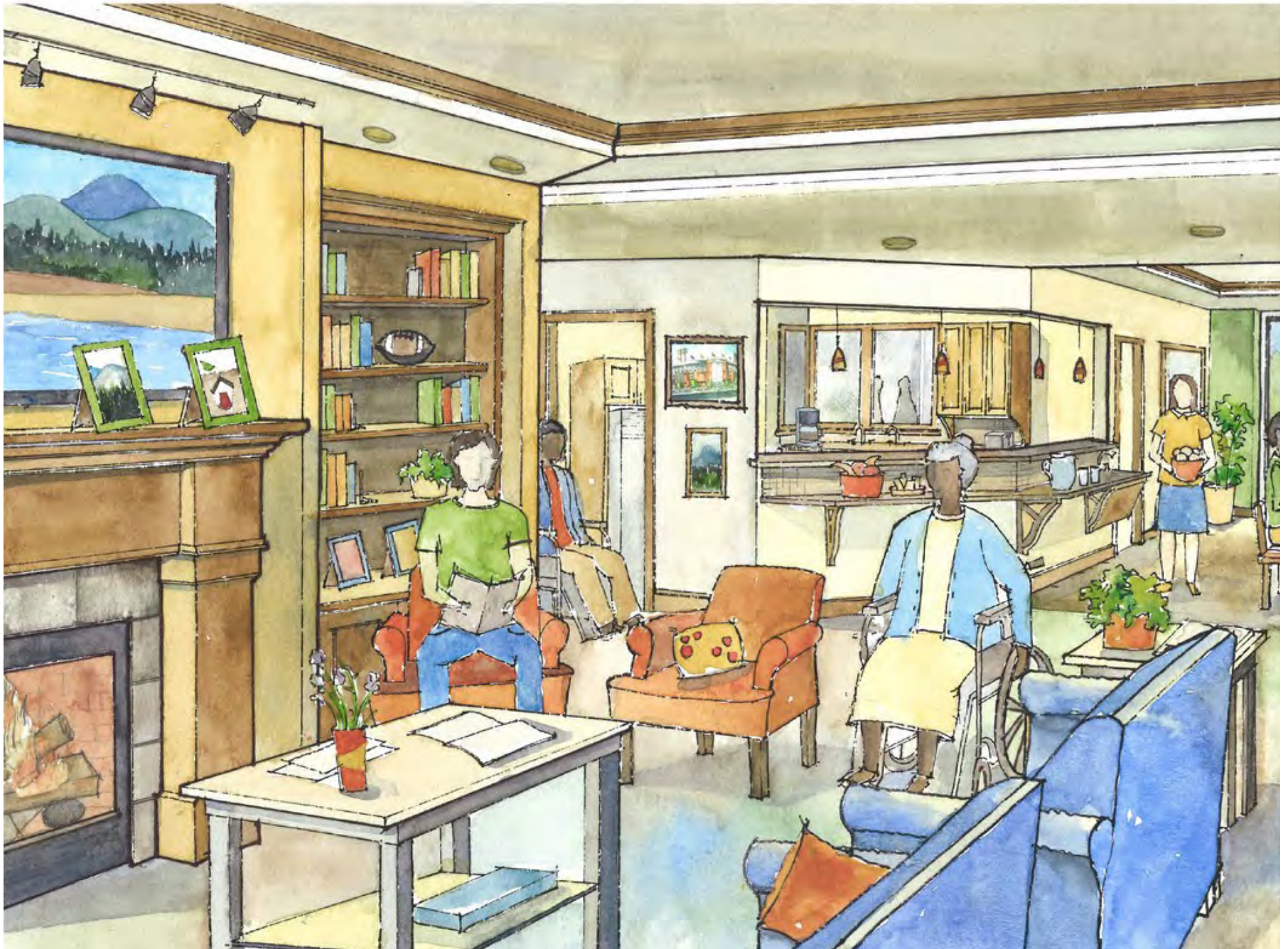




## The Beginning

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The Harry and Jeanette Weinberg GREENHOUSE, residences at Stadium Place  
Marks, Thomas Architects, Baltimore, Maryland

## Statement of Thesis

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In my Architectural Thesis, I wish to prove that good design can improve mood and health through the specification of materials, an efficient circulation layout, and the presence of nature. Architecture should evoke certain moods from the inside out and the outside in.

With the proposal of an “elder community,” it is essential to design in such a way that will ensure comfort and eliminate the thought of escape for the residents. In an ideal world, adults of different ages and health conditions could live in the same environment simultaneously to make the elderly who are effected with dementia or Alzheimer’s to feel as if they are part of the community, rather than locked away. Certain security measures would have to be implemented, however, this would make for a more cohesive community that is more like the outside world, creating a microcosm of what they once knew.

Live and Work communities, as well as mental health facilities would be appropriate building typologies to explore rather than the strict analysis of nursing homes. This thesis should be thought of as a community rather than a hospital type setting. While exploring projects that work well, it would also be beneficial to explore those that don’t, to ensure the same mistakes are not being repeated.

The inhabitants of the community are the most important aspect of the project. The architecture should enhance their lives, in order to promote positivity that will have the potential to improve the residents’ well-being. This will not only affect the elders, but all of their families and nursing staff that would use the complex day in and day out.

This thesis goes beyond the building type. It will affect social issues, as well as economic ones. The potential social improvements have been discussed, but the economics is one that needs to be further explored. The cost of designing a type of community needs to be economically viable. The cost of putting a loved one in another type of care is not affordable by any means for most people. If the cost of the design is less than that of a typical nursing home, the cost of care should be reduced slightly. While the cost of labor cannot be reduced, the cost to run a building can. If the design is sustainable in a fundamental way, the costs will decrease, and will potentially pay for itself over time. If the cost of adequate care is affordable, it will help the children and grand-children of loved ones to breathe a slight sigh of relief. If the architecture can improve the health of their loved ones, it would drastically

help this inevitable, emotional situation.

This thesis approach can potentially affect many different factors. As of now, the focus is on the social needs of the elderly, and the economic needs of their families. It is possible that this idea of a community could spread to multiple sites around the country so the residents can be easily be visited, and yet still feel at home as much as possible. It is crucial that most tenants do not feel as if they want to escape. Though everyone is different, it is not expected that every resident will feel at ease, since this is a difficult time for everyone.

The mission is to provide comfort and security for the people who would be living there, and to create personal bonds with the staff. The elderly should not feel as if they are a burden to society and are being “put away” because they can’t be dealt with. They need to feel as if they are part of a community that is making a difference. They need activities that go beyond the expected. They need to keep their minds busy, and continue to do the sorts of activities they did in their younger days. This will make them feel as if this is just another chapter in their lives, rather than the end. They need not to be isolated for most of the day, but stay active to improve their health and well-being.





Perspective by the Author

# A Personal Manifesto: Approaches to Architectural Design

In my Architectural Career, I have noticed myself repeating the same themes over and over again. Through my studies of architectural history, I have developed emotions and theories about certain projects, and discovered why I believe it is a good design or not with empathy to its time period, program, and location. While traveling, I have seen a number of projects I have studied, and developed differing conclusions of what I originally thought. I feel that personal experience has been my best teacher. I have changed my opinions many times based on observing how a building or space is used in real life.

By combining my personal experience with my educational experience, I have developed some of my own theories through researching and designing projects throughout the years. The famous quote by Louis Sullivan, "Form follows Function," is a quote I initially agreed with at the beginning of my education. However, through multiple design studios, I have determined that the form and the function should work together simultaneously. They should influence each other. The form should enhance the function. A building can be completely functional in a technical sense, but the form can affect people negatively. The form does not have to be completely utilitarian. The form should be derived from multiple factors, including the context, the culture, and the people using the building

regularly. The fundamental program is most likely known from the beginning, however through avid research and tests, the form and the function (the way that people use it) can change throughout the design process.

Secondly, in the world we live in today, the focus on sustainability is essential. Over the past ten years or so, a difference can be seen in multiple areas. People are more conscious of the devastation they were causing, therefore more change has been occurring recently. When Architects are informed, it can make a huge difference. This being said, the idea of sustainability, in my opinion, does not have to be complicated. All it takes is the correct building orientation, the use of local materials, and a relationship with the outdoors. If a building is designed correctly from the beginning, then the costs to maintain the building will decrease, and the impact of the environment will be positive in the long run.

The approach I take when beginning a project is to research the context at length, its history, and its people. Most projects that are successful, are due to the fact that the architect and his or her team researched the surrounding area, and determined what the people indigenous to that area do on a daily basis. Cultures affect architecture greatly. It is important

not to copy the architecture of the past, but to represent it in a contemporary way. The best research is to walk the site yourself, however, this is not always possible. Through research strategies that I have learned in certain design studios, most information can be found by other means. It may take longer to understand, but once you do, you are ready to start developing a concept.

To me, the people and the history are the most important pieces of architecture. History is important, since it helps define a place. Every style in architecture is a direct result of the past. Without an understanding of the progression of architecture, it is very difficult to design anything, anywhere.

The great architects of today are generally educated in architectural history. The clues can either be obvious or hidden in their projects, however, it is obvious to me that they studied profusely. The people are the single most important thing in architecture. The way in which people behave in any given society determines what an architecture will be. It does not matter what style originated in a particular culture, what matters are their behaviors. Their behaviors determined the historical facades that grace the streets. Without an understanding of how they use their environments, one cannot design a building that will be utilized to its full potential.



A decorative graphic consisting of a vertical black line and a horizontal blue bar intersecting at the top left of the page.

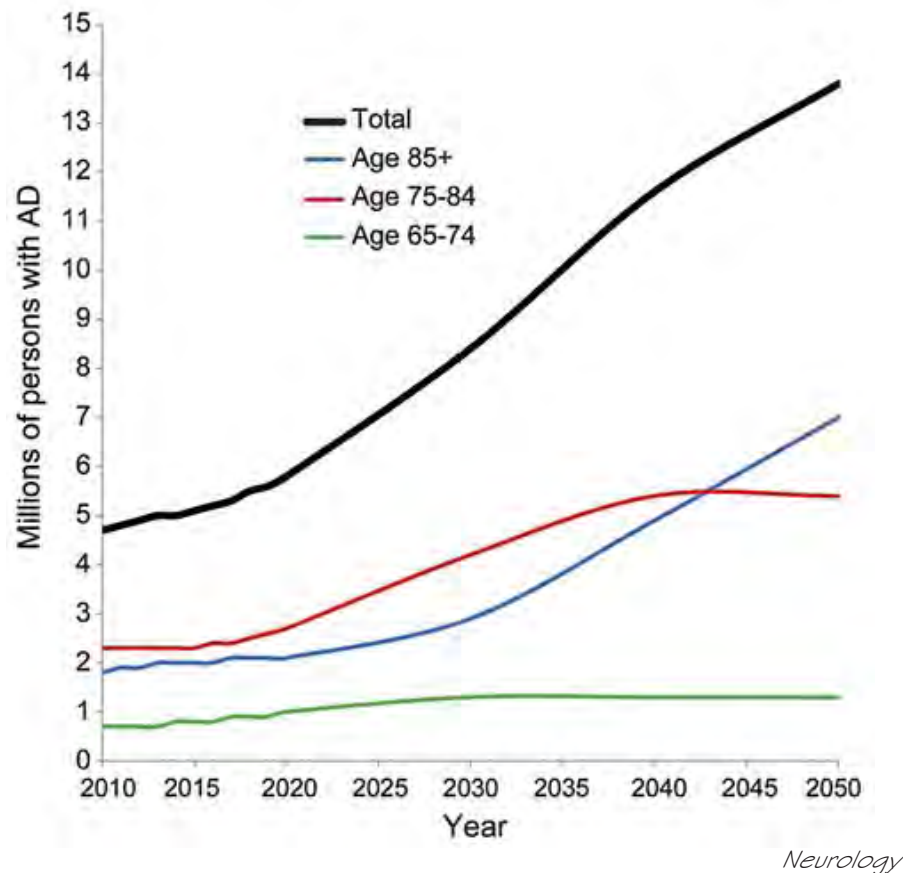
## Researching the Issues

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## Project Statement



An Elder Community is one solution to the Nursing Home Typology. Though the proper health care is necessary, these environments do not need to feel like a hospital. A hospital is for patients that have the possibility of getting better and going home. These particular elders want to go home as well, but this is most-likely not possible. Therefore, a “Nursing Home,” needs to feel like a home, as the name suggests, not an institution that promises healing. If it felt like a home, then the thought of escape could possibly decrease.

The comfort of these people is the number one concern. However, it goes beyond physical comfort, but to emotional comfort as well. It would give them a more positive outlook, an extension of life, rather than nearing the end.

The main focus of this thesis will be on dementia and Alzheimer’s disease. The disease is expected to impact 2 million more people than today’s 5.3 million by 2025, and 13.8 million by 2050 in America alone (Alzheimer’s Association®, 2015). The sheer number of people impacted by this will begin to cause a serious issue in elder care. This will not only effect the elders, but their loved ones and health care workers. It is our job as architects to start making a difference in this community, in order to prevent complications in the near future.



# The Stages of the Disease

It is important to note that Alzheimer's is not a normal part of the aging process. While some forms of dementia are common in the elderly, Alzheimer's is a neurodegenerative brain disease that has its own progression that affects all victims differently. The disease progresses over time, and can not be cured, as the scientific knowledge of the disease is relatively new as compared to many other terminal diseases.

People aged 65 and older are at a higher risk of developing symptoms. However, the disease can begin to affect people as young as in their 30s, though very rare. Symptoms begin with memory loss, which is commonly confused as normal senility. However, the disease leads to confusion, personality and behavioral changes, and impaired judgment as time goes on. Communication can also become impaired, as the later stages begin to take effect. Elders eventually become unable to take care of themselves, some earlier than others.

Alzheimer's can progress quickly over two years or slowly over a period of 20+ years. There are three main stages associated with this progression, in which each stage can last for varying periods of time from person to person. The stages are as follows:

## First Stage

This stage is very mild, since the person may still be able to drive, but may forget words commonly and misplace objects. They may forget names, which is overlooked since this is very common, even in younger people. However, forgetting the names of grandchildren is not common as should not be ignored. They may begin to have difficulty performing everyday tasks in social and work settings.

## Second Stage

This is the longest stage, and can last over ten years. This is the stage where wandering and getting lost begins. Elders begin to lose the ability to take care of themselves, and will require full time care. They begin to forget their own personal history and what day it is. They may confuse the seasons, and dress themselves inappropriately for the specific time of year. They may lose control of bladder and bowels and lose their dignity. This can lead to increased frustration and anger, as mood swings become more common. Their personality may become altered significantly. The ability to walk will most likely disappear.

## Terminal Stage

As a patient enters the last stage of the disease, they lose the ability to respond to their environment. They may begin to lose the ability to communicate altogether, as speaking becomes painful for them. They will require constant attention with daily activities. They may sleep most of the time and lose all initiative. The ability to walk will most likely dwindle if it hasn't already, along with the ability to sit and swallow solid foods. They may become more prone to infections and illnesses as well.

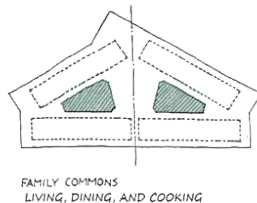
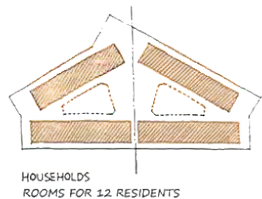
Most people are diagnosed in the first stage if family members are aware of the signs. If a person lives by themselves and does not see their loved ones on a regular basis, the disease may not be noticed until problems begin to ensue. They may not be diagnosed until they are no longer able to care for themselves in the second stage. If a loved one cannot care for the patient during the day, they will be forced to make the decision of hiring an at-home caretaker or putting them in a "home." Most do not want to put their loved ones away, therefore a complex that is conducive to the needs of the patient and family members is needed now more than ever.





# Problem Themes

Corinne Dolan Alzheimer Center  
Chardon, Ohio ca.1988  
Architect: Stephen Nemtin



[www.healtharchitecture.wikifoundry.com](http://www.healtharchitecture.wikifoundry.com)

Alzheimer's disease does not only seek an Architectural solution, but a social and economic solution as well.

The elders are the primary focus, but the families and staff are also affected. Families suffer financially and emotionally, as nursing homes are very expensive. The staff is affected too, since they will spend much of their time in these environments, and should have personal relationships with their "patients."

The problem goes much deeper than improving a depressing living situation. If this issue is not dealt with, it will become more of an issue for the aging baby boomers and eventually the millennial generation. The population is inevitably growing, and the quality of these facilities could begin to decline even more, as the construction will need to be fast. Fortunately, the problem has been recognized by many, but these numbers need to grow in order to keep up with the increasing number of

people who will need care in the coming years. The elderly should not feel as if they are a burden to society and are being "put away" because they can't be dealt with. They need to feel as if they are part of a community that is making a difference. They need activities to do and complete, as they would have done in the past. Their lives need purpose, and they need to feel that they matter. They need to keep their minds busy, and continue to do the sorts of activities they did in their younger days. They need not to be isolated for most of the day, but stay active to improve their outlook on life. Effective architectural solutions are as follows:

- Home-Like Environment
- Age Appropriate Color Schemes
- Moderate Lighting
- Adequate Acoustics (no reverberation)
- Safety Features
- Visual Access (avoid long corridors)
- Use of Non-reflective Surfaces
- Adequate Signage
- Wheelchair Access
- Single Bedrooms
- Multiple Living Rooms of Different Sizes
- Presence of Gardens and Paths



Stoneridge Creek Health Center  
Douglas Pancake Architects Pleasanton, California



## Architectural Intentions and Issues

The first Architectural solution to explore is the form of the building itself. Should it be broken up into several different buildings, or one large building? As the Green House® Project Model\* suggests, the community should be broken up into houses for ten residents and a few staff members. This may pose problems, as residents may feel isolated from society even more. As the Paimio Sanatorium suggests, the building should be one, but separated by wings, depending on the program. This question will take some research and depend mostly on the site chosen for the project.

The presence of daylight indoors is of fundamental importance, but the use of glass needs to be controlled in order to detract the intention of escape. Natural light needs to be implemented where residents are allowed to go without any danger. Controlled green spaces are mandatory for their health. Multiple green spaces should be implemented in order for residents to not feel isolated from the outside world. They need visibility to the outdoors at all times, in order for them to feel comfortable and happy. This will also help them to recognize the time of year.

Custom-ability is possibly the most important design implementation of all. As stated

earlier, the elders need to feel at home, in order to prevent the thought of escape and depression. Though the community will not feel like their exact home, the design should be conducive to the presence of familiar objects that will help them emotionally. They should not feel as if they will never go home again, but as they are in a new home that can fulfill their every need. As in the Corinne Dolan Alzheimer Center near Cleveland, Ohio, the design of the display cases adjacent to each bedroom door is a good example of customizing each space for each individual. This would help them to find their rooms and stimulate their memory, which would slow the progression of Alzheimer's by keeping their minds active.

Common spaces are more important than the individual bedrooms. Nursing Homes usually do contain common spaces. However, in the Green House® Project Model, the kitchen is located in the common space to encourage residents to make meals of their own with staff help. Activities such as this are important to keep elders doing daily tasks as they would have done in the past. It is important that they do not lose these skills, as it will only increase the progression of memory loss.

These activities should be done in common spaces to encourage others to participate and create a community atmosphere.

Wandering paths should be encouraged in the design, since it is an inevitable symptom of Alzheimer's disease. Rather than the staff preventing wandering, paths should be designated for this. It is a symptom that cannot be stopped, therefore the design should be altered to support this activity. The Corinne Dolan Alzheimer Center does an effective job with this type of circulation.

The last Architectural Intention is designing for all senses. As Juhani Pallasmaa states in *Hapticity and Time*, "Every significant experience of architecture is multi-sensory; qualities of matter, space, space are measure by the eye, ear, nose, skin, tongue, skeleton, and muscle." Since Pallasmaa goes on to say that touch is "the mother of all senses," it applies perfectly to the elder community. Many elders have deteriorated vision and hearing. They ultimately rely on touch, as well as the remaining senses to get around. This is an important theme to keep in mind throughout the design process, since it will help to make multiple design decisions to come. One must put themselves in the position of the inhabitants in order to make a positive impact on their lives.

\*Green House® Project Model description on page 24 and 25.



## Experiential Narratives



Perkins Eastman

### Alzheimer's Patient (Second Stage):

I feel comfortable in this new place I call home. I can see pictures of my family and photos of my childhood. I have made new friends and am able to see them all the time. We can eat together, talk together, and go outside. Though I am confused as why I cannot be at home anymore, I am happy here since I feel like a part of a community of people that are like me. The Nurses are so kind and treat me as they truly care. I don't feel like a patient, though I need some help cooking and cleaning. For the most part I can do things on my own. I see the kitchen in the common space, so I remember to eat. I see my bathroom from the bed, so I remember to go to the bathroom. I see people all around, so I never feel alone, unless I want to be alone in my room. Tomorrow, we are making a family dinner. I am excited, since I am in charge of cooking the Turkey. My son and his wife are coming to visit I think. I can't wait to tell them about what I have been up to. I just got a job folding laundry, which I really enjoy since my friends fold with me, and we talk the whole time. I miss being a stay at home mom and grandma, but this is not so bad.



[www.getholistichealth.com](http://www.getholistichealth.com)

### Visiting Male Family Member:

Before Visit: Today we are visiting Mom. I am so pleased that I have not heard that she is having any complications. She hasn't fallen or figured out the code to get out. This is a vast improvement from the last home. The nurses have ensured me that she is adjusting quite nicely.

After Visit: The nurses weren't lying when they said she was doing well. Mom was much happier and talkative this time. The atmosphere wasn't depressing and everyone seemed full of life. They were all attracted to that common space. I don't think a single person was in their bedroom today, and no one asked me how to get out either, come to think of it. It was nice to see they were all participating in making dinner and setting the tables. It was just like Thanksgiving at home. It's too bad she couldn't be there this year. But I am glad she was enjoying her Thanksgiving without dwelling on not being home. She didn't ask about Dad either, which is a good, since it seems that her mind is elsewhere.

She was so excited about her new job too. It is nice to see the staff helping her to do what she has always done. I feel as though this will help slow the progression of her forgetting. She remembered all of our names today, so I am feeling good about this place. I really don't want to look for a new home again.



## Understanding the Past

Green House Project® Model 34  
Multiple Architects  
Multiple Locations  
2003-

The Green House® Model creates a prototype for “home-like” elderly living. It gives a set of guidelines to follow in order to create an empathetic environment for those suffering from Alzheimer’s disease. There are many examples of Green House® projects across the U.S. that incorporate the fundamental aspects, but are able to design in very different ways for the given owner and location.

Leonard Florence Center for Living 36  
DiMella Shaffer  
Chelsea, Massachusetts  
2010

The Leonard Florence Center for Living is the first Green House® Model to be constructed within an Urban context. It goes against the traditional design thinking of nursing homes, and brings it into the 21st century, yet still considers the needs of the elders. The complex is broken up into small, manageable communities that staff can look after, as well as offer common spaces for smaller and larger crowds based on the location in the complex. It is designed as a campus, and performs as such.

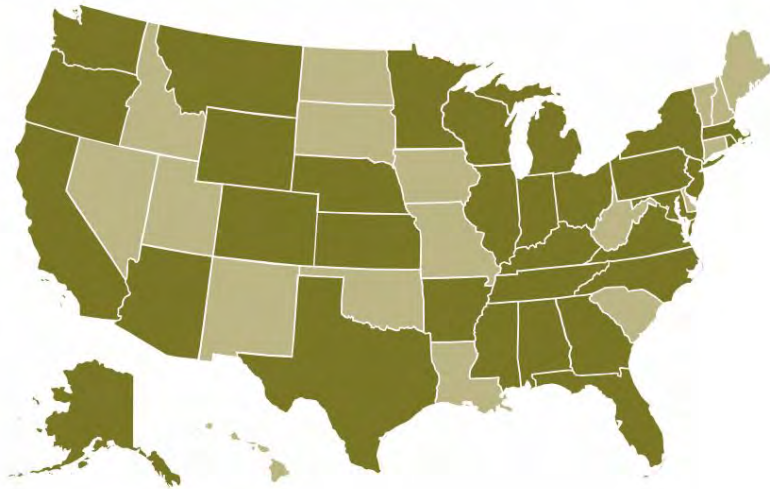
Maggie’s West London 38  
Rogers Stirk Harbour + Partners  
London, England  
2008

Maggie’s West London is a center for healing that incorporates healing gardens within the building in a secured way. Though Alzheimer’s cannot be treated, nature is effective for the comfort of individuals who are suffering. This center offers an alternative way to incorporate greenery within a healing center that is in close contact with a nearby hospital and is secured.

Paimio Sanatorium 40  
Alvar Aalto  
Paimio, Finland  
1932

Aalto was very knowledgeable of the disease he was designing for. He incorporates design elements that are effective for healing tuberculosis in a very functional way. The sanatorium features sun balconies for those who cannot get out of bed, and a circulation path that is efficient for getting rolling beds around. He designed furniture and fixtures that would make the patients and the staff members lives easier by making everyday tasks easier, such as resting (for patients) and cleaning (for staff).

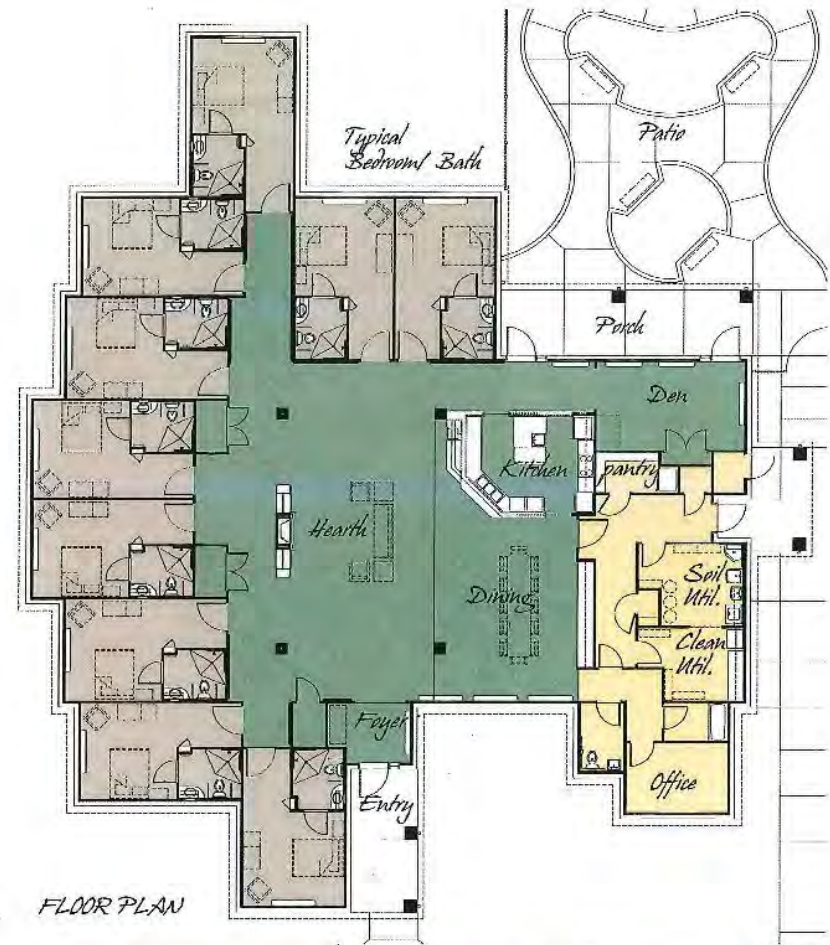




States Participating  
States not yet Participating

[www.thegreenhouseproject.org](http://www.thegreenhouseproject.org)

## Green House® Project Typical Plan Layout and Elevation Example



FLOOR PLAN



FRONT ELEVATION

Bedrooms  
Common Space  
Staff Spaces

[www.hanovereda.com](http://www.hanovereda.com)



Leonard Florence Center for Living  
DiMella Shaffer Chelsea, Massachusetts

[www.metropolis-mag.com](http://www.metropolis-mag.com)

# The Green House® Project Model

## Multiple Locations in United States 2003-



www.pacificatelier.com

Green House® Project  
Design Competition Entry  
Architects: Pacific Atelier



www.pacificatelier.com

Excerpts from The Green House Project®:

Vision:

“We envision homes in every community where elders and others enjoy an excellent quality of life and quality of care; where they, their families, and the staff engage in meaningful relationships built on equality, empowerment, and mutual respect; where people want to live and work; and where all are protected, sustained, and nurtured without regard to the ability to pay.”

Mission:

“We partner with organizations, advocates, and communities to lead the transformation of institutional long-term care by creating viable homes that spread THE GREEN HOUSE® Project vision – demonstrating more powerful, meaningful, and satisfying lives, work, and relationships.”

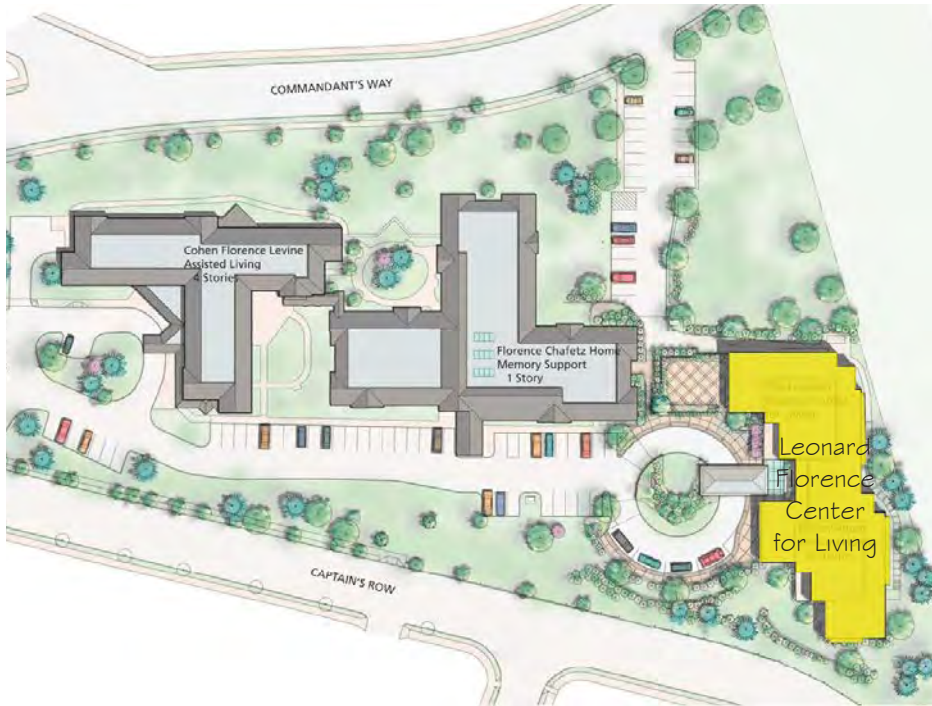
The Green House® Project must be organized as a collection of houses connected by greenery.

The Green House® Model Typically Includes: (i.e. St. John’s Home in Rochester, NY)

- 8,000 square feet per house
- Ten rooms with private bathrooms
- Large hearth area adjoining a kitchen that allows elders to participate in meal preparation
- Laundry, spa, pantry, and storage
- Indoor and outdoor activity space and gardens; perhaps common outdoor space between two Green House® residences

Green Houses® are located in 32 states as of 2015, however four New England states are not involved yet. These states include; Maine, Vermont, New Hampshire, and Connecticut.

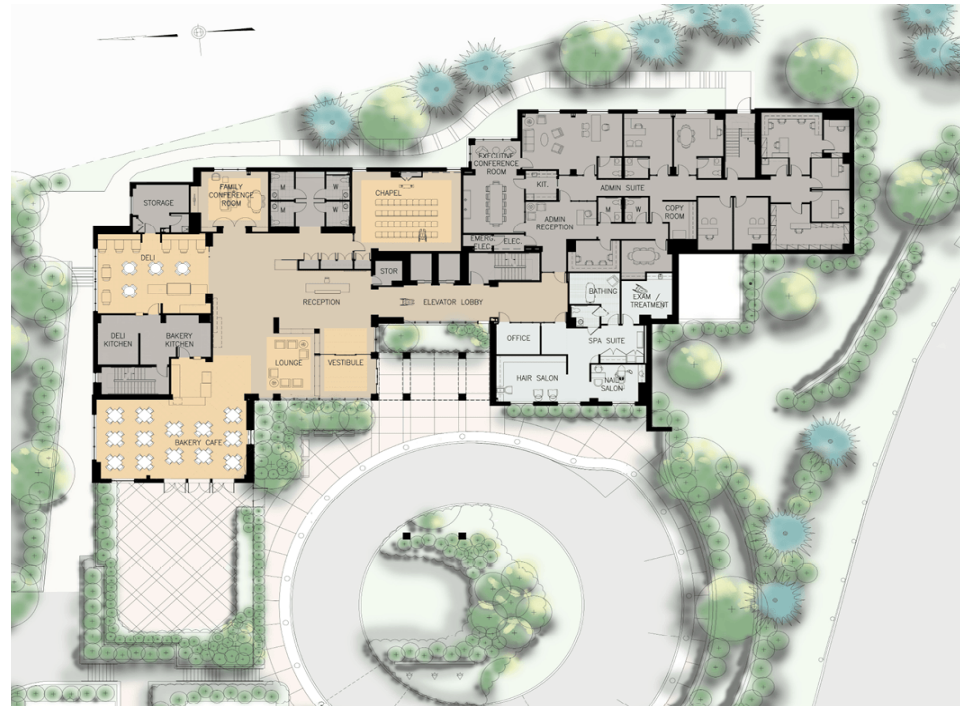




Site Plan

Bedrooms  
Balconies  
Lobby

[www.buildingconversations.com](http://www.buildingconversations.com)



First Floor

[www.buildingconversations.com](http://www.buildingconversations.com)

Public Spaces  
Private Spaces  
Bedrooms  
Circulation  
Balconies



West Elevation

[www.thehill.com](http://www.thehill.com)



Second Floor

[www.buildingconversations.com](http://www.buildingconversations.com)

# Leonard Florence Center for Living by DiMella Shaffer

Chelsea, Massachusetts 2010



[www.blog.thegreenhouseproject.org](http://www.blog.thegreenhouseproject.org)



[www.dimellashaffer.com](http://www.dimellashaffer.com)



Common Space

[www.dimellashaffer.com](http://www.dimellashaffer.com)

Owner: Chelsea Jewish Nursing Home  
Total Building Area: 94,000 square feet  
Total Area per Resident: 940 square feet

The Leonard Florence Center for Living is the first urban Green House® Project ever constructed. The exterior style is more contemporary. The program fits under one roof, which is not an obvious Green House® strategy. However, since the layout separates each small community in an apartment type layout, it fits the Green House® typology. The facility is treated like a campus, that separates smaller communities, and provides care for multiple disabilities such as frail elderly, MS, ALS, and the disabled. As in every Green House® project, the environment is “home-like.” An open kitchen is provided in each common space that serves ten residents at a time. An enclosed balcony is located within each living unit to provide space to view the outside urban context and receive fresh air and sunlight.

Living Units (on upper floors):

- 100 bedrooms for nursing care
- 69 bedrooms for assisted living
- 36 studio apartments for specialized elderly care
- Shared Kitchen, Living Room, Dining Room, Den, and Balcony

Shared Spaces (on main floor):

- Del/ Cafe
- Family Conference Room
- Chapel
- Spa Suite
- Exam Treatment

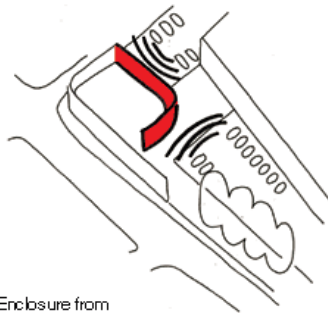
Staff Spaces:

- Administrative Suite (on main floor)
- Staff Spaces located inbetween units on each floor
- Parking along adjacent Campus Buildings

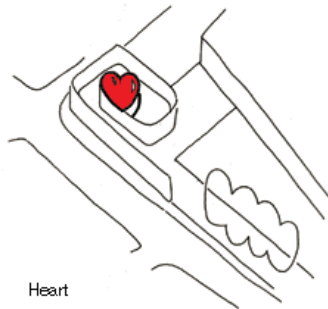




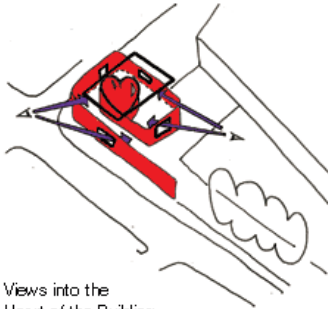
The Site



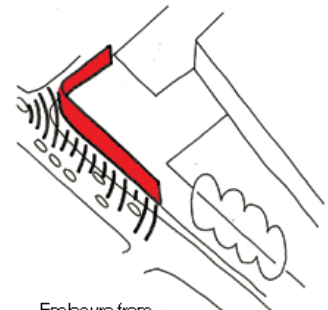
Enclosure from Parking



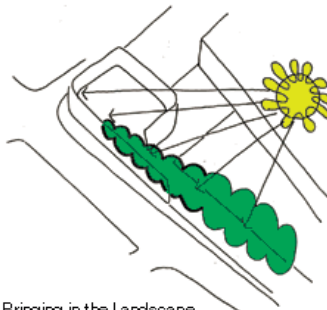
Heart



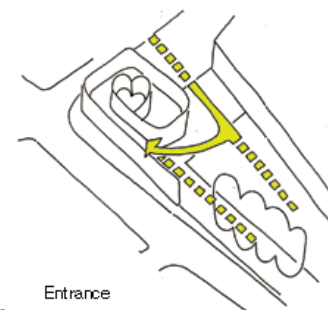
Views into the Heart of the Building



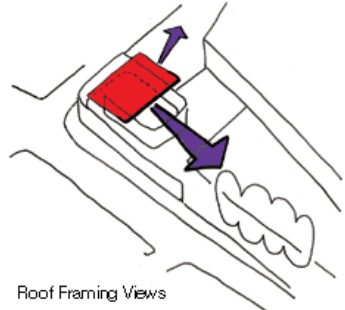
Enclosure from the Road



Bringing in the Landscape and Sunshine



Entrance



Roof Framing Views

[www.richardrogers.co.uk](http://www.richardrogers.co.uk)



Site Plan

[www.archifield.net](http://www.archifield.net)



Section Looking North

[www.openbuildings.com](http://www.openbuildings.com)

# Maggie's West London by Rogers Stirk Harbour + Partners

London, England 2008



[www.en.wikipedia.org](http://www.en.wikipedia.org)

The presence of natural light and gardens is required for each Maggie's Center. These centers are designed specifically to help cancer patients cope with the disease in the most comfortable way possible. As of today, there are 17 Maggie's Centers built.

According to Charles Jenck's (founder of "Maggie's"), "Their success can be attributed to the 'architectural placebo effect' — a building, while not wholly capable of curing illness, can act as 'a secondary therapy, a feedback therapy.'"

Quote from Richard Rogers:

"The idea was to try to minimize the overbearing impact of Charing Cross Hospital (adjacent to site). The roof, the landscaping, the hearth inside, the views out, each was to take you away from the hospital and the bustle of the road." ([maggiescentres.org](http://maggiescentres.org))

Roger's use of neutral materials (wood, concrete, and steel) with the contrast of foliage works to create a soothing, relaxing environment that is conducive to healing. An escape from the outside world, especially the hospital.

This Particular Maggie's Center Includes:

- Open Kitchenette
- Airy Sitting Room
- Library
- Personal Space (for one-on-one consultations)
- Winter Gardens
- Courtyard Gardens
- Office and Meeting Room
- Roof Terrace



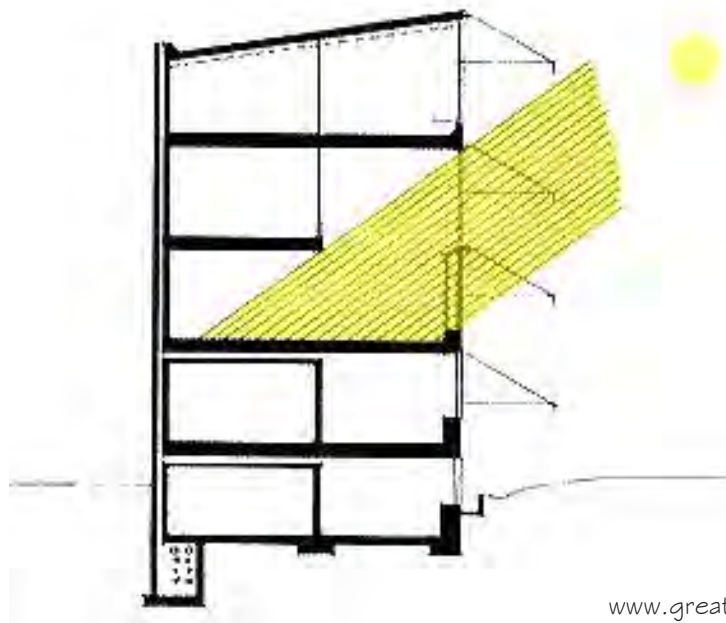
[www.archdaily.com](http://www.archdaily.com)



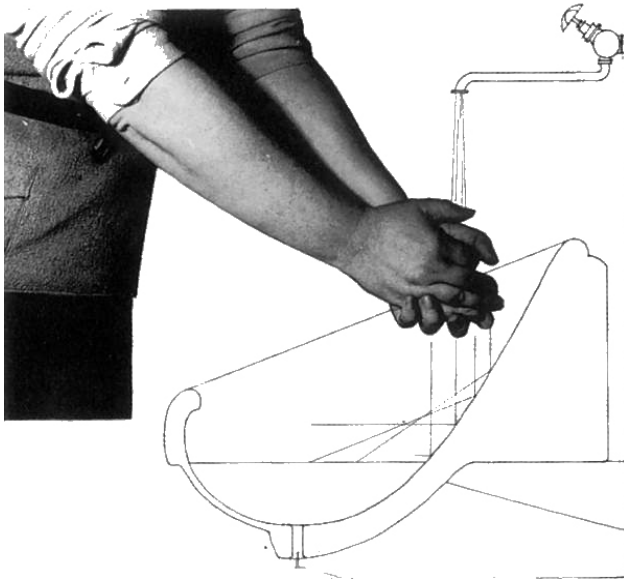
Winter Gardens

[www.openbuildings.com](http://www.openbuildings.com)

Section Through Patient Wing (Looking East)



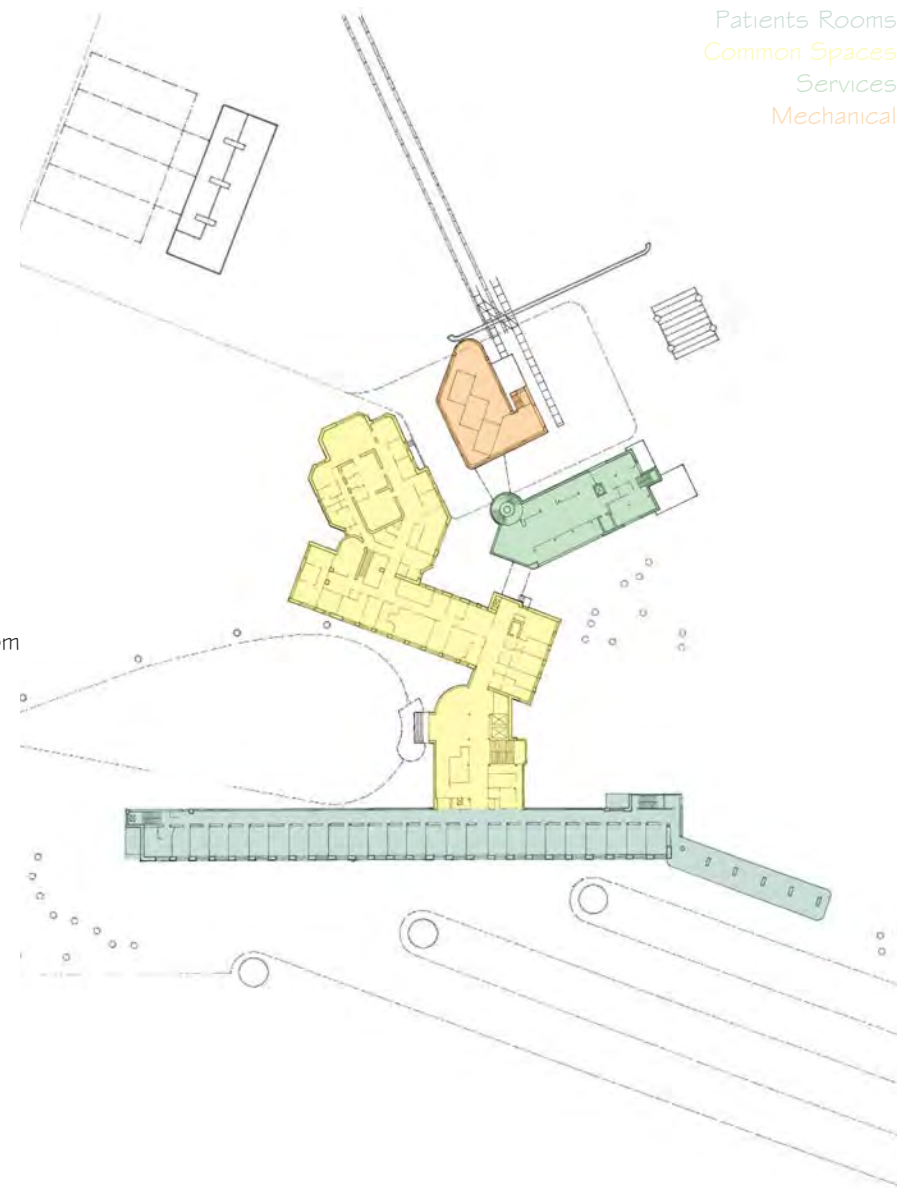
[www.greatbuildings.com](http://www.greatbuildings.com)



Custom Sink

[www.twitpic.com](http://www.twitpic.com)

Site Plan



[www.plansofarchitecture.tumblr.com](http://www.plansofarchitecture.tumblr.com)

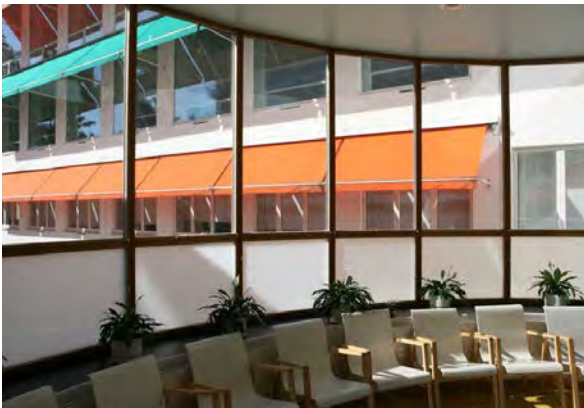


# Paimio Sanatorium by Alvar Aalto

Paimio, Finland 1932



[www.cityofsound.com](http://www.cityofsound.com)



[www.city.1-themes.com](http://www.city.1-themes.com)



[www.a-netknow.blogspot.com](http://www.a-netknow.blogspot.com)

The Paimio Sanatorium is seen as a purely functionalist building, that was empathetically designed from the inside out. Aalto was more concerned with the experience of tuberculosis patients from a spatial standpoint. Aalto was knowledgeable on the disease, and designed in a way that would promote a specific healing. He was devoted to enhancing the lives of the patients, as well as the staff.

Quote from Juhani Pallasmaa:

“Using this method of analyzing experiential situations, Aalto conceived the sanatorium as a carefully and empathetically studied instrument of healing for the benefit of human beings at their weakest, ‘the horizontal human being,’ as Aalto calls his hospitalized client. Aalto’s sanatorium could well be the one building in the history of modernity that contains the highest concentration of technical innovations, yet it is firmly rooted in human experiential reality.” (Hapticity and Time, 1999)

Important Architectural Features:

- Sun Balconies (part of Sanatorium Architecture)
- Each Building wing acts as a Unit (specific program)
- Roof Terrace
- Inner Courtyard
- “Plastic Form” - Continuity of Spaces
- Bright Colors (Peaceful Atmosphere)
- Single Loaded Corridors (Natural Light in Hallways and Patient Rooms)
- Furniture and Fixtures were designed specifically for the Sanatorium by Aalto for specific patients and staff needs (i.e. Paimio Chair and Sink)

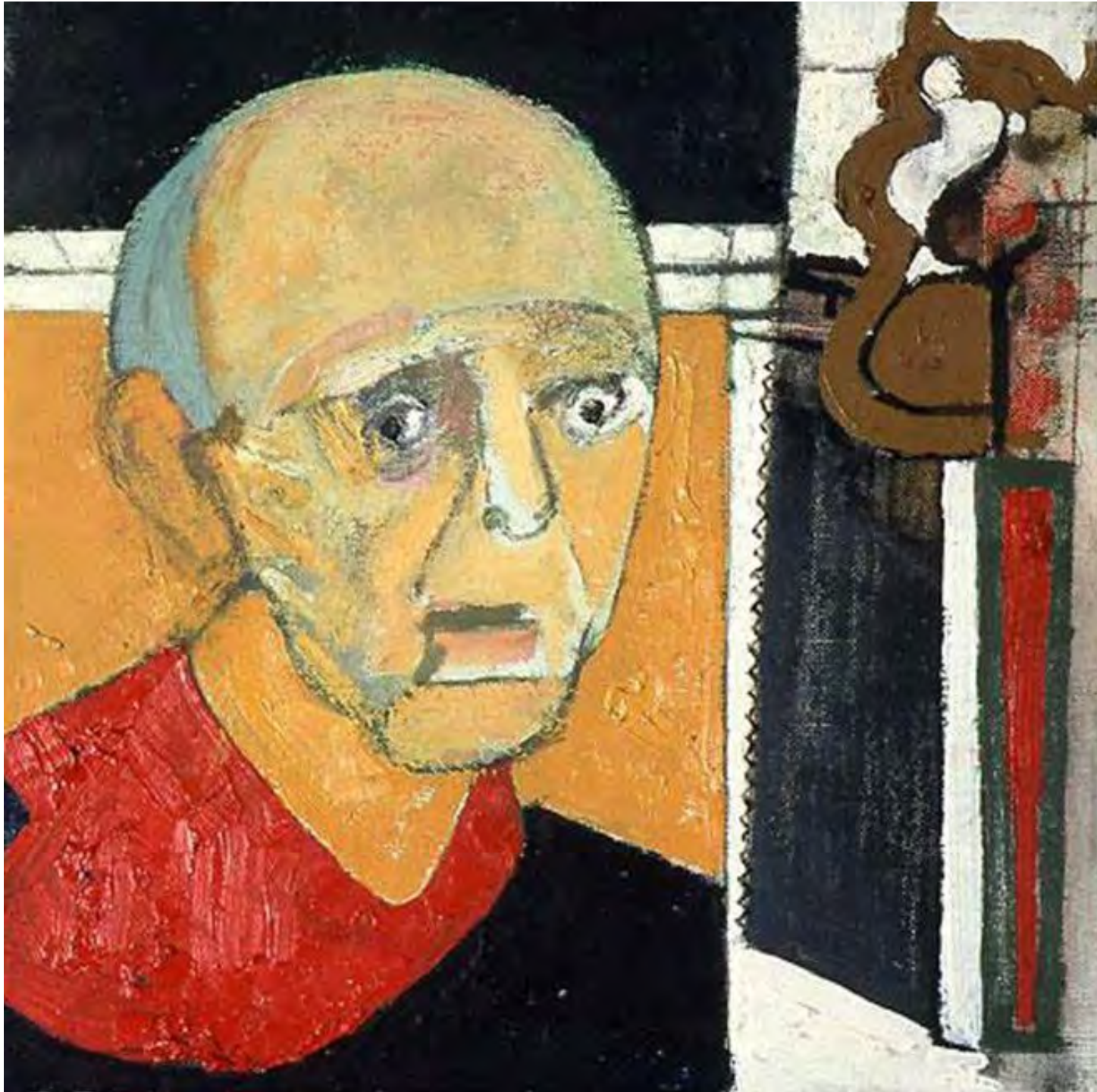




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# Seeking Solutions

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## Program Overall



[www.mammalingua.com](http://www.mammalingua.com)



[www.ucsfhealth.org](http://www.ucsfhealth.org)



[www.lifegen.net](http://www.lifegen.net)

The objective is to create an atmosphere that feels more like a home than an institution, in order for the residents to feel as though they belong and are being cared for, and do not need to find a better place to go. The intention is to eliminate the thought of escape and encourage safe wandering for those suffering from Alzheimer's in the first two stages of the disease, as well as an appropriate caring community for those suffering from the final stage.

Here is a breakdown of the program:

The common building will house all functions that are open to multiple units during the day and early evening. A staff base will be located here as well, to oversee all public activities. All 96 residents will have the choice to eat in the central dining area among many residents or in their respective units with their neighbors or by themselves. Everything is about choice. The residents should not feel obligated to participate in anything they do not wish to.

The units themselves will be home to 12 residents, suffering from a specific stage of Alzheimer's. The first and second stage residents will be housed in the same wing, since they are able to wander about. The third stage wing is designed specifically for third stage needs, being closer to the staff and the sun. Newly transitioned third stage elders will be re-located due to certain inabilities. Once a resident is assigned a room, they shall be moved only once to the third stage wing, when appropriate. However, they shall not be disoriented since the design is similar to the first and second stage wing.

### Common Building

Public Spaces	
Lobby	1 @ 1030 sf
Sitting Area	1 @ 1020 sf
Multifunctional Activity Space	2 @ 1565 - 2365 sf
Central Dining Area	1 @ 1045 sf
Library	1 @ 460 sf
Chapel	1 @ 1600 sf
Greenhouse	1 @ 1240 sf
Sitting Pavilion	2 @ 475 - 510 sf
Public Restrooms	2 @ 310 sf
Staff Spaces	
Reception	1 @ 205 sf
Staff Offices	2 @ 130 - 135 sf
Break Room	1 @ 840 sf
Staff Kitchen	1 @ 205 sf
Commercial Kitchen	1 @ 780 sf
Pantry	1 @ 165 sf
Mechanical Room	1 @ 600 sf
Staff Restrooms	2 @ 310 sf
Janitor's Closet	1 @ 135 sf
Mechanical Room	1 @ 600 sf
Storage	1 @ 140 sf
<b>Common Building Square Footage</b>	<b>1 @ 15,885 sf</b>

### Per Unit (8 total)

First and Second Stage Bedrooms	
Single	20 @ 190 sf
Double	20 @ 300 sf
Bathrooms	40 @ 80 sf
Third (Terminal Stage) Bedrooms	
Single	12 @ 190 sf
Double	12 @ 300 sf
Bathrooms	24 @ 80 sf
Common Spaces per Unit	
Living Room and Kitchen (First Stages)	5 @ 990 sf
Living Room (Third Stage)	3 @ 665 sf
Activity Room	8 @ 465 sf
Lookout Area	2 @ 730 sf
Staff Spaces	
Nurses Station/ Carebase	8 @ 220 sf
Clean/ Soiled Linens	8 @ 330 sf
Staff Restroom	1 @ 70 sf
<b>Typical Unit Square Footages</b>	<b>8 @ 4675 - 5080 sf</b>

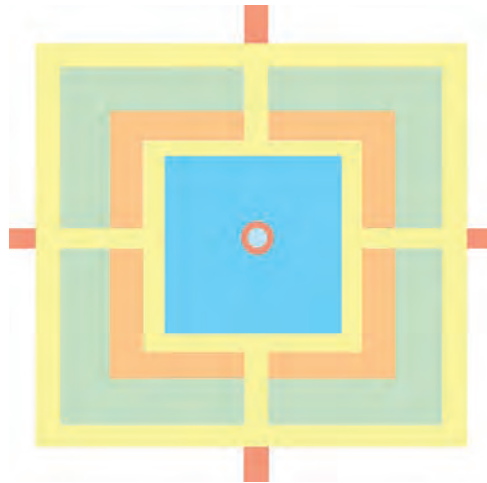




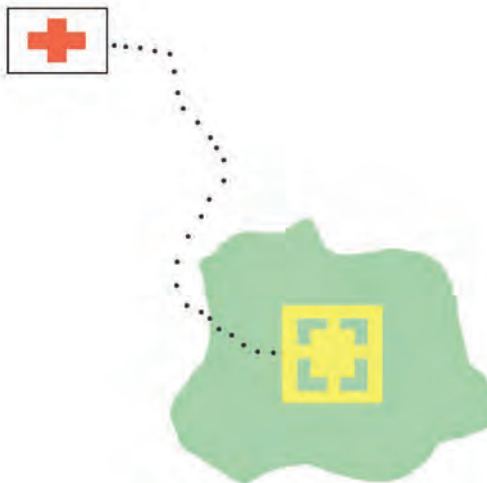


## Program Square Footages and Adjacencies

Adjacencies of Unit Spaces (Conceptual)



Common Space  
Individual Bedrooms with Bathrooms  
Wandering Paths  
Interior Green Space  
Staff Spaces



Adjacency to Hospital

	Area (net)	Quantity	Total (Net)
<b>First and Second Stage</b>			
Single Occupancy Bedrooms (4 per unit)	190	20	3800
Individual Bathrooms (4 per unit)	80	20	1600
Double Occupancy Bedrooms (4 per unit)	300	20	6000
Individual Bathrooms (4 per unit)	80	20	1600
<b>Total</b>			<b>13,000</b>
<b>Third (Terminal) Stage</b>			
Single Occupancy Bedrooms (4 per unit)	190	12	2280
Individual Bathrooms (4 per unit)	80	12	960
Double Occupancy Bedrooms (4 per unit)	300	12	3600
Individual Bathrooms (4 per unit)	80	12	960
<b>Total</b>			<b>7,800</b>
<b>Communal Spaces</b>			
Lobby	1030	1	1030
Living Room (1 per unit)	665	8	5320
Kitchen/ Dining Room (1 per unit)	325	5	1625
Public/ Visitor Bathrooms	310	2	620
Dining Room	1045	1	1045
Library	460	1	460
Multifunctional Activity Space	1565	1	1565
Multifunctional Activity Space	2365	1	2365
Sitting Area	1020	1	1020
Activity Room (1 per unit)	465	8	3720
Lookout Area (End units only)	730	2	1460
Sitting Pavilion	475	1	475
Sitting Pavilion	510	1	510
Chapel	1600	1	1600
Greenhouse	1240	1	1240
<b>Total</b>			<b>24,055</b>
<b>Staff</b>			
Reception	205	1	205
Staff Office	130	1	130
Staff Office	135	1	135
Nurses Station/ Carebase (1 per unit)	220	8	1760
Break Room	840	1	840
Staff Kitchen	205	1	205
Bathrooms	310	2	620
Bathrooms (1 per unit)	70	8	560
Janitor's Closet	135	1	135
Clean Utility (1 per unit)	150	8	1200
Soiled Utility (1 per unit)	80	8	640
Clean Linen (1 per unit)	100	8	800
Storage	140	1	140
Commercial Kitchen	780	1	780
Pantry	165	1	165
Mechanical Room	600	1	600
<b>Total</b>			<b>8,915</b>

Subtotal Net: 53,770 sf  
Total Gross (1.67): 89,617 sf

## First and Second Stages:

### Single/ Double Occupancy Bedrooms (190 to 300 sf each)

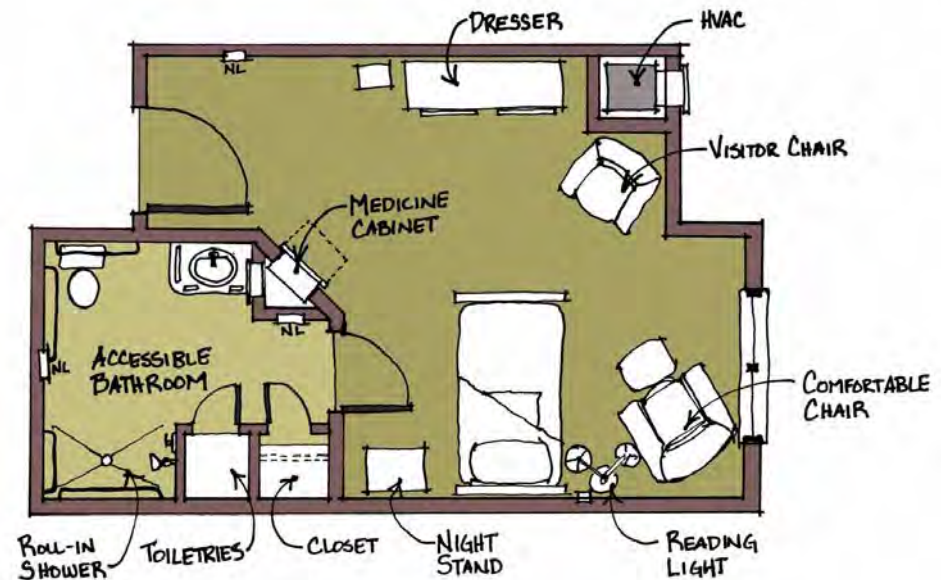
All bedrooms will be as home-like as possible. These rooms shall be decorated with warm colors and fabrics. Carpeting will be used on the floors to create a feeling of warmth that will help residents feel as comfortable as possible. All medical equipment shall be disguised in such a way to prevent the look of a hospital room. Tenants are here for the long-term, and should feel as though this is where they belong. Each bedroom will be flooded with natural light during the day, as natural light is good for resident's health and well-being. The views shall be of a green landscape that is covered with trees. Display cases will be located outside of each room to be filled with familiar objects for each resident. This will help them find their rooms without staff assistance.

### Bathrooms (80 sf)

The toilet and sink shall be visible from each bed. An accessible shower unit will be required in each of these rooms. Rather than a door used for privacy, a curtain should be installed in order for residents to be reminded to use the facilities when need be. The resident bathrooms shall be large enough to provide space for ADA requirements. Staff members may need to help residents use the restroom, therefore there should be enough room for this as well.



Tom Wilkes



[www.quorum-architects.blogspot.com](http://www.quorum-architects.blogspot.com)



## Program Description of Spaces in Units



[www.lifegen.net](http://www.lifegen.net)

### Terminal Stage:

Single/ Double Occupancy Bedrooms  
(190 to 300 sf each)

These bedrooms will be similar in fashion to previous stage rooms, however, the beds will be on wheels in order for staff to easily maneuver elders where they would like to or need to go.

Bathrooms (80 sf)

Toilet facilities will be similar in fashion to the ones in first and second stage rooms. However, third stage residents may not be able to use the facilities on their own, and will require staff assistance. In some cases, these bathrooms may be used solely by staff if the resident is unable to use the restroom. Since each elder's abilities are different, it is critical that each bathroom is conducive to different needs.

Extended Porches (sf)

The extended porches located adjacent to each unit entry is what makes third stage units differ from first and second stage units. Since many elders in the terminal stage lose the ability to walk, it is still critical that they receive ample sunlight. The porches should be large enough to fit multiple rolling beds onto it. The idea is for staff and visitors to be able to roll residents out onto the porch. Even if the patient is unable to speak, they will still feel the benefits of the outdoors, and enjoy the activities going on in the courtyard.



[www.ucsfhealth.org](http://www.ucsfhealth.org)



## Common Spaces:

Living Room/ Kitchen and Dining Room  
(665/ 325 sf)

The common areas will be located near the entry of each unit. This is where residents can mingle when the weather is not appropriate for them to go out in. A secured kitchen will also be located in this space, and will allow residents to ask staff for help cooking a meal. It is important that they do not lose their previous abilities. They should be able to continue what they have always done within reason. A small dining area will be located adjacent, in order for residents to choose if they would like to eat in by themselves or in a small group. The space shall be located along the wandering paths, so the common area is always in motion. This will keep their minds activated and alert, and want to communicate with others.

## Courtyards

Every unit will be attached to a large open courtyard that will allow for residents to get fresh air and sunlight, while engaging in conversation. There will be trees, garden beds, and planters to encourage gardening among the residents that are interested. Residents will also be able to take care of pets that the staff will also look over. This will provide comfort for residents as well as provide a home for the animals. The residents will be able to help feed and do other chores for their pets.



Perkins Eastman



[www.dezeen.com](http://www.dezeen.com)

## Program Description of Spaces in Units and Common Building



[www.flickr.com](http://www.flickr.com)

### Central Dining Area (1045 sf)

The residents will have the choice of where they would like to eat on a daily basis. They have the choice to eat in their common spaces or in a central dining area that will feed many residents at set times. It is important not to dictate their schedule but to ask what they would prefer, as they still have their freedom.

### Library (460 sf)

The library will be centrally located in the common building. The residents will be able to take out books as they chose with a due date just as with any other library. This will keep their minds busy, and prevent them from getting bored. They may be able to read in the multifunctional activity spaces, common areas, or in the comfort of their own bedrooms.



[www.audubon.org](http://www.audubon.org)

### Multifunctional Activity Spaces (1565 to 2365 sf)

There will be two large open activity spaces located in the common building. Each large activity space will be located around where circulation takes place, in order to engage residents in certain activities throughout the day. Such activities can include, art workshops, bird watching workshops, exercise programs, dance classes, etc.... This will also give residents something to look forward to, as well as activate the common building in various different ways throughout the day.



#### Reception/ Offices (205/ 130 to 135 sf)

Staff offices shall be tucked away, yet near common areas and entrances, in order to provide quick assistance if needed. Offices will be located in the common building in order to provide assistance throughout the day and evening. Also, they will be able to supervise the entrances and exits to ensure that no one escapes. All main offices will be located on the upper level, for quicker access to third stage residents, as they will require the most assistance throughout the day and evening.

#### Nurses Station/ Care-base (220 sf each)

The care-base should be located adjacent to the common spaces and wandering paths in each unit. They shall also be secured, so that resident records are not on display. The location near the common spaces is critical, since it allows for staff to keep an eye on multiple spaces at once.

#### Clean/ Soiled Utility/ Clean Linen (80 to 150 sf)

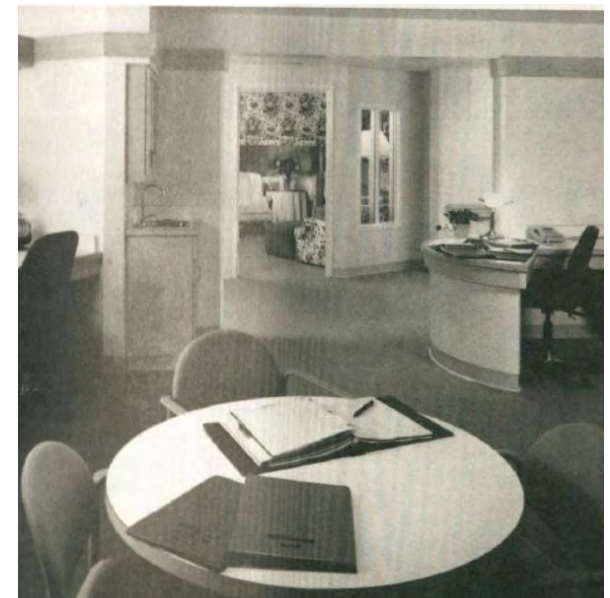
For nursing homes, it is essential for there to be separate rooms for clean and soiled utility for sanitary reasons. These spaces shall be accessible to staff and residents, as some may want to help with chores. This should be encouraged, since this community should be thought of as a continuation of life.

#### Parking

There shall be ample parking provided for staff and visitors. There will be a handful of staff working at one time. At the beginning and end of shifts, there may be double the amount of staff cars in the parking lot. It should not be assumed that only a few family members will visit. There shall be enough parking spots to allow for many visitors at any one time. Unfortunately, this may only be needed on holidays, such as Christmas and Thanksgiving, but these are situations that need to be accounted for.



Perkins Eastman



Donna Kemper

## Program Description of Spaces for Staff and Circulation



Curtis Martin



[www.pleasantbaycenters.com](http://www.pleasantbaycenters.com)

### Wandering Paths

These paths are what holds this community together, literally and figuratively. These paths are the main circulation for staff, visitors and residents. They will be flooded with light to attract attention, as they are enclosed in glass. Wandering should not be prevented through design. It is a symptom of Alzheimer's, and it should be encouraged in the safest way possible. The wandering paths will connect common areas between units, to the common building, and to outdoor spaces. Elders shall not be trapped in their respective units all day. They do need to be supervised, however they should still have their freedom. Therefore, areas in which they should not go should be only lighted by artificial means in the day time. Areas in which they are allowed shall be transparent and filled with light. Staff areas shall be located along the path to provide round the clock supervision.

The wandering path shall also be continued outdoors in a more organic way. Paths should not have a beginning or an end, but be continuous. Focal points shall be located throughout to give a destination for residents to find and help to orient themselves. This way they will never get bored, and will want to engage with all member of the elder community.

## Facility Guidelines for Residential Health Care Facilities:

### Facility Access:

1. Roads shall be provided within the property for access to main entrance and service areas.
2. Fire Department access shall be provided in accordance with local requirements.
3. The property shall be marked to identify emergency services or departments.

### Residential Units:

#### Bedrooms/ Bathrooms:

1. Each room shall have a window.
2. Visual privacy shall be provided in multiple occupancy rooms, though it shall not restrict resident access to the toilet, room entrance, window, or shared common areas.
3. A hand washing station shall be provided in each resident room.
4. Each resident shall have access to a toilet room without the need to enter a corridor.
5. The toilet room shall include a toilet, hand-washing station, mirror, and private individual storage.
6. Each resident shall be provided with an individual wardrobe or closet.
7. A minimum of one bathtub or shower unit shall be provided for every 20 residents.
8. Residents shall have access to at least one bathing unit per floor or unit.

#### Resident Food Areas:

1. The food area may contain a water

counter, refrigerator, storage cabinets, sink, range/ cook-top with emergency shutoffs, food-warming and dish-washing equipment.

2. Hand washing stations shall be accessible from the food area.

### Common Areas:

#### Living Areas:

1. Communal Areas shall be designed and furnished to encourage resident use.

#### Dining Areas:

1. Dining Areas shall provide space for residents dining in wheelchairs or other mobility devices.
2. Shall provide space for residents to access and leave their tables without disturbing other residents.
3. Shall provide space for caregivers to assist residents who cannot feed themselves.
4. Toilet facilities need to be readily accessible from all dining areas.

### Staff Areas:

#### Staff Support Areas:

1. Support Areas may be arranged and located to support more than one resident unit, but at least one such support area shall be located on each resident floor.

#### Staff Work Areas:

2. Resident units shall have staff work

areas in central or decentralized direct care locations.

### Medication Rooms:

3. Provision shall be made for 24-hour distribution of medications. A medication room shall be used for this purpose. One shall be provided in each unit.

### Private Staff Areas:

4. A staff lounge may be shared by more than one resident unit.
5. A staff toilet room shall contain toilets with hand-washing stations, and may be unisex.

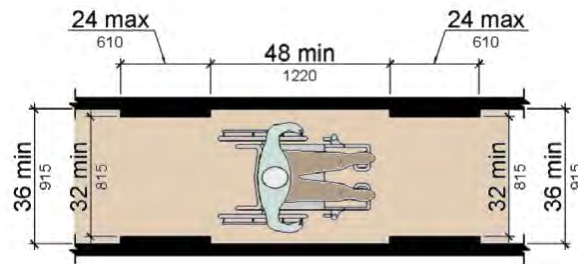
### Laundry:

1. Decentralized laundry facilities for washing and drying personal laundry shall be permitted. Separate facilities may be provided for small groups of residents.

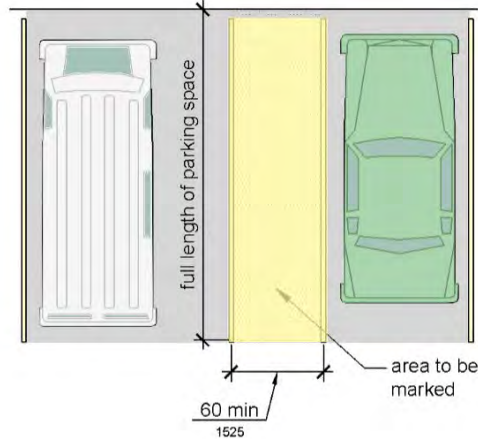
### Other:

1. Ceiling Heights shall be a minimum of 8 feet 0 inches.
2. Operable Windows and vents in resident rooms are not permitted.
3. Mechanical Ventilation shall be provided in all rooms.

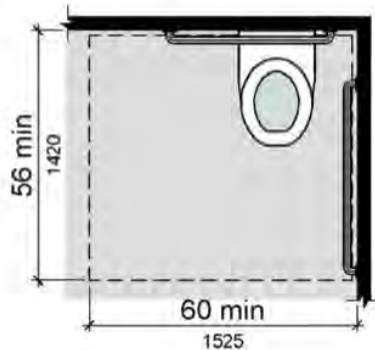
# Facility Institute and ADA Accessibilities Guidelines



Clear Width of an Accessible Route



Parking Space Accessible Aisle



Water Closet Clearance

All Images: 2010 Americans with Disabilities Act

ADA Guideline that are required in an elder community include:

Circulation:

1. Ramps of 1:20 maximum
2. Ramps shall contain landings at each end, and should be a minimum of 60 inches deep.
3. Handrails shall be located if rise of ramp in 6 inches or greater.
4. Clear width of walking surfaces shall be 36 inches minimum.
5. Turns in accessible routes shall have a minimum depth of 48 inches if route has a width of 42 inches or greater. If the path is 36 inches to 41 inches, the depth shall be 60 inches.
6. Passing spaces shall be located every 200 feet if path is less than 60 inches wide.
7. Door Openings shall be 32 inches minimum.
8. The space inbetween a series of door openings, such as in an airlock shall have a depth of 48 inches plus the width of the door(s) if applicable.
9. Elevator cars shall be a minimum of 16 square feet on the inside. Dimensions will depend on door placement.
10. Elevator doors shall provide a clear width of 42 inches.
11. Stairs risers shall be a maximum of 7 inches, and treads shall be a maximum of 11 inches. Handrails shall be 34 inches minimum in height, and 38 inches maximum.

12. Car spaces shall be 96 inches wide, while van parking spaces shall be 132 inches wide minimum.

13. The accessible aisle in between parking spaces shall be 60 inches wide minimum.

Bathrooms:

1. Mirrors shall be located above counter tops, with the bottom of the reflecting edge at a height of 40 inches maximum.
2. The centerline of the water closet shall be placed 16 inches minimum and 18 inches maximum from the side wall or partition.
3. Clearance around the water closet shall be 60 inches minimum from perpendicular wall and 56 inches measured perpendicular to the rear wall.
4. Grab bars shall be installed on the rear wall and the nearest side wall
5. The seat height of the water closet shall be 17 inches minimum and 19 inches maximum from the finish floor.
6. Urinals shall have a rim 17 inches maximum from the finish floor.
7. Lavatories shall be installed with the front of the higher of the rim or counter surface 34 inches maximum from the finish floor.
8. Bathtubs shall be 30 inches wide minimum and contain a clearance that extends the length of the bathtub. A seat shall be provided at the head-end of the bathtub. Two grab bars shall be installed on the back wall.
9. Typical roll-in shower compartments shall be 30 inches wide minimum and 60 inches deep minimum.



## Helping those in Need

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## Site Selection Greater Burlington, Vermont



UVM Medical Center [www.vermontbiz.com](http://www.vermontbiz.com)



[www.foursquare.com](http://www.foursquare.com)



Memory Care Center [www.uvmhealth.org](http://www.uvmhealth.org)

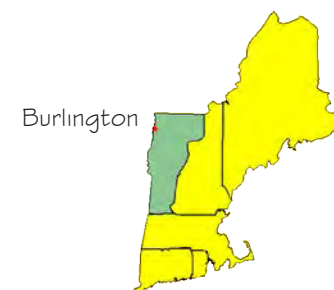
The state of Vermont was chosen for its statistics of people affected by Alzheimer's Disease. Vermont currently holds the fourth highest Alzheimer's death rate of all 50 states in America. In addition, Alzheimer's is the 5th leading cause of death in the state.

Being that Burlington is the largest city in Vermont, it is the appropriate location for nursing homes, and it currently houses many of them, but not all specialize in Alzheimer's and dementia. Burlington is surrounded by many residential neighborhoods in a scenic, waterside environment. The largest hospital in the state (UVM Medical Center) is located at the heart of Burlington, and serves a population of 1 million people in Vermont and Northern New York, as well as approximately 160,000 people in Chittenden and Grand Isle Counties.

The University of Vermont Medical Center is an integrated health network that collaborates with multiple health facilities around the state. The hospital collaborates with the Central Vermont Medical Center, Champlain Valley Physicians Hospital, Elizabethtown Community Hospital, Alice Hyde Medical Center, Canton-Potsdam Hospital, Interlakes Health, and the Visiting Nurse Association of Chittenden and Grand Isle Counties.

The treatment services provided at the main campus include:

- Cancer Care
- Children's Hospital
- Heart and Vascular
- Orthopedics
- Primary Care
- Urgent Care
- Women's Health



As part of the integrated network, the Memory Center at the Fanny Allen Campus is located North of Burlington in Colchester, Vermont. The Memory Center includes services such as:

- Evaluation and Diagnosis
- Treatment of Age-Related Memory Disorders such as Alzheimer's
- Family Support and Counseling

The elder community is to be affiliated with the University of Vermont Medical Center and the Memory Care Center. The University of Vermont is the client of the new community.





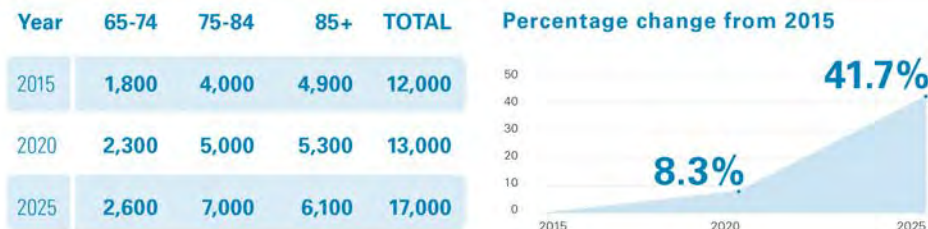
## Vermont Alzheimer's Statistics

alzheimer's association  
THE BRAINS BEHIND SAVING YOURS.™

Over **5 million Americans** are living with Alzheimer's, and as many as **16 million** will have the disease in 2050. The cost of caring for those with Alzheimer's and other dementias is estimated to total **\$226 billion** in 2015, increasing to **\$1.1 trillion** (in today's dollars) by mid-century. Nearly **one in every three seniors** who dies each year has Alzheimer's or another dementia.

### 65+ Number of people aged 65 and older with Alzheimer's by age

Totals may not add due to rounding.



### % Percentage of seniors with Alzheimer's disease



# 11%

### # Number of deaths from Alzheimer's disease in 2012

# 269

- 5<sup>th</sup> leading cause of death in Vermont
- 4<sup>th</sup> highest Alzheimer's death rate in America
- 101% increase in Alzheimer's deaths since 2000

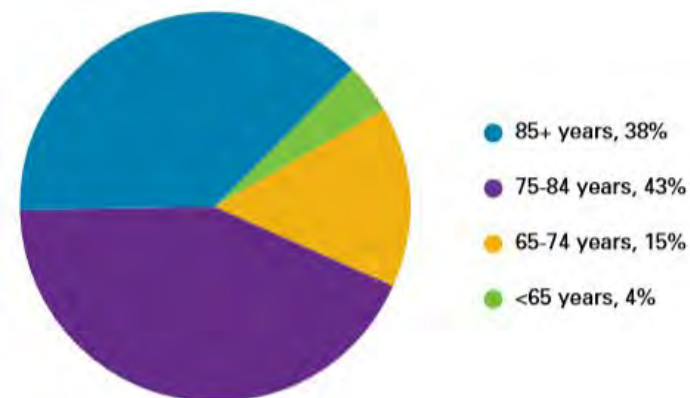
### \$\$ Number of Alzheimer's and dementia caregivers, hours of unpaid care, and costs of caregiving

Year	# of Caregivers	Total Hours of Unpaid Care	Total Value of Unpaid Care	Higher Health Costs of Caregivers
2012	30,000	34,000,000	\$416,000,000	\$20,000,000
2013	30,000	34,000,000	\$422,000,000	\$20,000,000
2014	30,000	34,000,000	\$413,000,000	\$21,000,000



For more information, view the 2015 Alzheimer's Disease Facts and Figures report at [alz.org/facts](http://alz.org/facts).

## Ages of People with Alzheimer's Disease in the U.S.

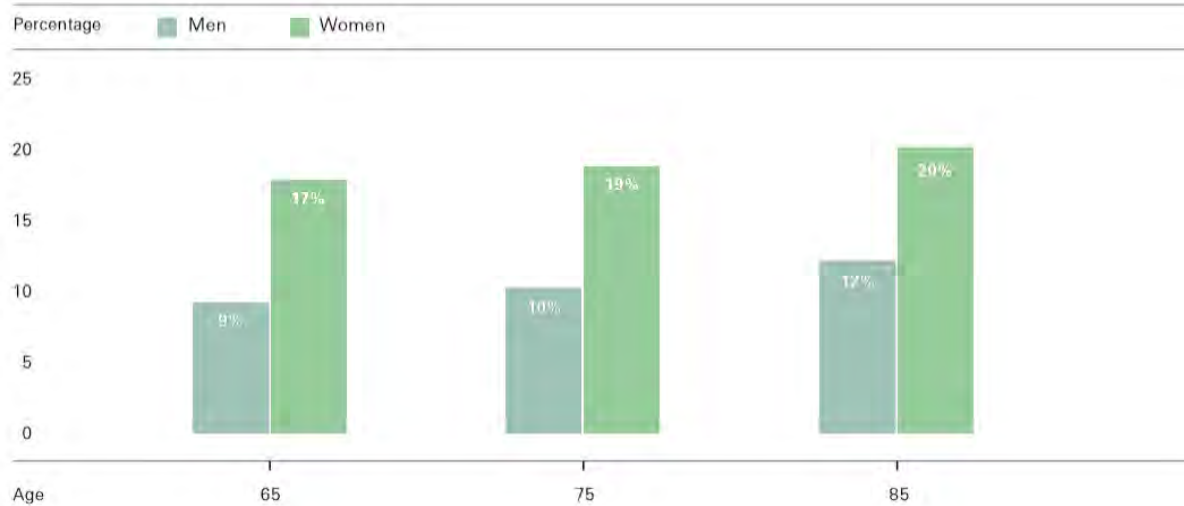


Created from data from Hebert et al.<sup>120, A3</sup>

With the Alzheimer's death rate being so high, there are not enough specialized nursing units for all those affected by the disease. According to the Alzheimer's Association, there are currently 249 beds that cater to this particular disease in Vermont. With 3,174 nursing home beds in the state, only 7.8% provide specialized care. With this shortage, it forces many families to hire caregivers to come to their homes. While this helps to keep family members in their homes, it is the more inconvenient option, and may create stress for the family. While some may not be able to afford this type of care, it may force some to become full-time caregivers for their loved ones. Unpaid care giving is very common across the U.S. In Vermont alone, the total hours of unpaid care came to 34 million in 2014. It is the more practical and safe option to get loved ones the specialized Alzheimer's care that they need. As the number of people affected is rising, there will be no choice but to provide more Alzheimer's facilities across the nation. It is also crucial for this disease to get the attention it deserves now, to prevent more complications in the near future.

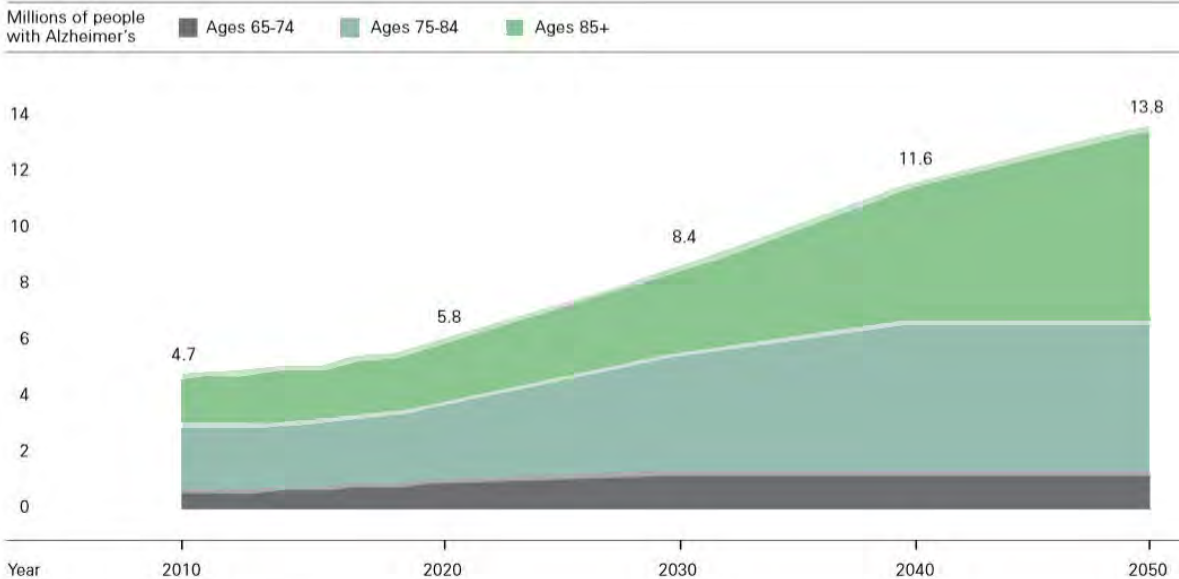
# Demographics and Alzheimer's Statistics Greater Burlington, Vermont

## Projected Lifetime Risk for Alzheimer's by Age and Gender



Created from data from Seshadri et al.<sup>156</sup>

## Projected Number of People Age 65 and Older in U.S. with Alzheimer's Disease



Created from data from Hebert et al.<sup>120, A11</sup>

Population (Vermont): 626,562 (2014)

Population (Greater Burlington): 160,531 (2014)

### Age:

0-9	10.4%
10-19	14.5%
20-29	17.6%
30-49	26.4%
50-64	19.8%
65+	11.3%

### Gender:

Male	48.7%
Female	51.3%

### Nationality:

White	92.5%
Black	2.1%
Asian	2.8%
Hispanic	1.8%
American Indian	.3%
Other	.4%

## Projected Number of People affected by Alzheimer's in Vermont

2015	12,000
2025	17,000 (+41.1%)

Based on the Alzheimer's Association's statistics, there are 11.3% of Burlington's Population that is at a higher risk. This would make for a total of 18,140 people with an increased risk. If 11% of seniors are affected by the disease in the state of Vermont, there would be a total of 1,996 people in need in 2015 and 2,815 by 2025. Obviously 249 beds is not enough. 61







## Site History Burlington, Vermont



Burlington Waterfront Mid 1800s

[www.uvm.edu](http://www.uvm.edu)



Burlington Waterfront Present Day

[www.flickr.com](http://www.flickr.com)

In 1734, the region of Burlington was granted to the Sieur de la Perrier, a captain of the French Military. In 1759, Burlington became part of the British empire after the French defeat in the French and Indian War. Fourteen years later, Felix Powel became one of the first settlers in the area. He built a log home on Apple Tree Point near Lake Champlain. Shortly after, the village began to settle along the waterfront.

In the late 18th century, the University of Vermont was chartered and began construction in 1791. In 1823, the Champlain Canal opened, which offered easy access to New York City. Just seven years later, the village became a city. Burlington was known as the largest center of commerce and industry on Lake Champlain.

During the mid 19th century, Burlington was the third largest lumber port in the United States. Expansion of the waterfront was encouraged to benefit lumber companies. When the lumber industry began to decline in the early 1900s, the land was altered to support rail lines and other infrastructure. Fifty years later, the rail lines began to decline, therefore, the land was altered again to support the petroleum industry. As petroleum shipments began to phase out in the 1980's, the land became neglected. Portions of the waterfront became inaccessible, as conditions were very poor. Later in the decade, Mayor Bernie Sanders and CEDO Director Peter Clavelle made it possible to restore the public trust lands for recreational uses. The new and improved waterfront was completed in 1991.





South Burlington and Shelburne 1890s



## Site History Greater Burlington, Vermont



South Burlington Present Day

[www.files.usmre.com](http://www.files.usmre.com)

South Burlington sits adjacent to the main city. The town was first chartered in 1865. It has become known for its excellence in public schools and recreational opportunities, dedicated city services, and livable neighborhoods. South Burlington is the second largest city in Vermont, and it is currently home to 18,000 people. It has a vibrant hospitality, retail, and corporate business community. The city is home to the Headquarters of Ben & Jerry's®, CommutAir®, and the Magic Hat Brewing Company®.

Shelburne is a residential town that borders South Burlington to the south. The town was chartered in 1763. Early settlers sought to build industries that would support the farming and logging industry to support the local economy. Located to the southeast of the town center, was a series of falls on the LaPlatte River, now known as Shelburne Falls. The water became the main source of power to newly built saw mills in the area. By the late 1700's, a series of dams were constructed to serve the saw mill, forge, carding mill, and grist mill.

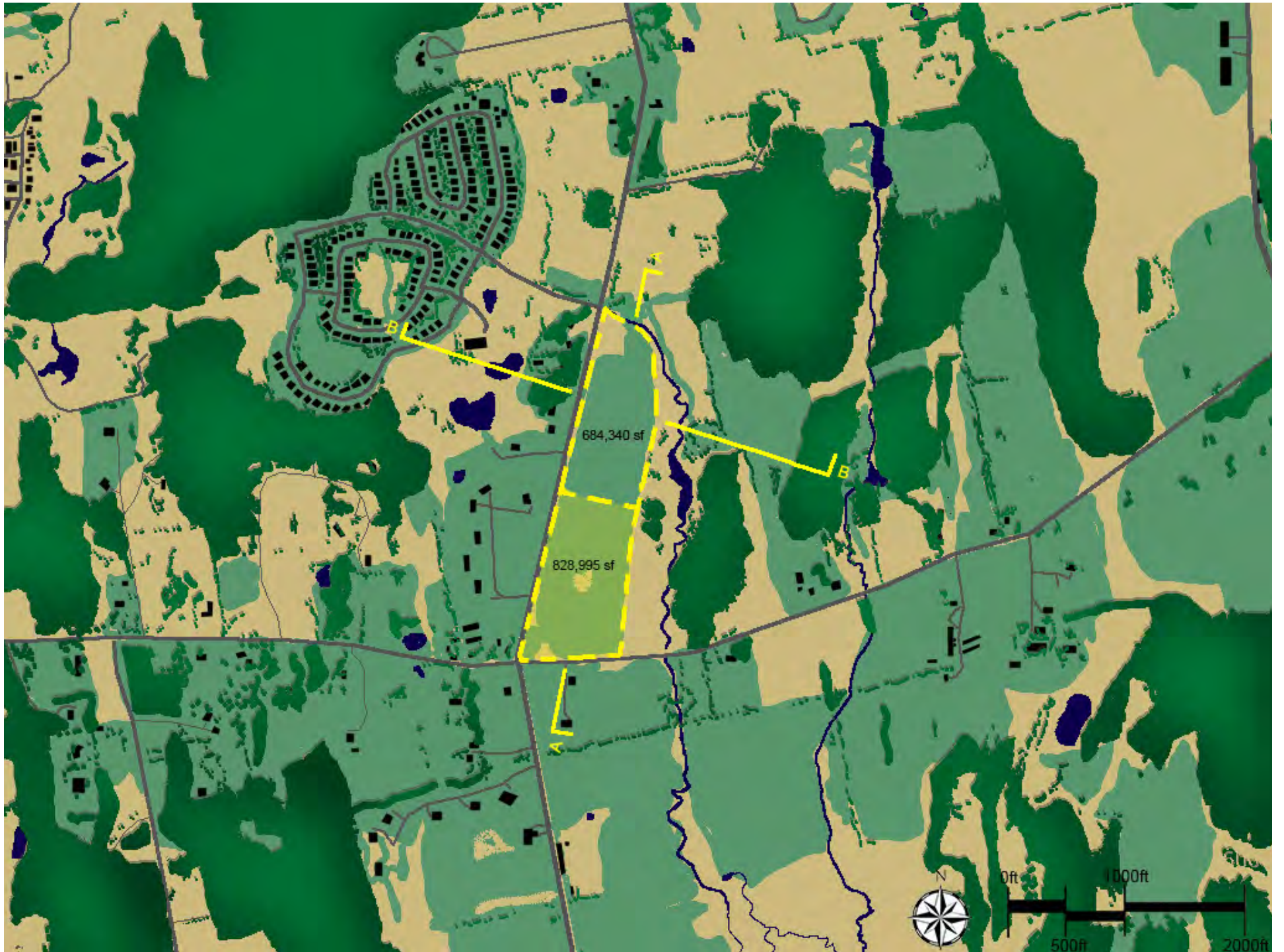
In 1820, the Shelburne Shipyard was founded. For the next 85 years, steamboats were built to form the "backbone" of Marine Transportation in the Champlain Valley. The site is now home to the Shelburne Museum. The town is currently home to 62,000 and covers 14,000 acres of land. It supports a wide variety of farms, service and manufacturing industries, as well as housing developments and conservation land.



Shelburne Present Day

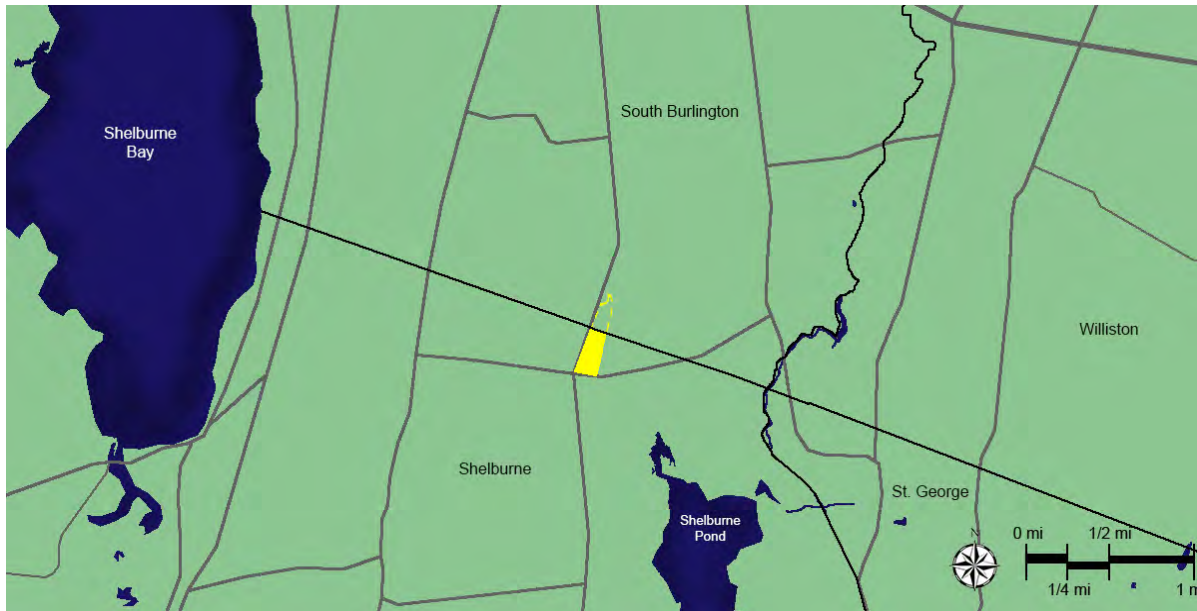
[www.c21jack.com](http://www.c21jack.com)





Site Plan

## Site Statistics Dorset Street, Shelburne, VT, 05403

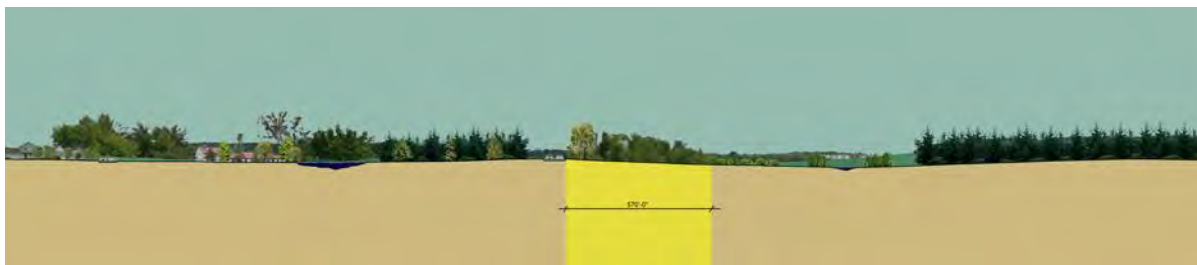


The site that has been chosen is surrounded by low-density residences and conservation land. The 35 acre plot of land, is currently zoned as Neighborhood Residential Transition. It is located adjacent to Dorset Farms, a residential development and the Schoolhouse, a small private school to the west, across Dorset Street. Single Family Homes line Dorset Street to the west.

The land to the southeast is adjacent to Shelburne Pond and is zoned as conservation land. While the plot is much too large for the 89,617 gross square foot Alzheimer's community. The plot is proposed to be split in half, in order to provide land for an adjacent building that can work with the elder community. The dimensions of the entire plot measure 2,770 feet by 600 feet (approx. 1,513,335 square feet) which is approximately 35 acres. The southern half of the site, in which the elder community will sit measures 1,365 feet x 775 feet (approx. 24 acres).



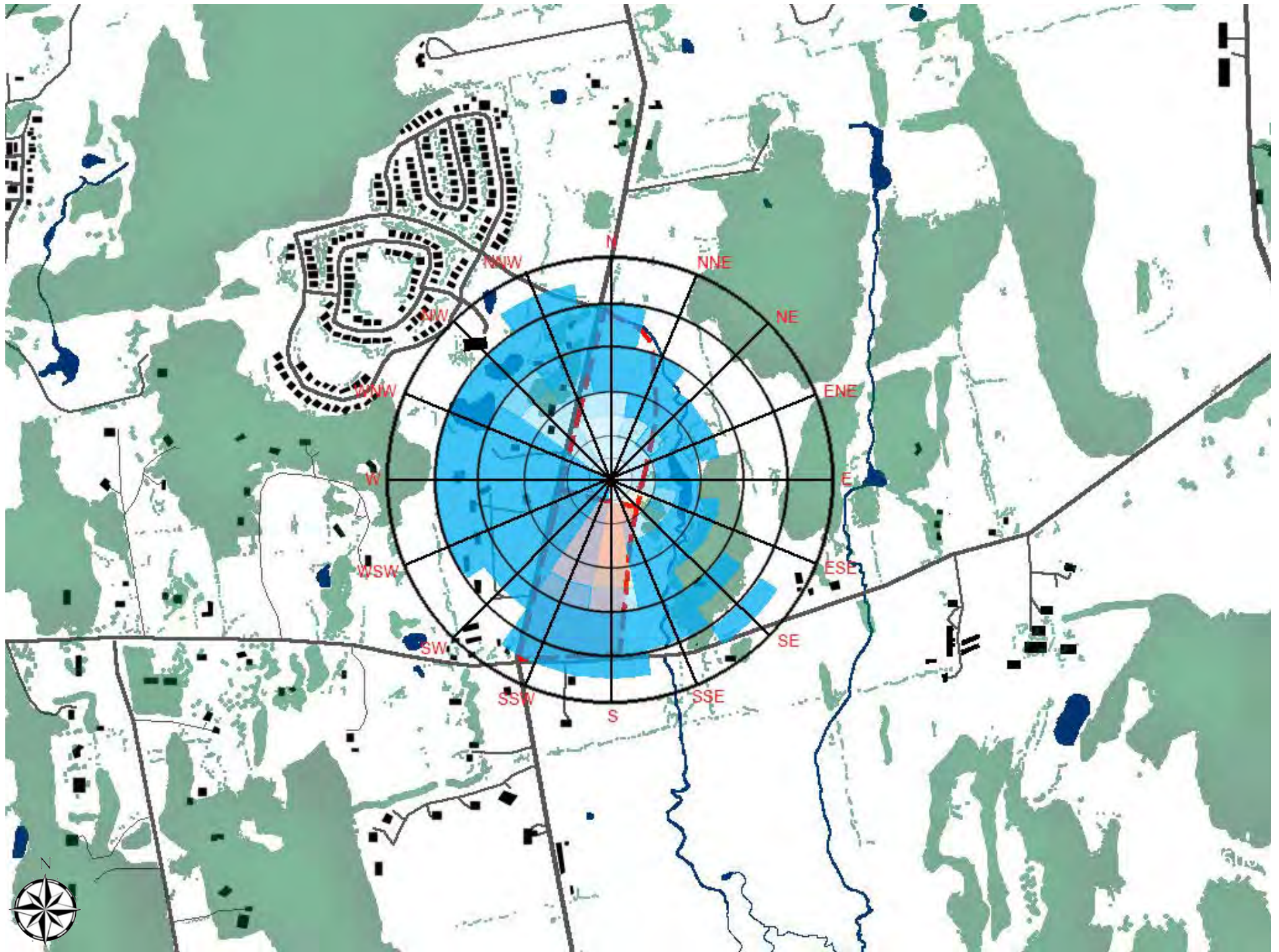
Section AA



Section BB

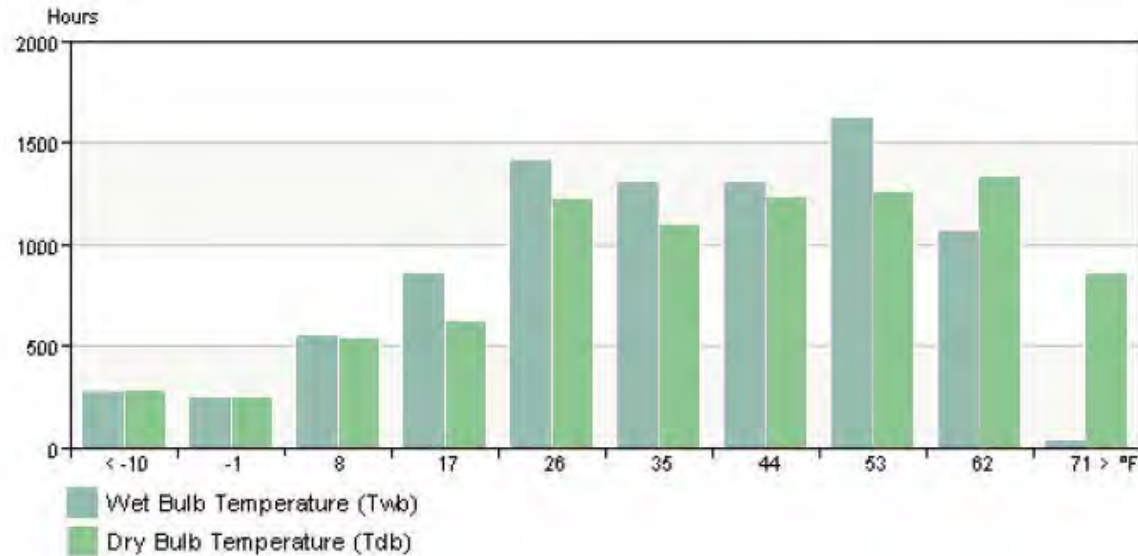
The site has a significant grade change of 50 feet from west to east. The highest grade is located along Dorset Street, and gradually decreases toward the brook along the east. The brook runs south to Shelburne Pond, located more than a half mile from the site. Though the site is located in a rural residential community, it is a comfortable distance from multiple public amenities. Churches, Hotels, Restaurants, Health Care Facilities, and Grocery Stores are all located within 10 minutes by car.





Annual Wind Rose (Frequency of Speed Distribution)

## Climate Greater Burlington, Vermont

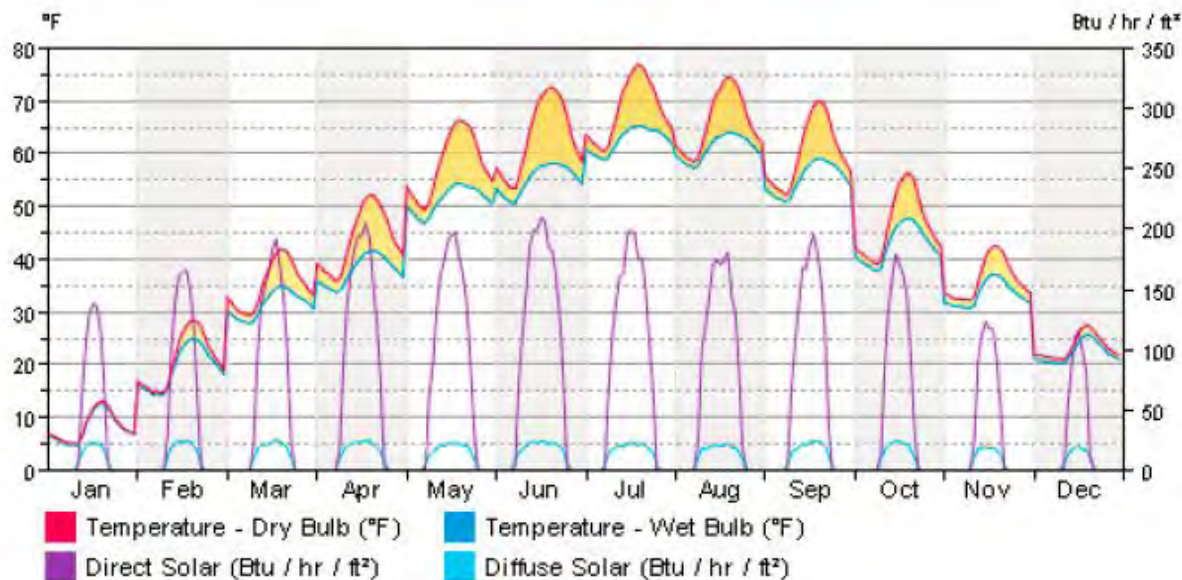


Annual Temperature Bins

Vermont has a cold and temperate climate. In Burlington, temperatures range on average from 8 degrees Fahrenheit in February to 79 degrees Fahrenheit in July. The average annual temperature is 45 degrees Fahrenheit.

The amount of rainfall ranges from 1.75 inches in February to 4 inches in August. The average annual rainfall is 34.5 inches, making for a very wet climate. The first traces of snowfall occur on average in mid-October and ends in mid-April. There is a 74% chance of snowfall each year.

Wind comes from the West and the South, with highest wind velocity in January and March at an average of 12 mph. Lake Champlain is located West of Burlington. Mt. Mansfield is located East of the city.



Diurnal Weather Averages  
All Graphs: Climate Consultant ®





Marlboro Music: Five Cottages  
HGA Architects and Engineers  
Marlboro, Vermont 2015

[www.architectmagazine.com](http://www.architectmagazine.com)



Pizzagalli Center for Art and Education  
Ann Beha Architects  
Shelburne, VT 2013

[www.shelburnemuseum.org](http://www.shelburnemuseum.org)



Lake Champlain House  
Tektonika Studio Architects  
Burlington, Vermont 2013

[www.inhabitat.org](http://www.inhabitat.org)



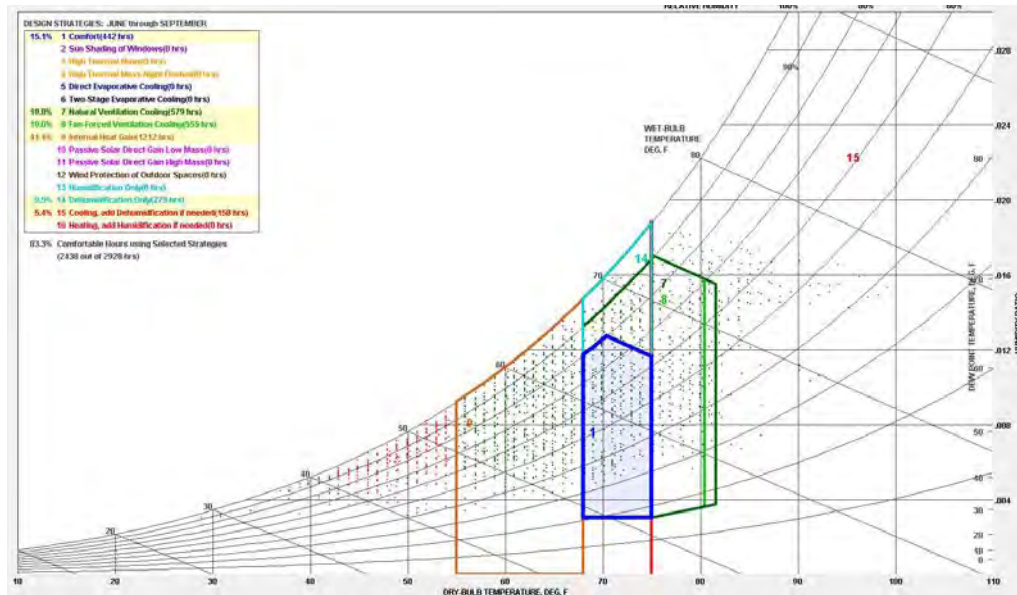
Stowe Vermont House  
Joan Heaton Architects  
Stowe, Vermont 2010

[www.joanheatonarchitects.com](http://www.joanheatonarchitects.com)

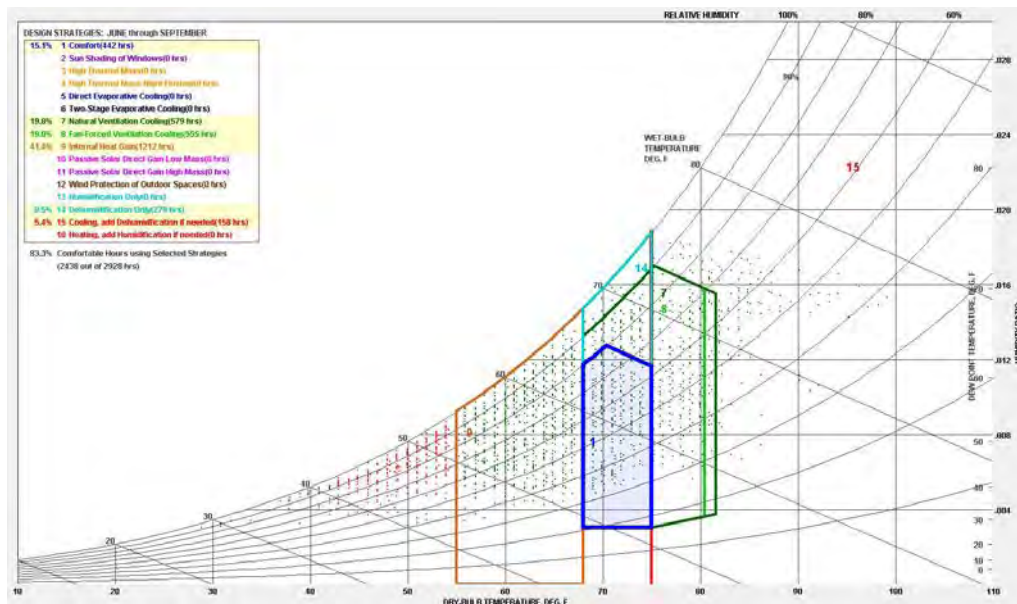


# Climate Greater Burlington, Vermont

Summer



Winter



In the Summer, internal heat gain, sun shading natural ventilation cooling, fan-forced ventilation cooling, and dehumidification can increase comfort levels. In the Winter, wind protection, passive solar heating, and internal heat gain can increase comfort levels. Vernacular Vermont Architecture includes common themes that help to increase the comfort on the indoors. Design strategies are as follows:

- Steep pitched roofs help to shed snow, rain, and help to prevent ice dams
- Tiles, Slate, or a Stone-Faced Fireplace help to provide enough mass to store solar gain
- Large glass areas should face south to provide natural light and heat
- Overhangs help to fully shade interior spaces in the summer
- Outdoor wind-protected outdoor spaces help to extend living spaces in cool weather
- Garages and Storage spaces should face the side of building with the coldest winds
- Exterior wind shields, such as dense planting, fences, and exterior structures are used to protect entries from wind
- All exterior surfaces need to be well insulated for cold temperatures
- Smaller Floor Plans help to eliminate the waste of heating and cooling energy



Bradford Pear Tree



American Arborvitae



White Spruce



White Ash



White Pine



Douglas Fir

All Images: Google Earth ®



# Vegetation Burlington, Vermont



White Pine

[web2.cnre.vt.edu](http://web2.cnre.vt.edu)



Balsam Fir

[www.flickr.com](http://www.flickr.com)



Sugar Maple

[www.bissellmaplefarm.com](http://www.bissellmaplefarm.com)



Paper Birch

[gpi.photoshelter.com](http://gpi.photoshelter.com)



Dogwood

[blog.ctnews.com](http://blog.ctnews.com)



Hawthorn

[www.imagejuicy.com](http://www.imagejuicy.com)

## Evergreens

## Max Height

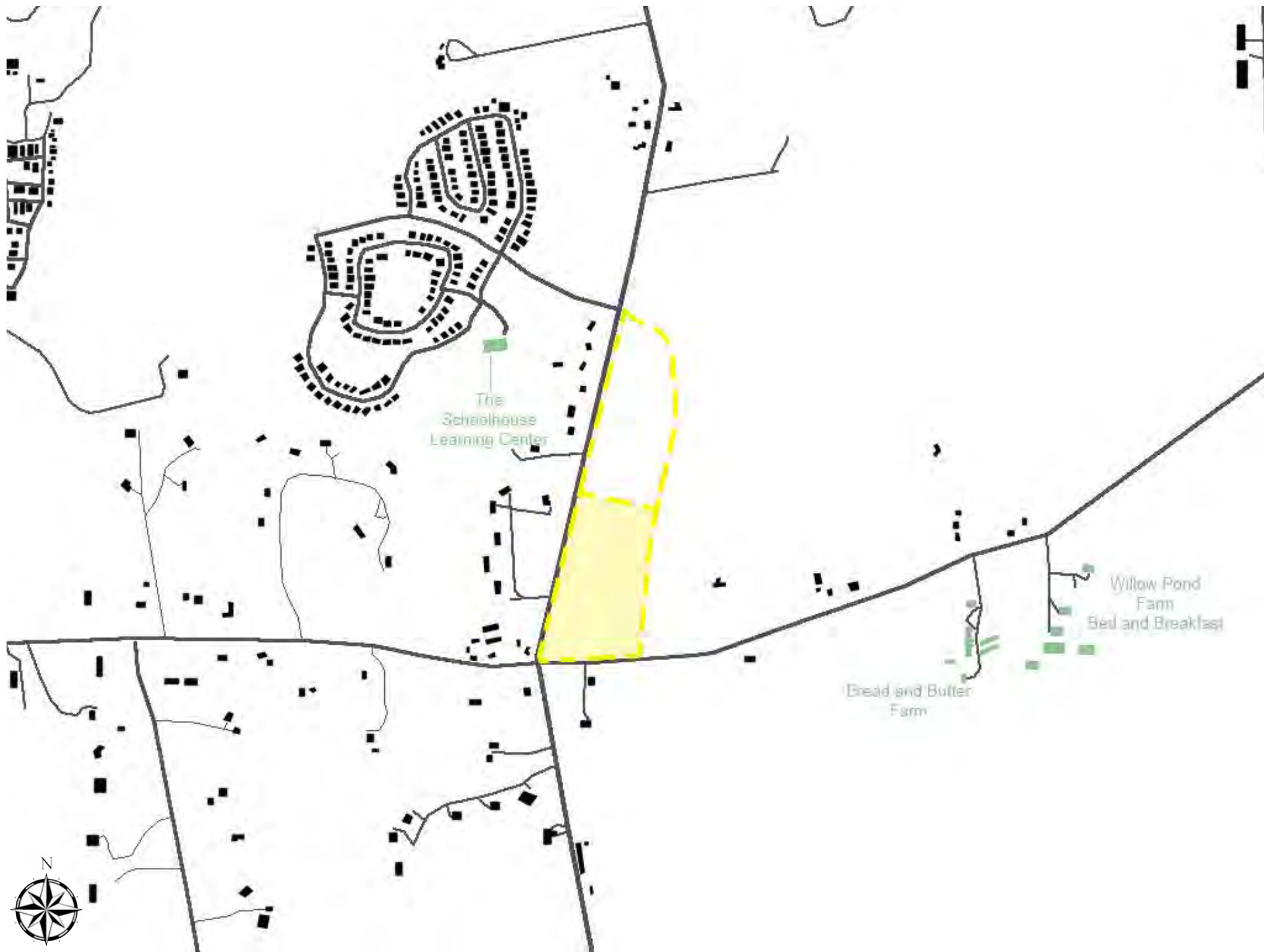
Balsam Fir	75 feet
White Spruce	60 feet
Red Pine	80 feet
White Pine	80 feet
White Cedar	60 feet
Eastern Hemlock	70 feet

## Shade Trees

Red Maple	60 feet
Sugar Maple	75 feet
Paper Birch	70 feet
American Hornbeam	30 feet
White Ash	80 feet
American Hophornbeam	40 feet
Red Oak	75 feet

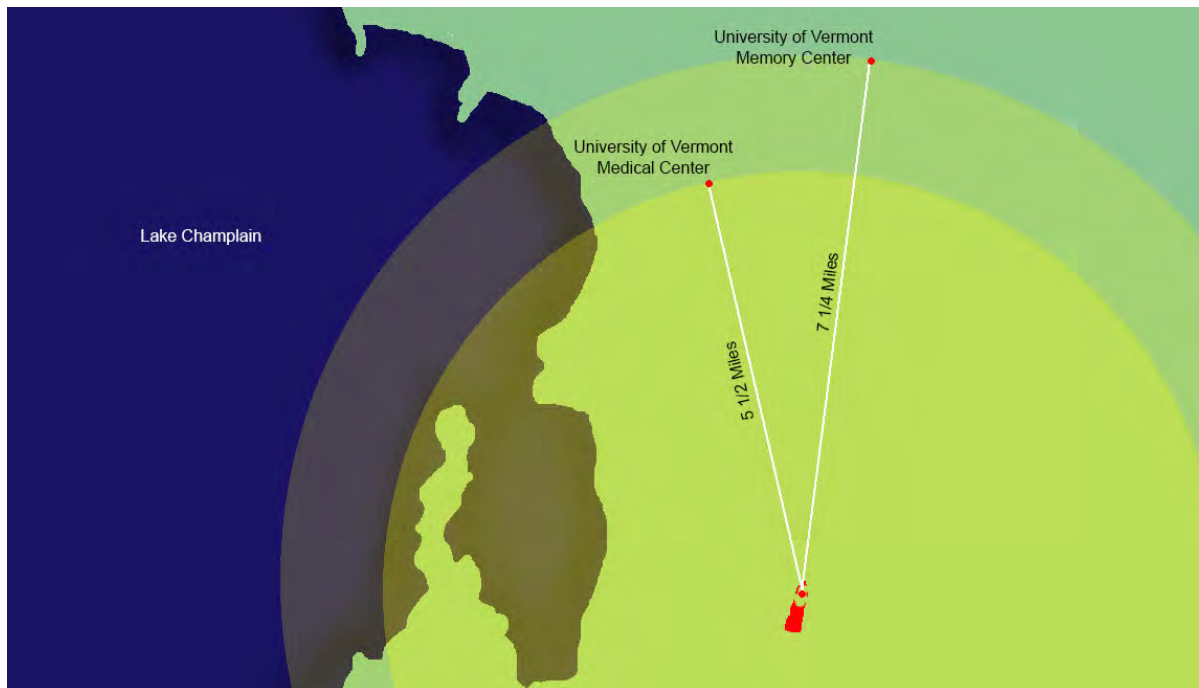
## Flowering Trees

Pagoda Dogwood	25 feet
Hawthorn	30 feet
American Mountain ash	30 feet





## Site Adjacencies Dorset Street, Shelburne, VT, 05403



Proximity to Hospital and Memory Care Center



Nearby Nursing / Retirement Facilities

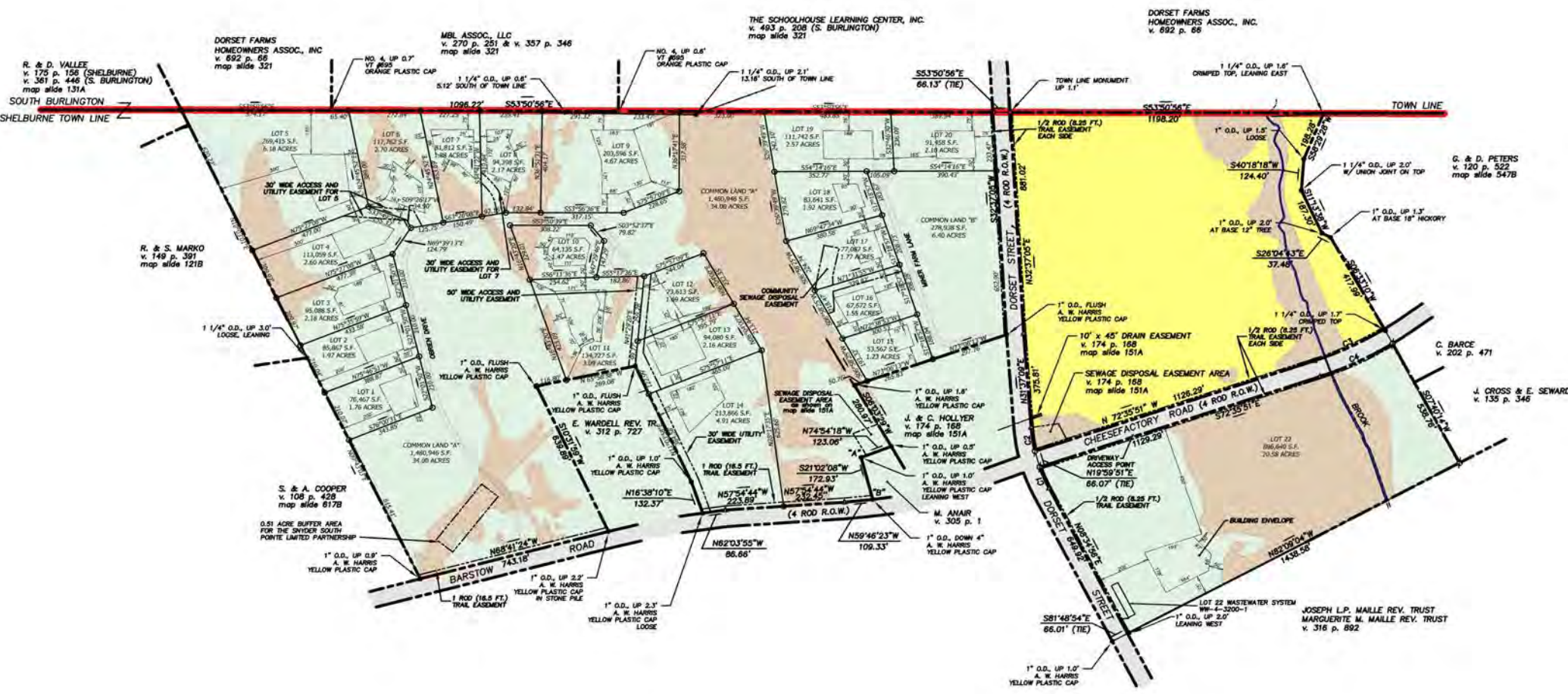
Though the location is mostly residential, there are a few public facilities nearby. Located adjacent to the site is a learning center named “The Schoolhouse” across Dorset Street. It is a private school for 2 to 13 year olds, and holds after school activities and public summer camps. There are two farms located to the west, one being a bed and breakfast.

The site is located 5 1/2 miles from the University of Vermont Medical Center and 7 1/4 miles from the Memory Care Center Branch. They are both located with 15 minutes from the site by vehicle, making it easy for staff to transport residents to and from their appointments. This would especially help in times of emergencies.

There are five nursing homes located along the waterfront, but not all specialize in Alzheimer’s and dementia care. The facilities include:

1. Pillsbury Manor South
2. Armistead New
3. The Residences at Shelburne Bay
4. Home Instead Senior Care
5. The Arbors at Shelburne

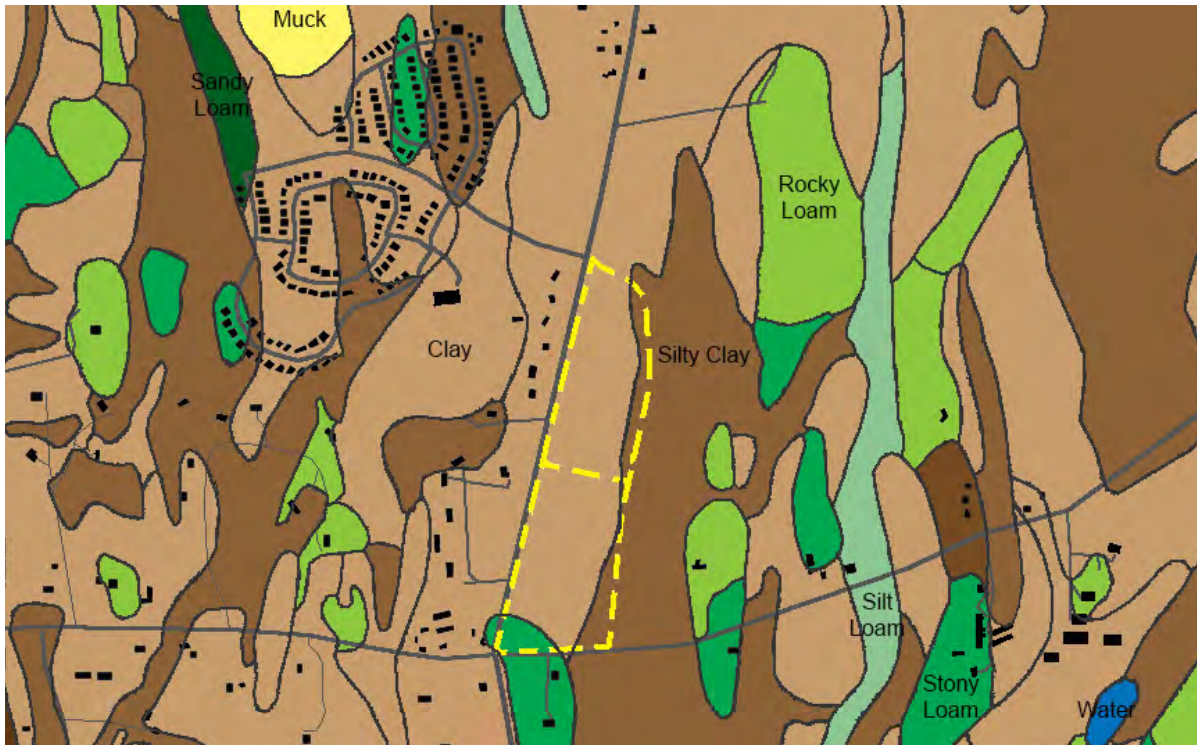
Of these facilities, Armistead New, Home Instead Senior Care, and The Arbors at Shelburne provide specialized dementia care. With the number of people affected by Alzheimer’s in Vermont, the state needs more complexes that offer a variety of care for people diagnosed with Alzheimer’s.



Property Boundary  
 Town Line  
 Wetlands  
 Brook  
 Main Roads/ Driveways  
 Grass



## Site Codes Dorset Street, Shelburne, VT, 05403



Soils



Zoning Districts

Neighborhood Residential  
 Neighborhood Residential - Transition  
 Village Residential  
 Residential I  
 Rural  
 Village Commercial  
 Mixed Use  
 Commerce and Industry  
 Conservation  
 Park and Recreation  
 Institutional and Agricultural  
 Municipal  
 Water

Being that the site is located in the town of South Burlington (North) and Shelburne (South), it creates a unique zoning district situation that will bring certain challenges. South Burlington zones the site as Neighborhood Residential (Transition), while Shelburne zones the site as Rural. While the Rural zone would not allow for an elder community, and the Residential zone would allow for a maximum of 60 residents. The argument could be made that if the northern portion of the site is conducive to this type of living complex, the southern portion should be able to as well. The difficult part about this would be the connection to the public sewer system, since the soils are clay and loam. The stony loam in the south west of the site provides space for a sewage disposal easement area.

To respect the zoning bylaws of Shelburne, the minimal lot size is 4,000 square feet per resident bedroom. This would be a total of 256,000 square feet, which would leave room for 589,000 square feet of open outdoor space. The minimum setbacks and height restrictions are as follows:

Front Yard	30 feet
Side / Rear Yard	30 feet
Wetland Buffer	50 feet
Height	35 feet

The site is large enough to provide ample room beyond the minimum setbacks. The height requirement is adequate, since the use of stairs and elevators for residents should be avoided for practical reasons.

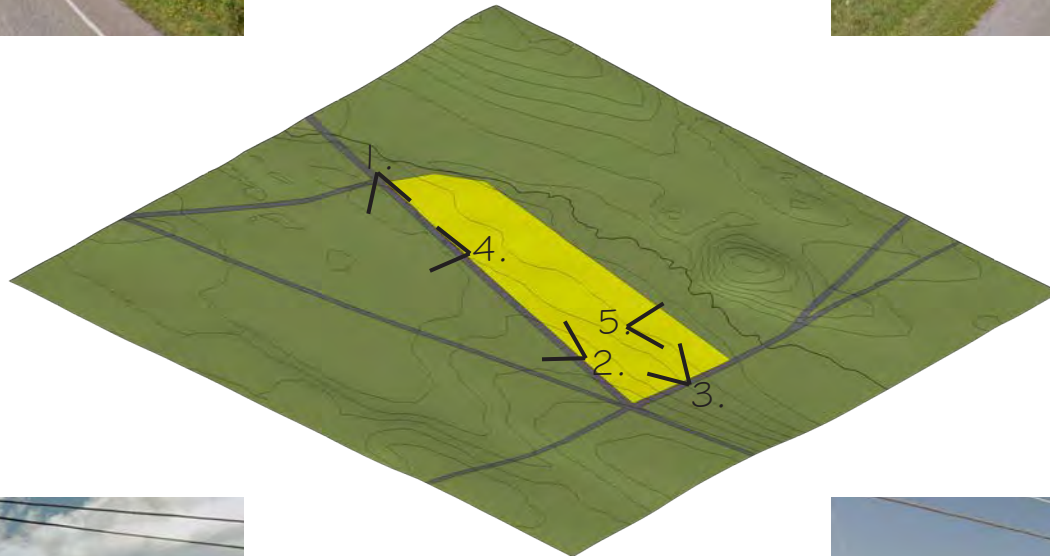


5.





## Site Context Dorset Street, Shelburne, VT, 05403





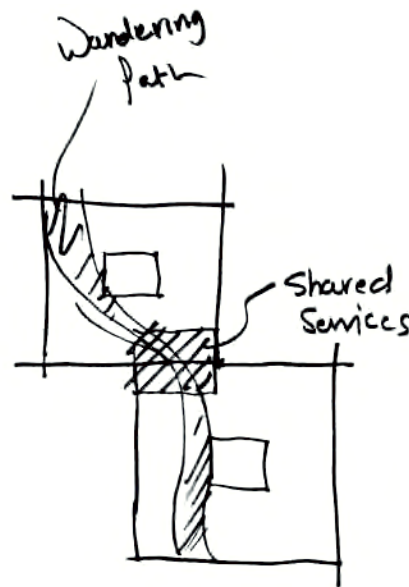
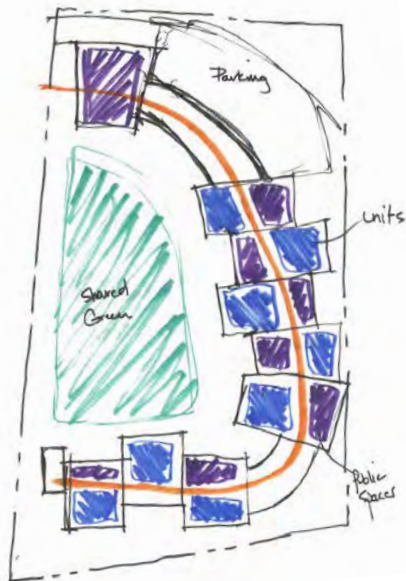
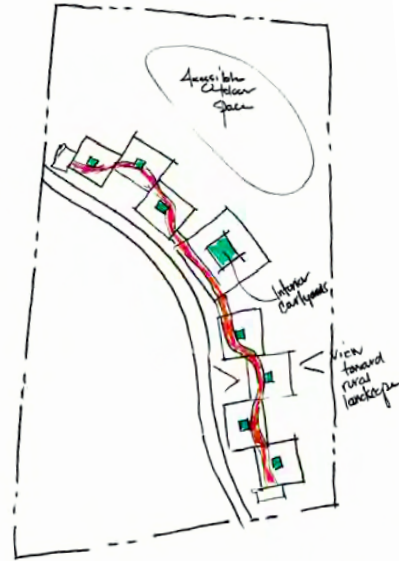
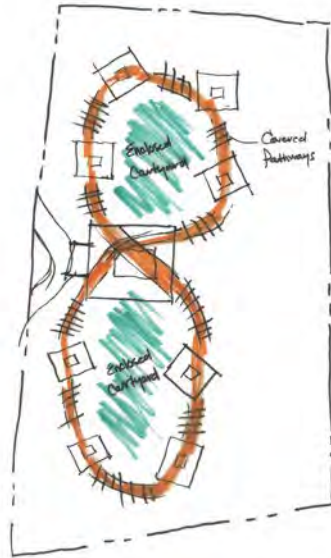
## Following Through

Concept	82
Process: Preliminary	84
Process: Mid Review	92
Process: Gate Review	98
Final Design	104





# Concept



For the design implementation of the elder community, there were a few strategies that needed to be evident, and were required for the project's success, as previously researched.

Non-negotiable strategies included:

1. Wandering path(s) to string together the entire program
2. Secured Green Spaces with Beautiful Views
3. One Common Building with Eight Units

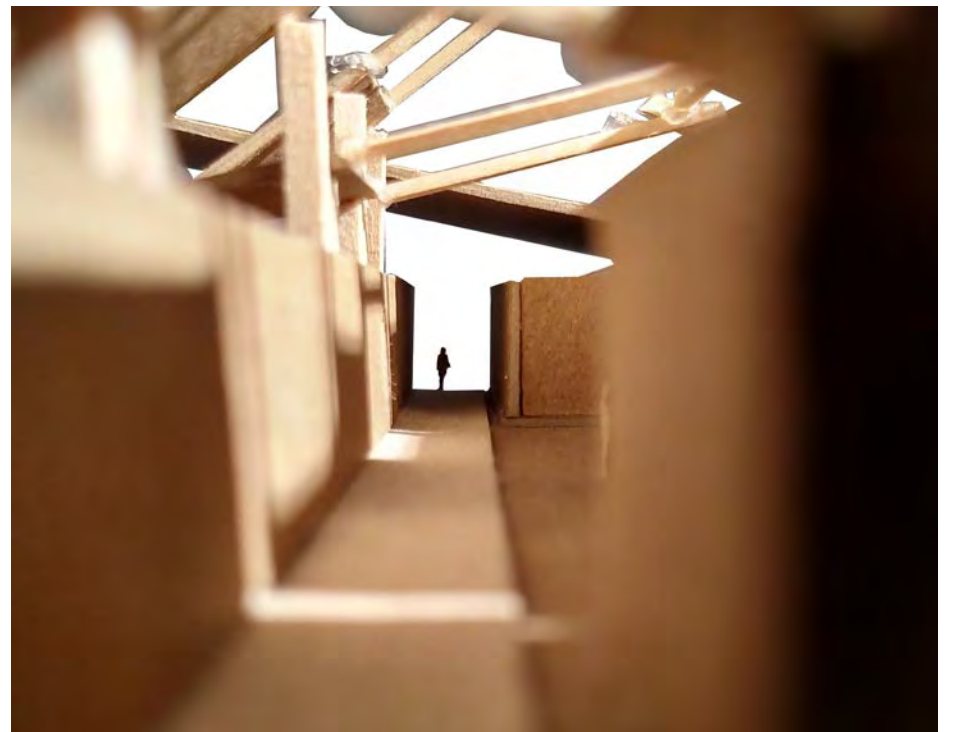
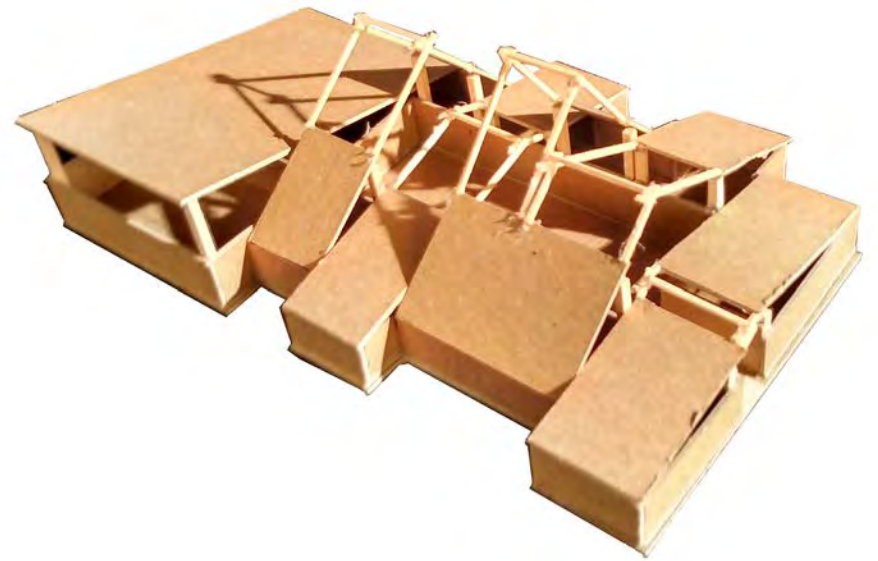
At the beginning of the design process, it was unclear if the path should be continuous without a beginning or end, or if it should be in a line with significant destinations at each end. The site itself allows for multiple different scenarios, however, the relationship to the two adjacent streets, views, and sunlight all needed to be addressed. The correct solution would take multiple tests to get right. Practical programmatic solutions needed to be implemented as well, such as parking, drop-offs, and easy access for ambulances. The neighboring residences also needed to be accounted for, as this large complex has the ability to alter their environment in a substantial way. It is clear, that empathy goes beyond the complex itself, but needs to be accommodating to its neighbors, as the elder community should not ruin any views for adjacent homes or add to noise levels significantly, since the existing atmosphere is relatively quiet, with very little traffic.







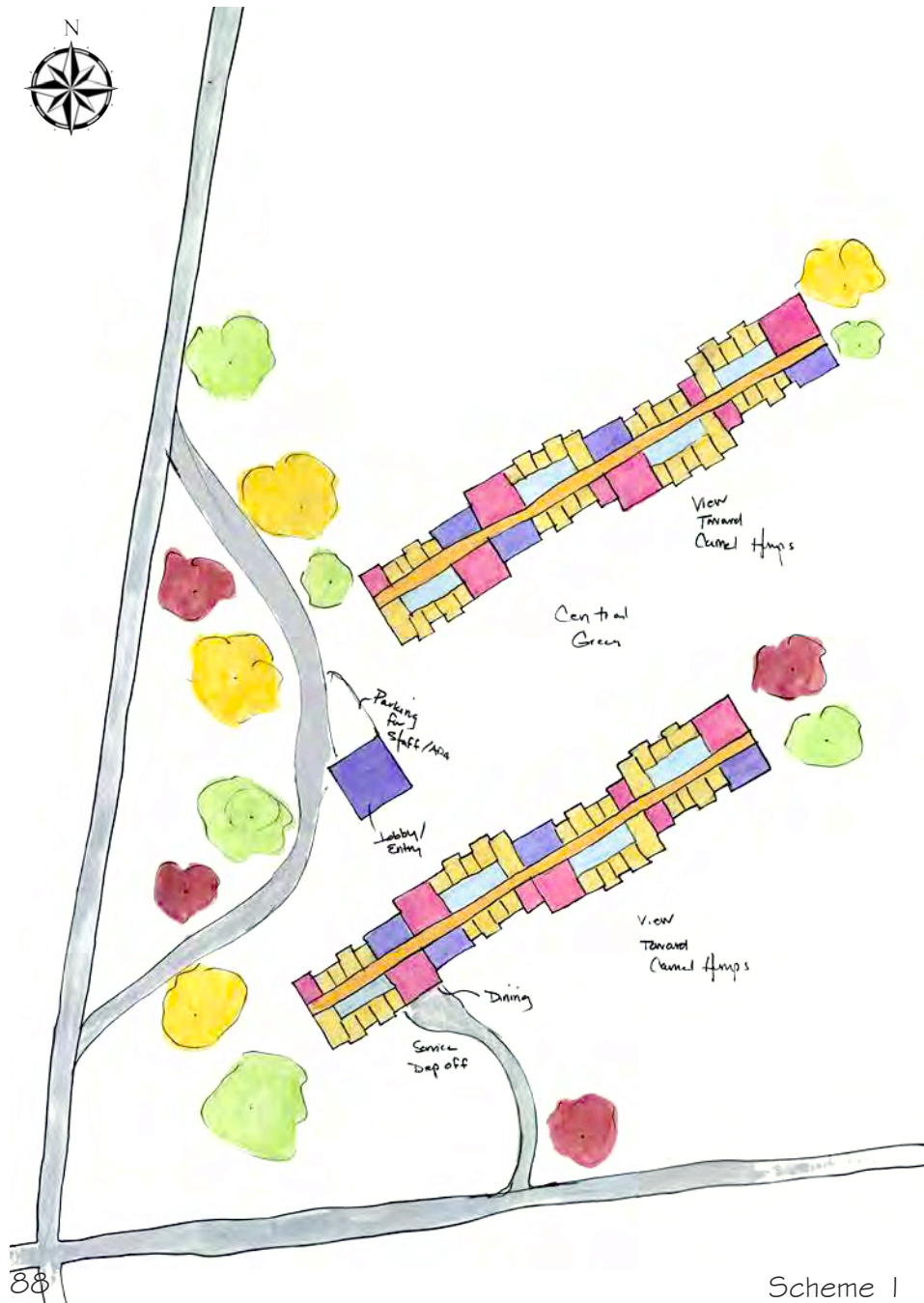












Scheme 1



Scheme 2

## Process: Preliminary Site Schemes

As the preliminary units were settled upon, the site layout was ready to be addressed again. There was a few site strategies that needed to be implemented.

Non-negotiable strategies included:

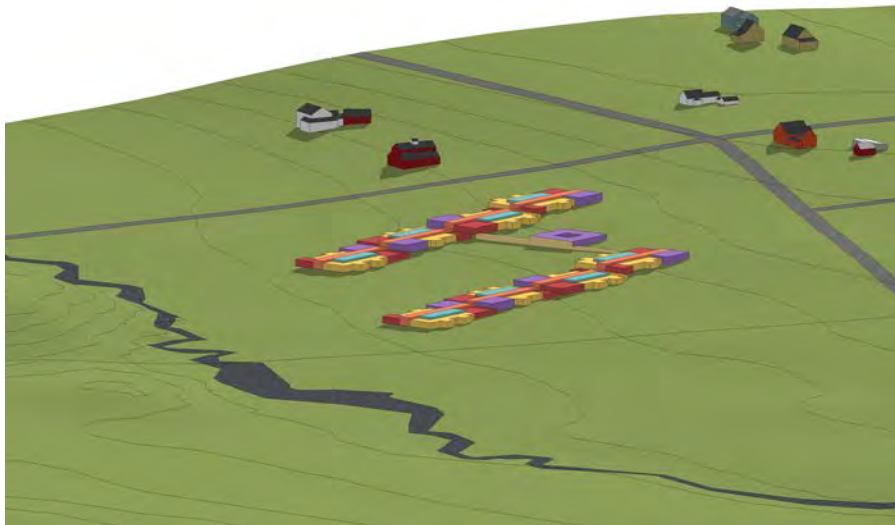
1. One or more large courtyards
2. A view toward the Camels Hump Mountain Range (View to the South East)
3. Bedroom views of the Courtyard(s)
4. Centralized Common Building

The first two schemes presented many issues with long corridors with strict linearity and symmetry. The third scheme shortened the wandering path into three wings which would each end at a significant space. Two courtyards seemed appropriate, since it would create two different environments which would help residents to orient themselves. It could also potentially create a differentiation between the first/ second stage and the third stage residents.



Scheme 3

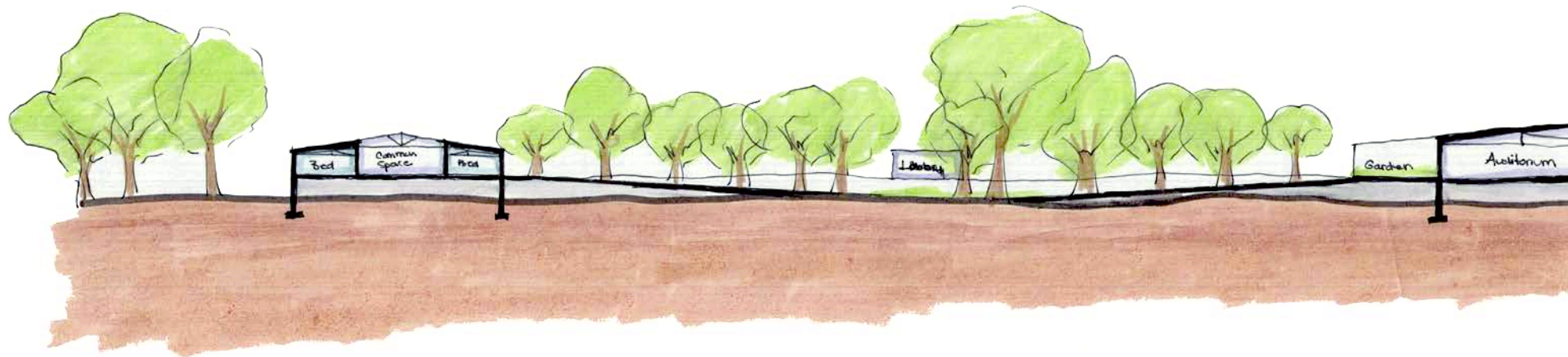




Scheme 1



Scheme 2





## Process: Preliminary Site Schemes



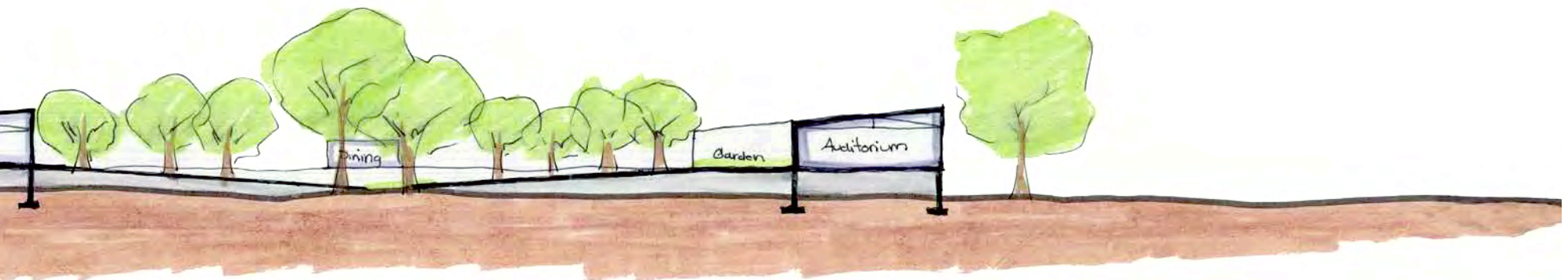
Scheme 3



After scheme three was chosen to be further designed, some issues began to arise.

1. Topographic change
2. Resident Circulation Patterns
3. Views from Common Spaces were too Internalized
4. Green Spaces needed to be secured

The diagrams to the left illustrate **unit layout** (top) and **wandering path layout** (bottom). The unit layout diagram shows the placement of the different stage units, with the first stage to the north and the third stage to the south. The wandering path diagram highlights how the path is more linear on the inside, and becomes more organic and it continues into the courtyards.

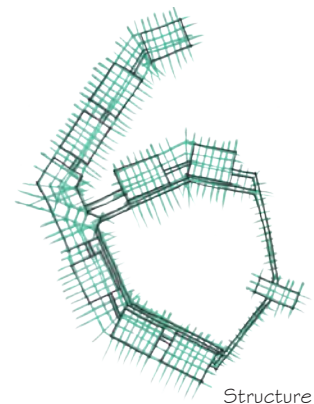
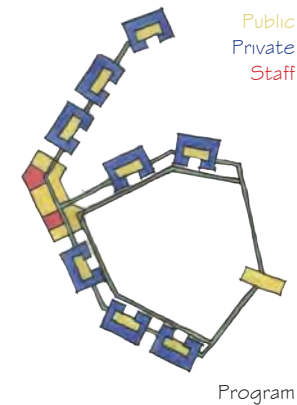
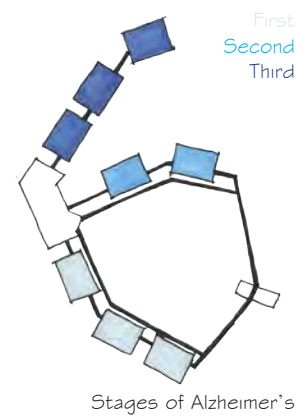
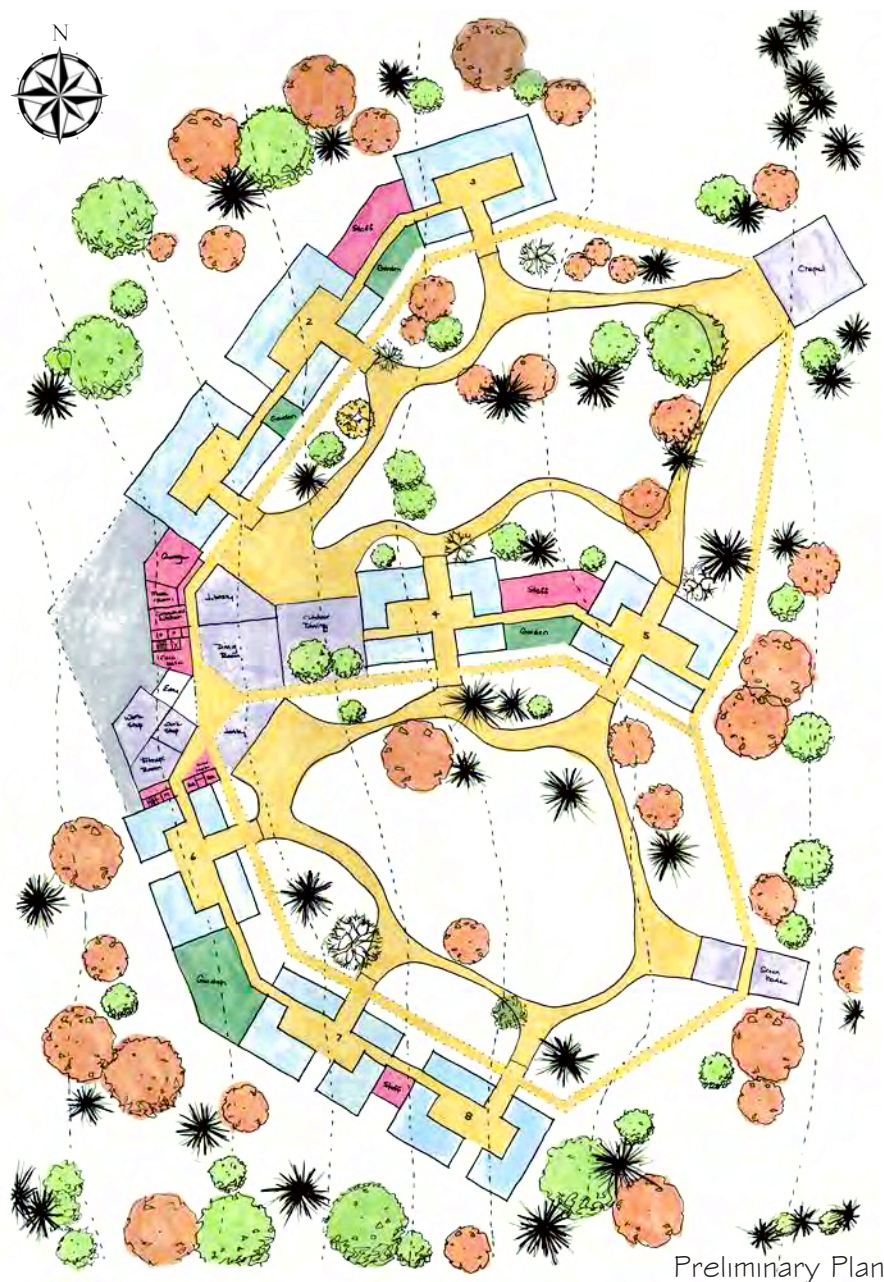


Scheme 3 Section Looking West





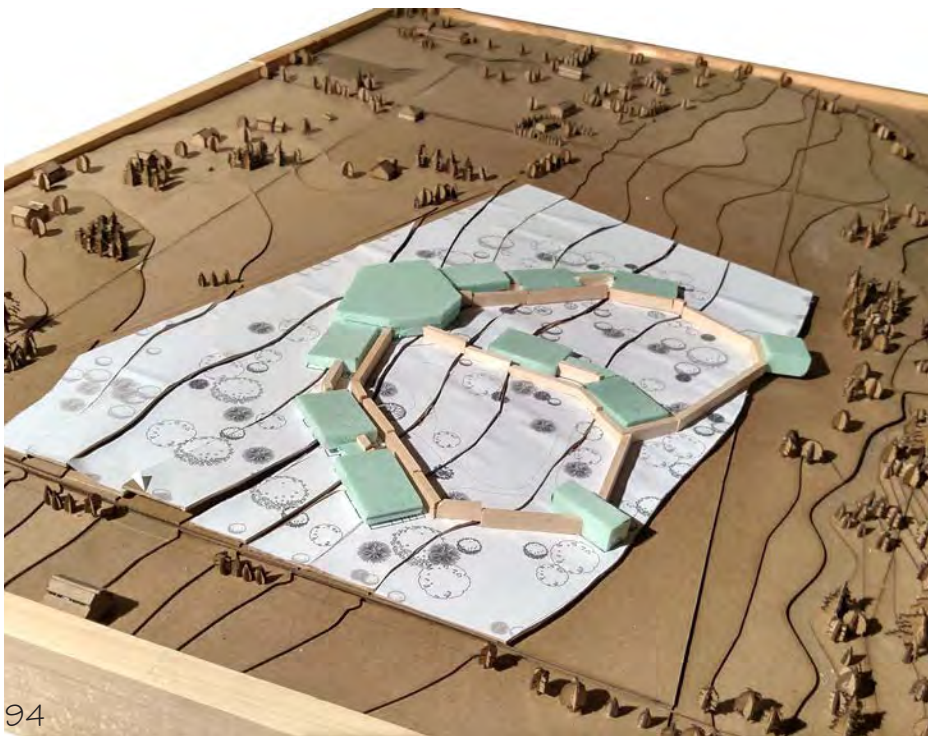
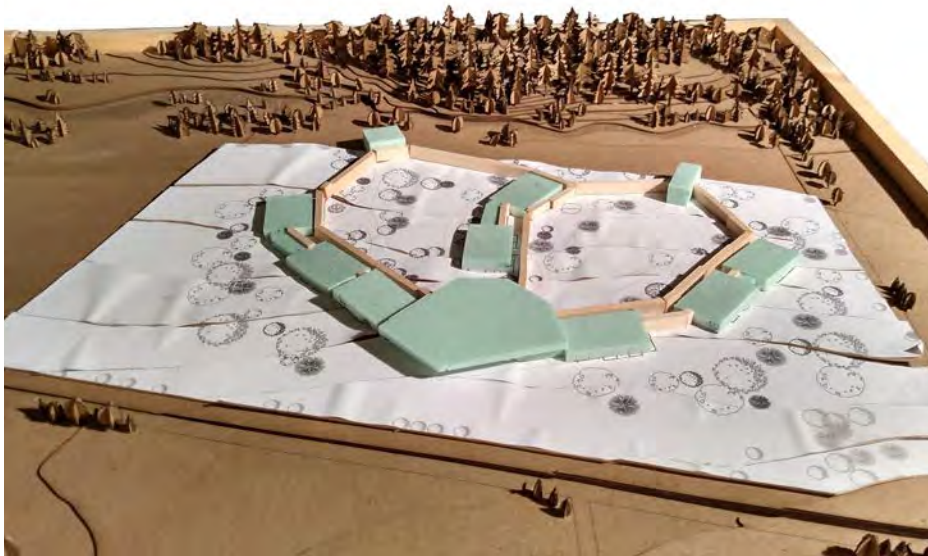
## Process: Mid Review Site Development



As the thesis began to be further developed, some earlier ideas were ousted, and some new ideas were implemented. While the original layout remained, some additions included a greenhouse, chapel, wandering paths as loops, and an open air colonnade. The idea of scattered public spaces to be associated with each unit became problematic as some spaces became disconnected, and would pose a problem for residents, since many would not be able to walk long distances. As a parti, the common building would remain centralized, with three wings protruding from it. The wings would symbolize the three stages of Alzheimer's, though the first and second stage residents would be intermingled in the top and middle wings. The third stage residents would remain in the southern wing, as they would receive the most sunlight, and have the best views. However, at this stage it would become apparent that the third stage residents needed to be more differentiated. They were also located too far from the central staff, which would pose for some pragmatic problems.

The common spaces would remain centralized with adjacent patios in each courtyard. The only exceptions to this rule would be the greenhouse and the chapel, as they are destination points and define each courtyard. However, the chapel was removed later in the design process as it was located too far from the program, and could be easily combined with the greenhouse. This would also create a hierarchical space that would lead one's view to the Camels Hump Mountain Range.







## Process: Mid Review



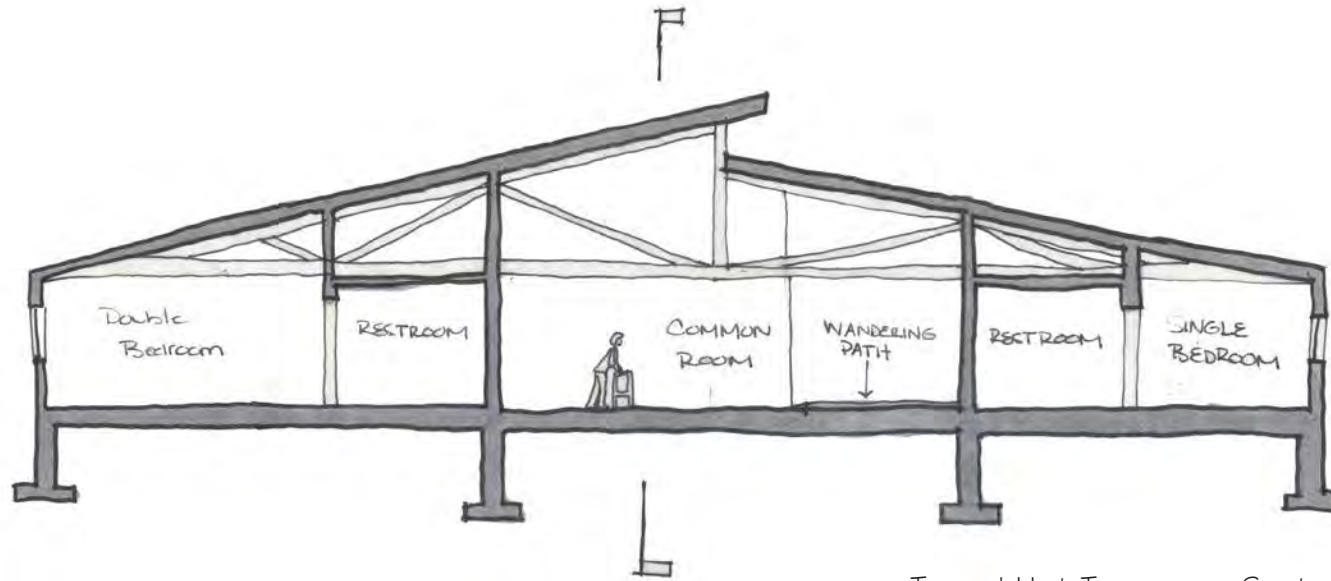
Entry View from Dorset Street

The presence of a service and visitor drop off and parking was crucial to the elder community. It was also important to consider how it would effect the neighboring residences, therefore an evergreen forest would be planted along the west facade to respect their privacy and keep noise levels down. Ample parking spaces needed to be included in order to provide enough spaces for visitors and staff on an everyday basis.

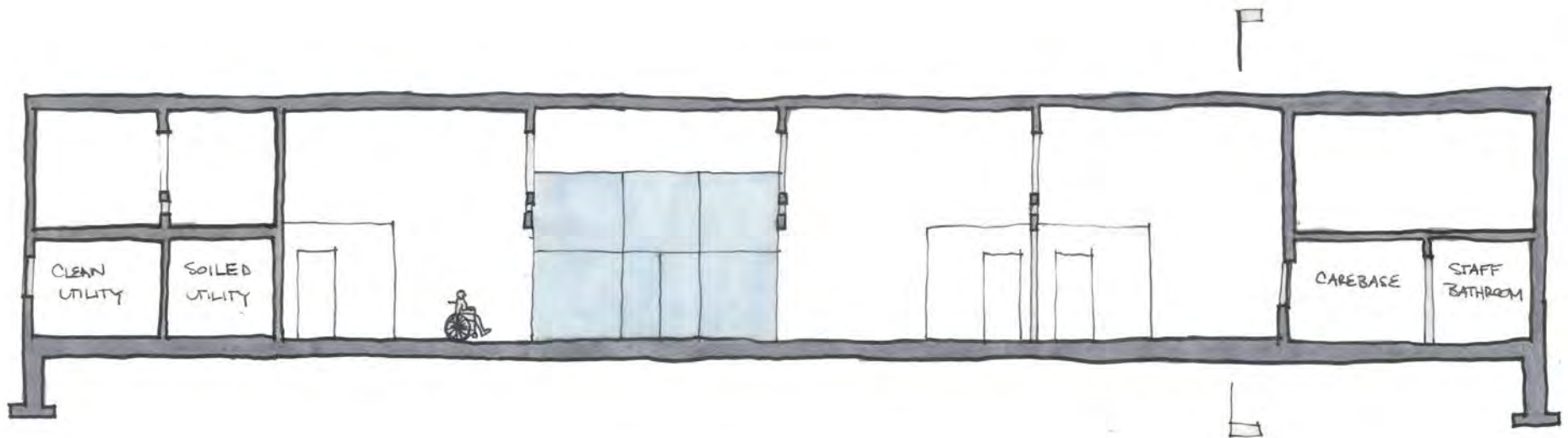


Courtyard View toward Camels Hump





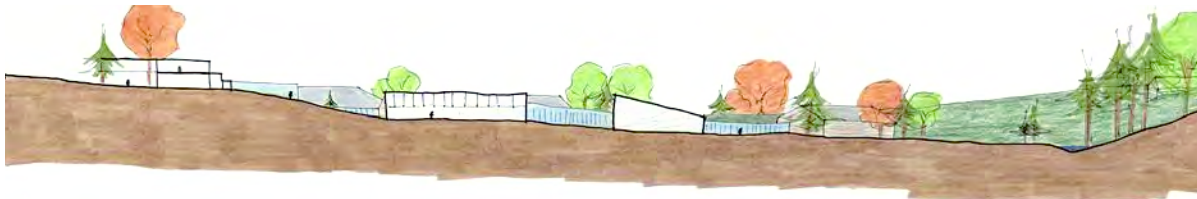
Typical Unit Transverse Section



Typical Unit Longitudinal Section



## Process: Mid Review Unit Layout



Section Looking North



Section Looking West



Unit Common Space

The topographic change on the existing site would pose a serious challenge. Though the site appears to be relatively flat as the plot is so large, there is a fifty foot contrast from west to east, with the highest point to the west. For the specific building layout, there would be an approximately 35 foot difference. Therefore, the wandering path would need to ramp in between units. This would dictate the minimum space inbetween units, as the minimum ramp slope is 1:12, however the ideal slope would be 1:20, since this would be comfortable for those in wheelchairs and staff rolling beds.

The units themselves would be of heavy timber construction, as well as the common building. Heavy timber is common in Vermont, and would be comforting for residents, as most homes are constructed with wood framing. The trusses in the units would span 85 feet at a 20 foot spacing, with a clerestory along the wandering path. The exterior cladding would be a vertical cedar siding with a slate tiled roof with photovoltaics. The load bearing walls would be constructed of concrete, in order to provide enough space for the adequate insulation, since Vermont is known for its temperate climate. The flooring of the common space and bedrooms would all be carpeted, while the wandering path would contrast with red oak. Those suffering with Alzheimer's need a differentiation in materials, in order to differentiate between different spaces and functions. They are not necessarily able to differentiate on their own, if the program changes from space to space.





## Process: Gate Review Common Building Layout



Entry from Dorset Street

After the mid-review, it was clear that the common building needed to be further developed. As the next step, the layout needed to be finalized, and the exterior needed to be addressed. The main body of the common building would continue the same form as the units with the broken gable. The entry would sever the original form and dramatically create a portal to the main view of the Camels Hump. As one enters, they would be greeted by the view, which would act as a backdrop to the lobby. Since the topographic change is so drastic, the appropriate decision was to put staff spaces, and entries on a second level. The units would be attached below to ensure that residents can't escape, and the staff can have overlooking supervision opportunities.



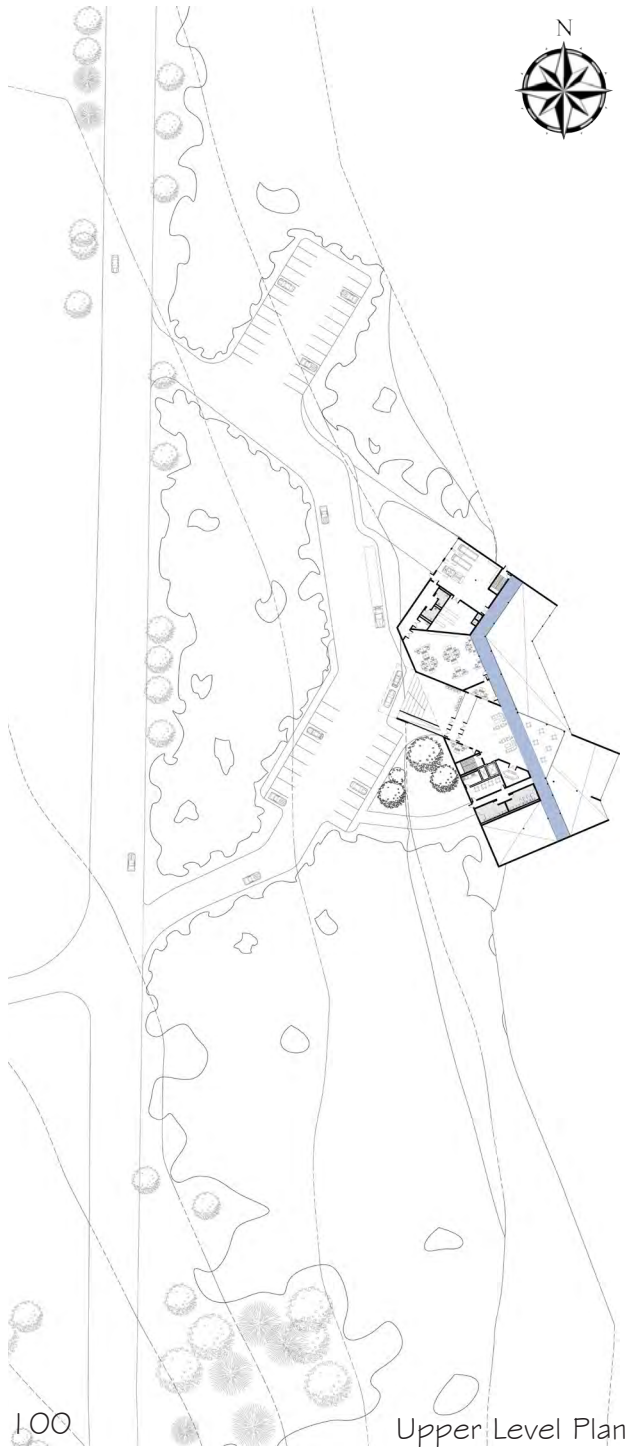
Visitor Entry View



Common Building

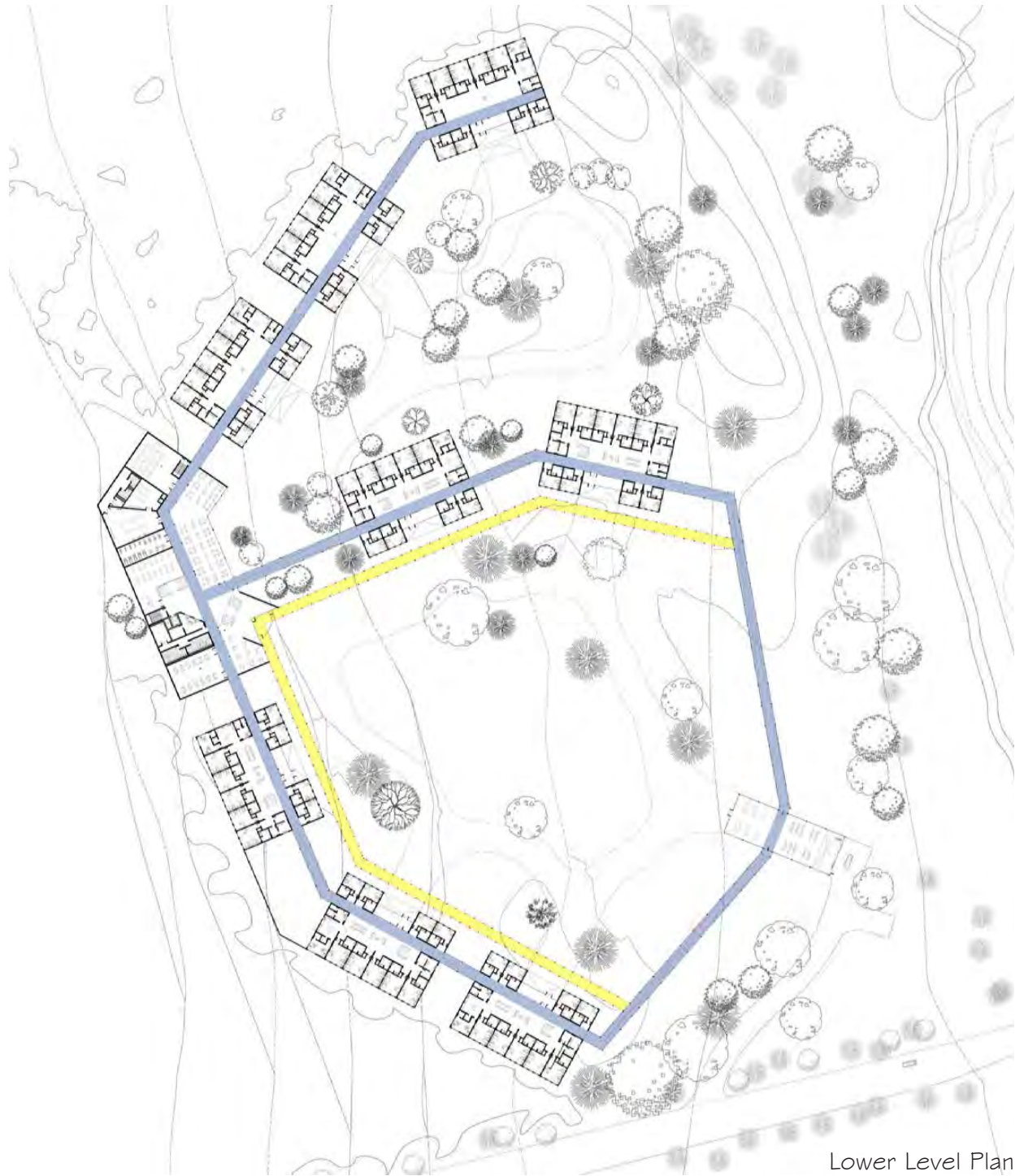






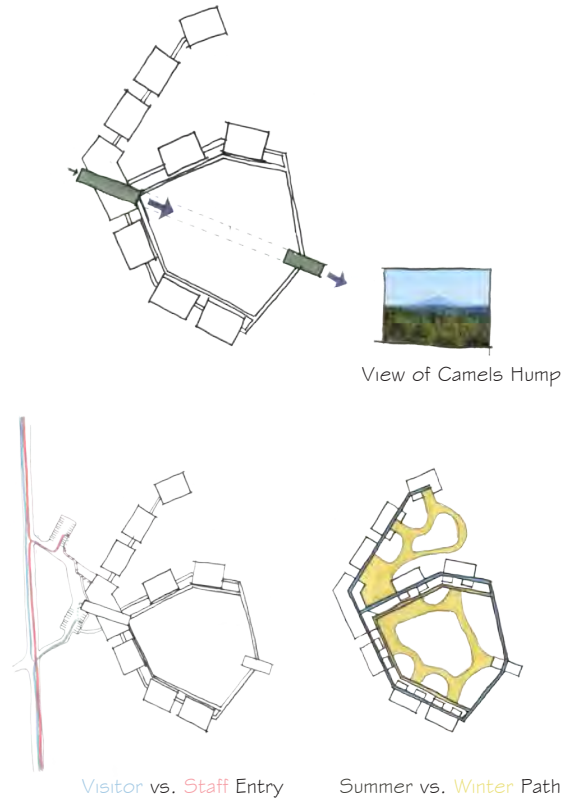
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Upper Level Plan



Lower Level Plan

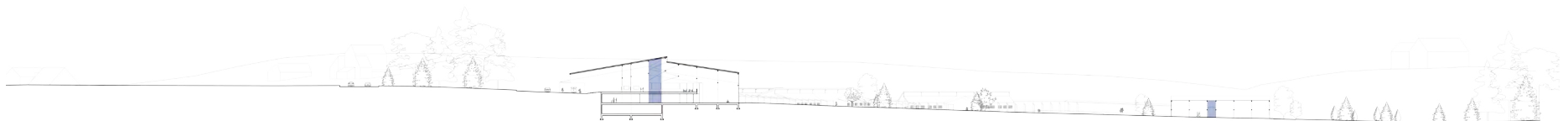
## Process: Gate Review Stages of Alzheimer's



As the common building was taking shape, a few more areas needed to be resolved. The placement of the third stage residents became problematic as they were located too far from staff and were not differentiated from the earlier stage community. Therefore, the decision was made to move the third stage wing to the north, as they would still receive ample sunlight and beautiful views, yet be located near centralized staff quarters. They would be given a slightly smaller courtyard that they would be able to enjoy without too many wanderers. The courtyard would be secured by a berm along the east, which would contrast from the colonnade enclosed courtyard to the south. This design change would allow the first and second stage residents to have a large courtyard with direct access to the greenhouse. This particular courtyard would contain less trees in the center for multifunctionality. Each unit would be associated with a different tree species at the entrance to differentiate the units along the courtyard.



Section Looking West



Section Looking North





Unit Common Space

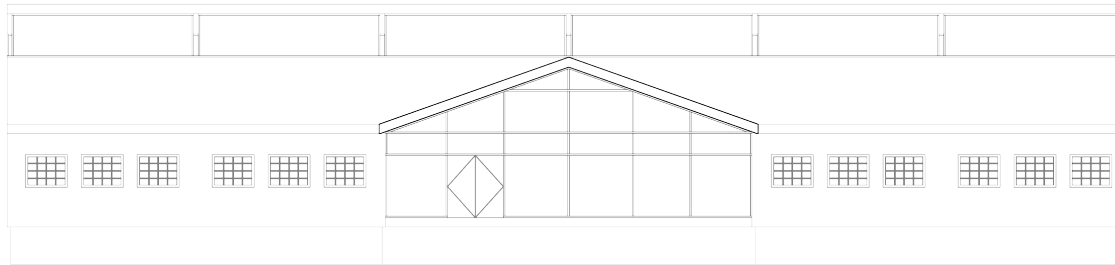


Double Bedroom View

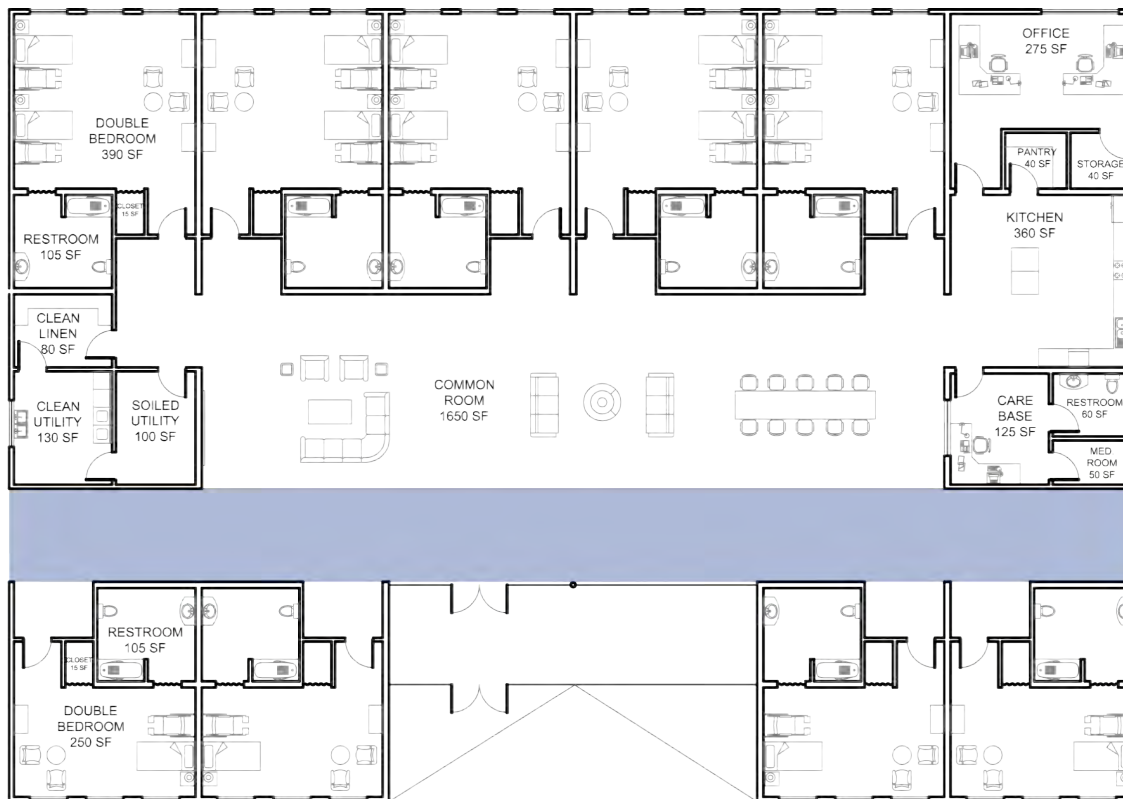




## Process: Gate Review Shift in Design Process



Typical Unit Front Elevation



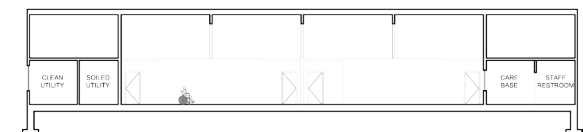
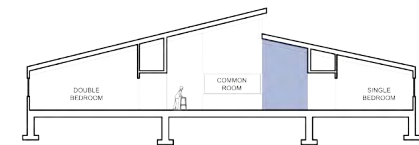
Typical Unit Layout

The units stayed relatively the same up until this point in the design process. However there were some changes made to improve upon the layout and site relationship.

Unit Changes Included:

1. Large Glazed Entry to Courtyard
2. Introduction of Front Porch
2. Ramp up to Entry
3. Ramps between Units
4. Removal of Trusses from Common Spaces

It was determined at this point of the project, that the site layout, units, and common building were not working. There were too many problems arising with the topography, scale, circulation, and privacy of residents. While the intentions behind all thesis decisions were informative and empathetic, there were too many issues with the design as a whole. Therefore, the decision was made to begin a new strategy that would further improve the lives of the residents architecturally.







## Final Design Determining the Next Steps



Entry from Dorset Street

In order to design a better thesis, it was important to understand what worked in the previous layout and what didn't.

What did Work:

1. Wandering Paths as Loops
2. Two Courtyards with Slightly Different Characteristics
3. Third Stage Residents to the South
4. Centralized Common Building
5. Greenhouse/ Chapel as Focal Point
6. Inviting Entries and Porches along the Courtyard

What didn't Work:

1. Linear/ Angular Wandering Paths
2. Courtyards that were too Large
3. Common Building and Greenhouse Disconnected
4. Not working with Existing Contours
5. Wandering Paths running along Bedroom Doors and Open Common Spaces



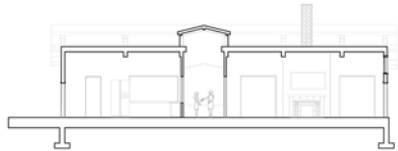
First and Second Stage Courtyard

When listing the successes and failures of the previous project, it was easier to determine an adequate layout that would make sense for the program itself, as well as for the site and location. For the final scheme, it was crucial to design with the existing topography, in order to gracefully ramp the wandering path between the units. The units needed to be spaced at an appropriate distance apart, and not change in grade too much, to allow for a comfortable amount of ramp inbetween.

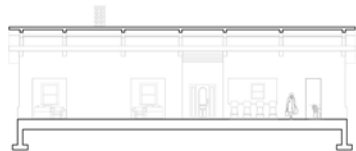




Typical Front Elevation



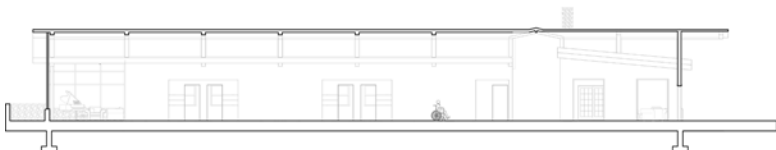
Section AA



Section BB



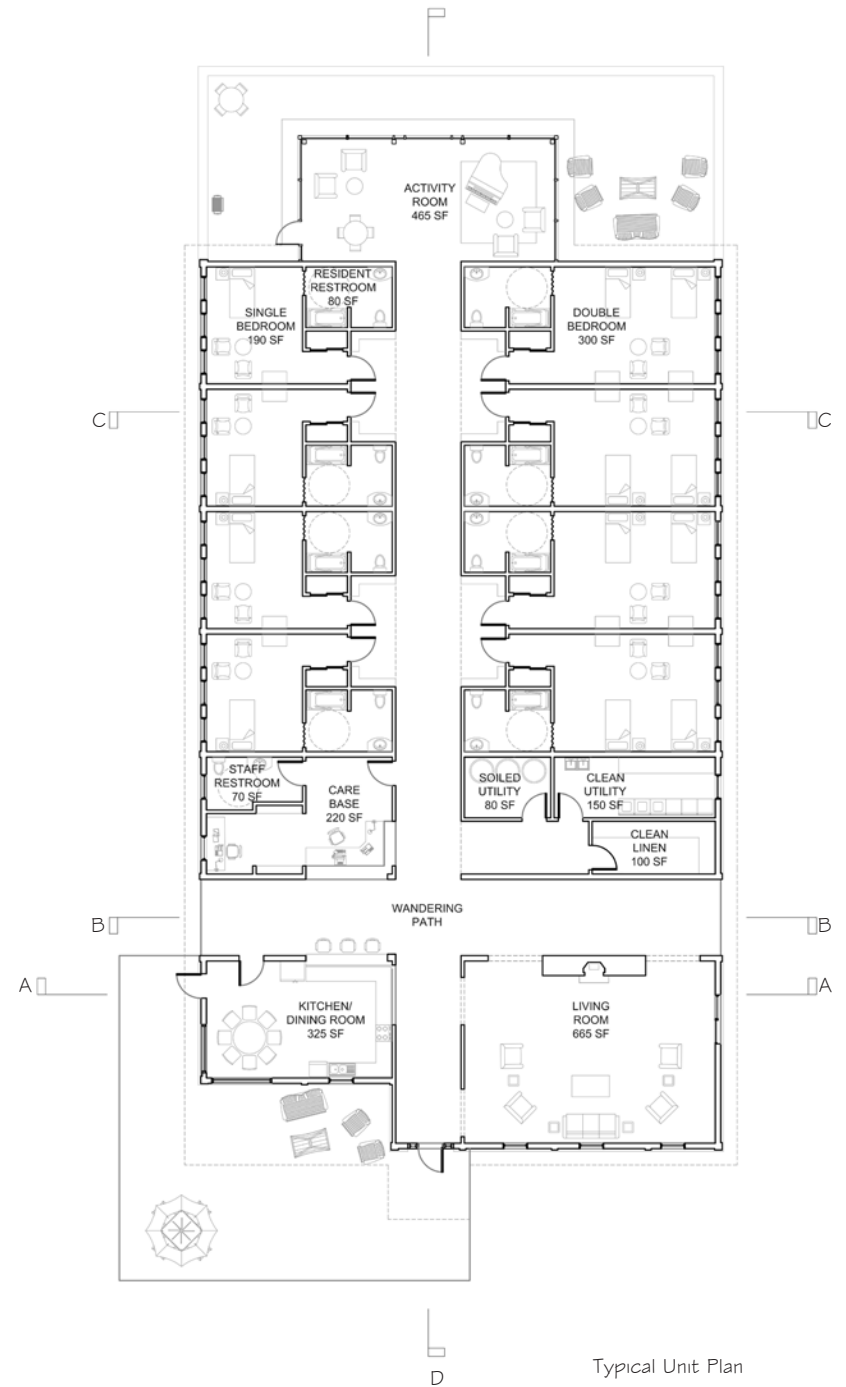
Section CC



Section DD



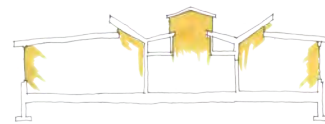
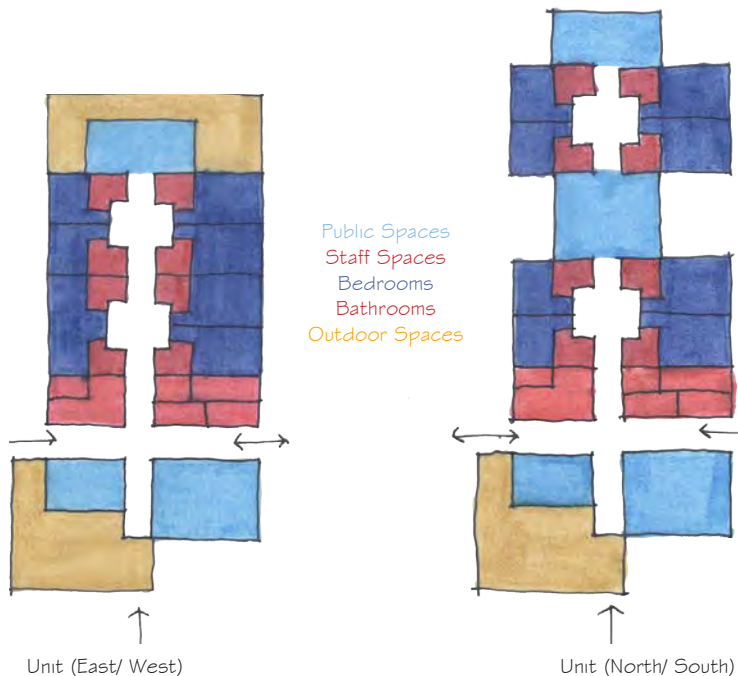
Typical Side Elevation



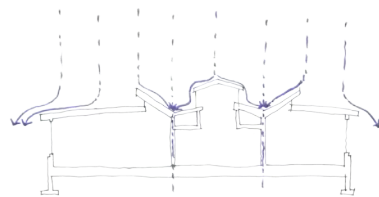
## Final Design Unit Layout



First and Second Stage Unit



Natural Light

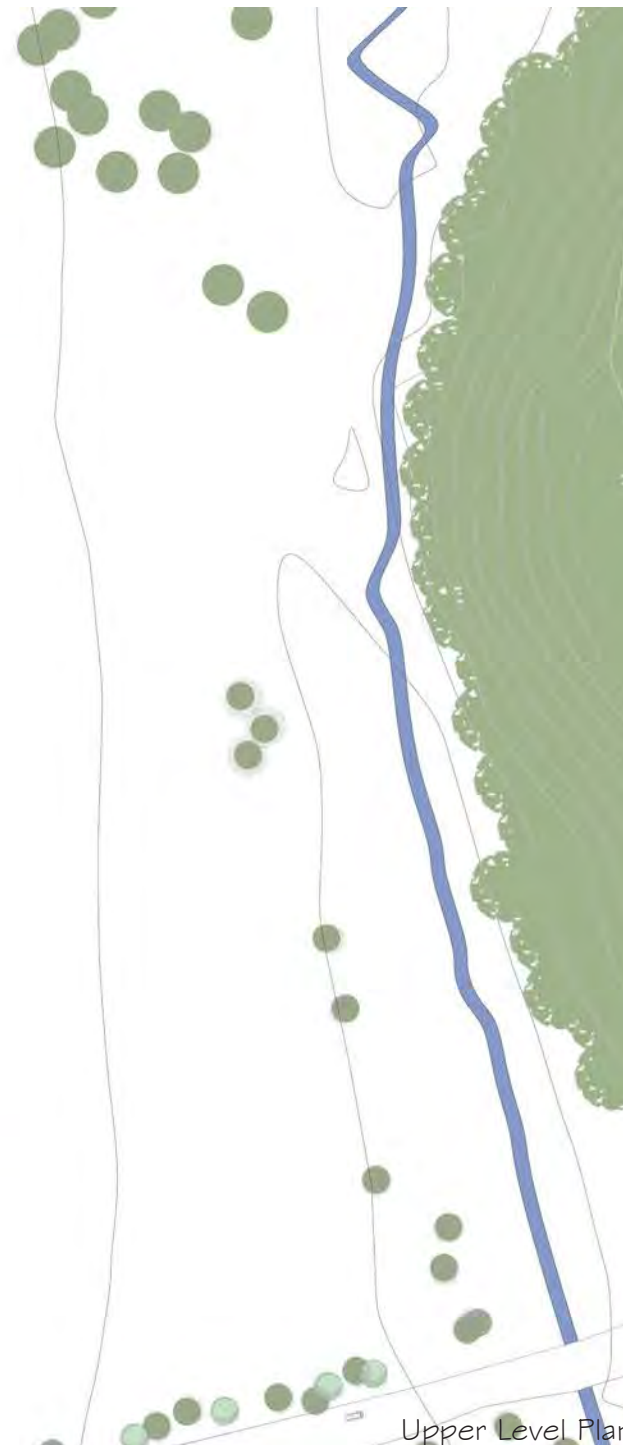


Drainage

As with the previous schemes, the small details were designed first. The prototype of the unit needed to be finalized before anything else.

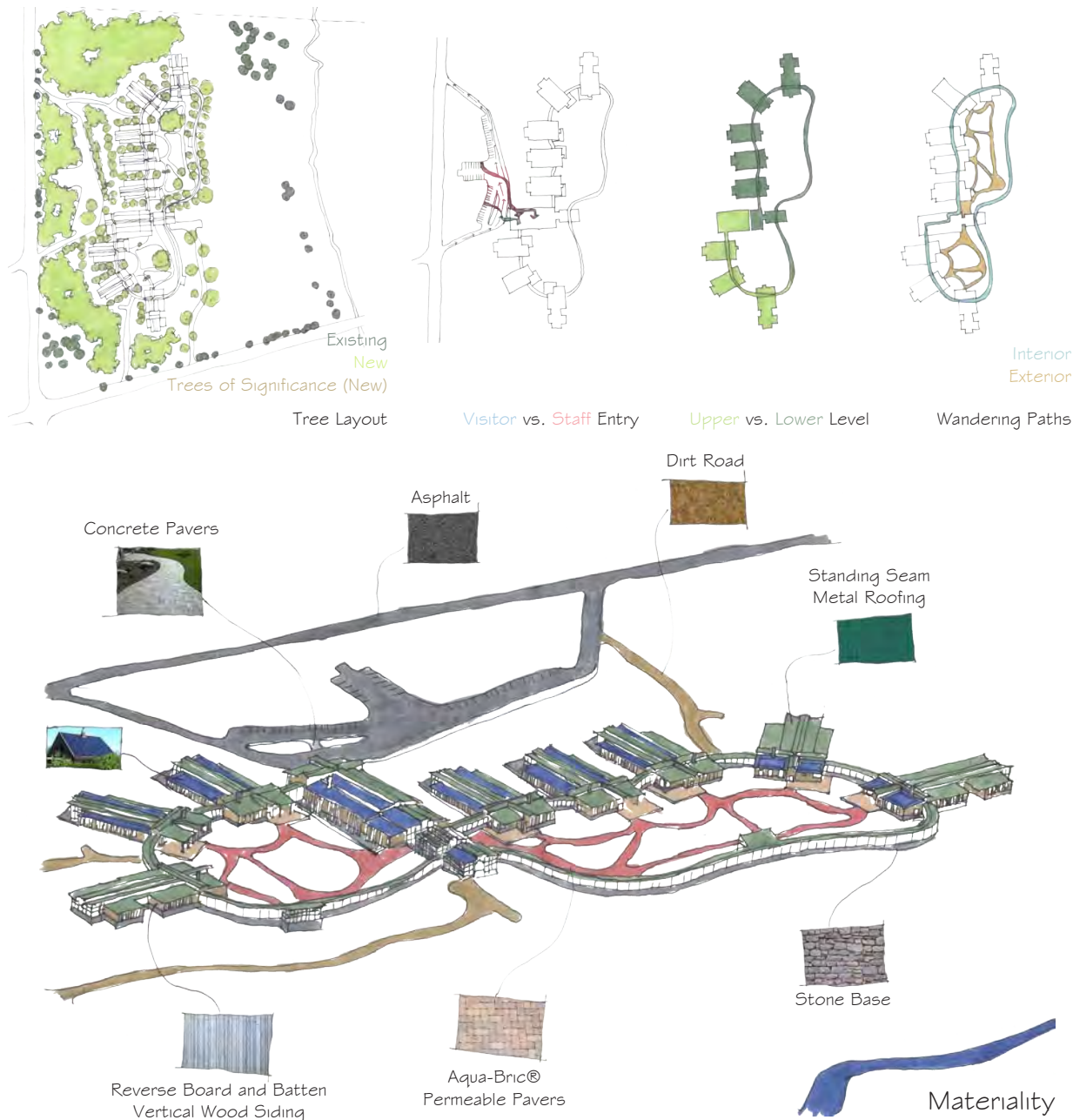
The form was to be low to the ground, and residential in form. As determined from the issues of the past, the wandering path should continue through the unit along the short axis. The common spaces should be along the entry facade to offer views out to the courtyard. As one enters, they would pass along the front porch and enter into a corridor that looks to the glazed activity room that offers a view to the natural environment beyond. The bedrooms are lined along the corridor, but away from the busy wandering path. The bedroom layout remained the same, and area now offered views to the thirty foot wide interstitial zones in between each unit. This is not the best view, however they should be invited to join in conversation in the multiple public spaces throughout the unit. The common spaces are offered the best views on purpose.

The difference between the first/ second stage units and the third stage units is not drastic. The earlier stage residents will have access to a kitchen and dining room. The third stage elders will have an extended porch instead of the kitchen and dining room, since they will not be able to utilize it like the earlier stage residents would be able to. The third stage residents would enjoy the porch space, as they would be able to be wheeled out by staff and enjoy the activities taking place in the courtyard, and the beautiful views.





# Final Design



As a next step, the site layout needed to be determined. It was important not to design solely in plan, as this would create problems in three dimensions. Therefore, to avoid this mistake, the units were placed along the existing contours to ensure that the grade change between units would not exceed a couple of feet. The units should not sprawl out too much from west to east.

The decision was made to split the early stages and third stage units onto two different levels. As centralized staff was located on the upper level in the previous scheme, it made sense to attach the three third stage units to the upper story along the south. The five early stage units would be attached below the mezzanine to the north to decrease their attention to the entry, and give them public spaces they would be able to enjoy, such as a dining room, library, and multifunctional activity space. Each level would have direct access to the greenhouse and chapel, as the wandering path ramps up and down to reach the centralized common building at the center. The decision was made to attach the greenhouse and chapel to the common building. This would decrease the length of the path, and make it easier for residents to get to. The wandering path connections to the common building offers a few different paths for residents to take without a beginning or end. This should keep the wanderers busy most of the time, and decrease the want for escape, as they would constantly be in touch with nature and have direct access to it at all times.



## Final Design Site Strategy



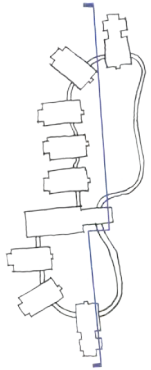
As the unit relationship to the common building was set, the wandering path itself needed to be developed further. The courtyards needed to be secured, as they would be used by all stages. A glass enclosure was the appropriate choice, since it could be used at all times of the year, as well as protect from wind. The roof of the path would be lowered from the units, but keep the same form. The height of the path would be twelve feet at the top of the gable. In order to provide opportunities for ventilation, an operable window system would be installed at just underneath the roof on both sides of the path. This will allow for a comfortable walking experience in the summer as well.



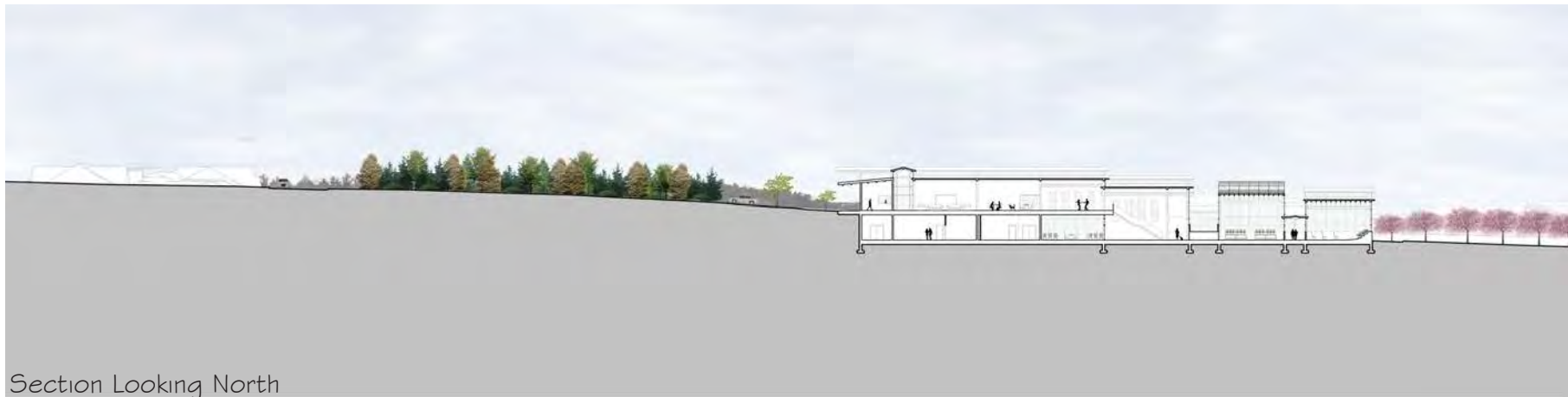
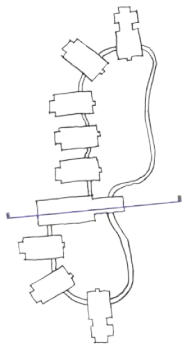
To create a differentiation between the two courtyards, the trees take on a different relationship to the path in both green spaces. The early stage courtyard to the north is lined with cherry blossoms, that will create a beautiful allée of pink flowers in the springtime. It will help residents orient themselves on an everyday basis, and help to determine what time of year is, based on the state of the trees. The third stage courtyard is open, and relatively void of trees to enhance the views, since the view is the best along this path. The hill to the east, and the beautiful mountain ranges will all be visible to the southeast, therefore the path does not need any extra natural enhancement.

The sizes of the courtyards are about half the size they were in the previous scheme. This will create a more comfortable scale for the community.





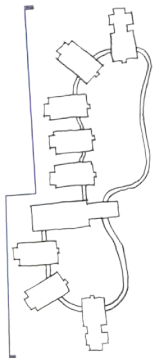
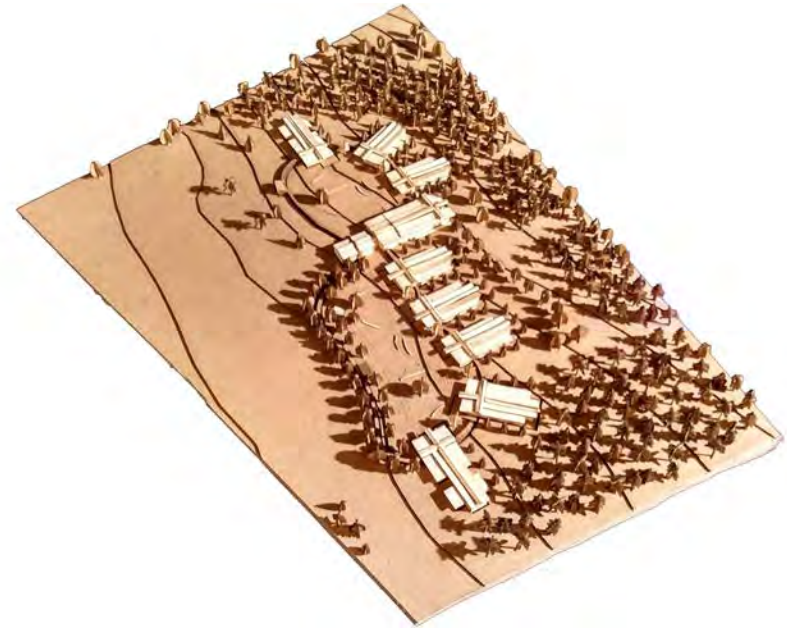
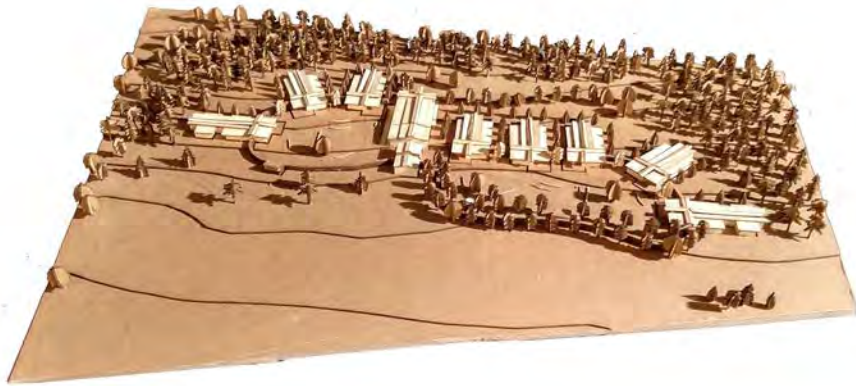
Section Looking West



Section Looking North

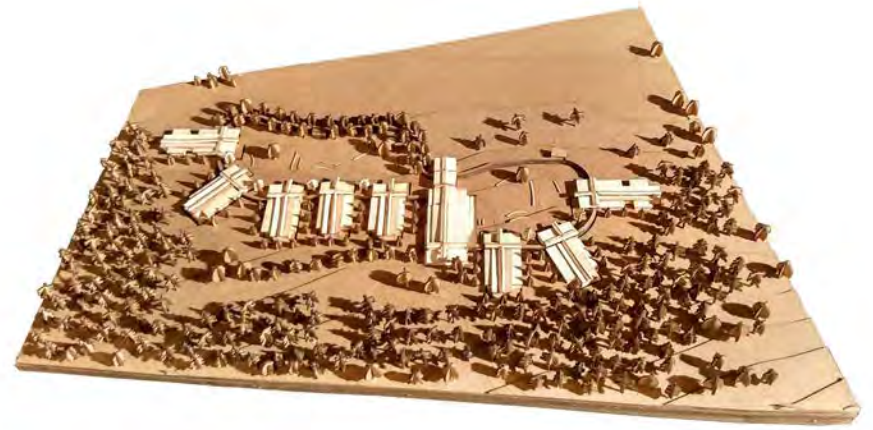
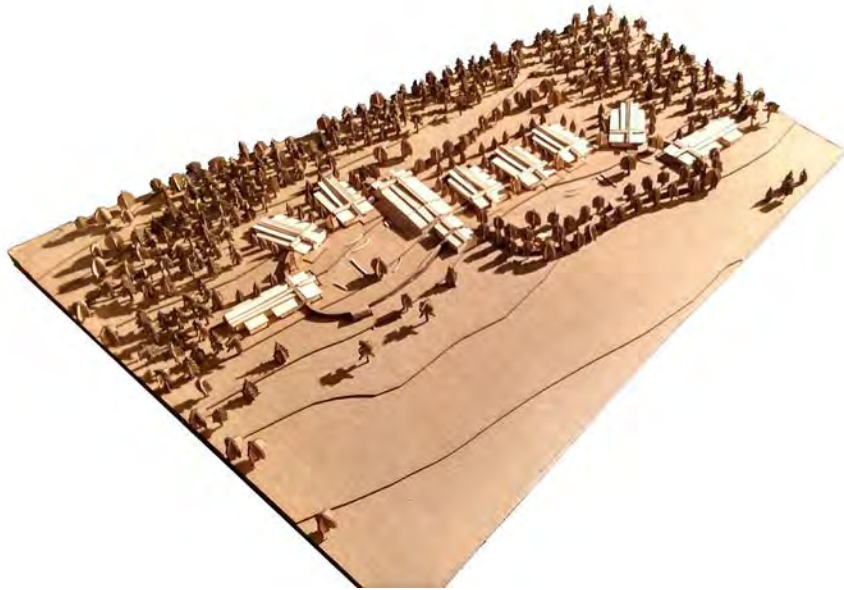
## Final Design Relationship with Topography

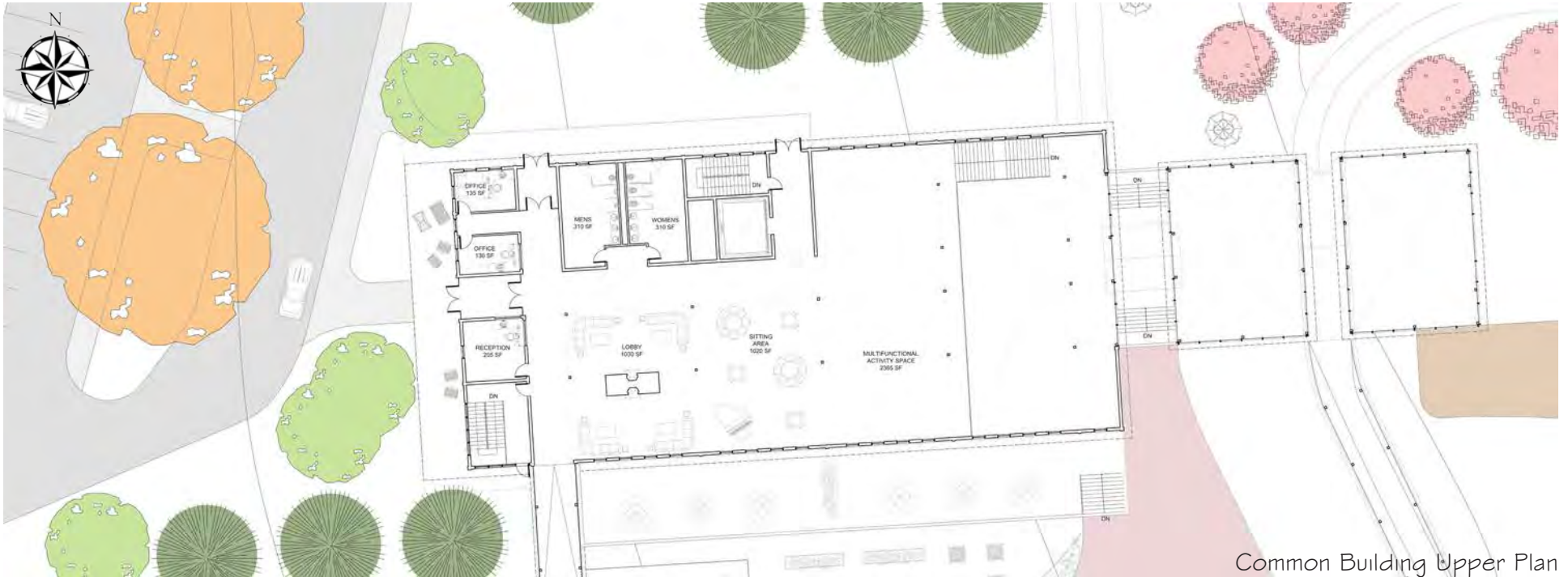






## Final Design Relationship to Site





Common Building Upper Plan



Common Building Lower Plan



## Final Design Common Building Layout



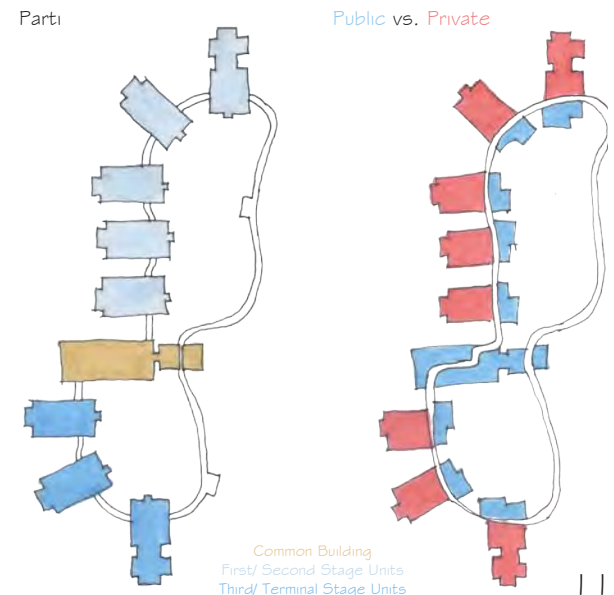
Visitor Entry

The concept of the common building stayed the same from the previous scheme. Visitors and staff would enter on the upper level. Visitors would enter on axis to the wandering path, which would lead their view to the mezzanine. This would offer them a view of the activities below. The roof lowers at this point, and then lowers again to the greenhouse and chapel. The greenhouse and chapel are both transparent, therefore the views of the courtyards would be seen. Staff have their own entry, as office space is located along the west facade. Services are located along the north. A grand stair leads visitors, staff, and able residents to the lower level. An elevator is provided for those who cannot use the stairs. There is a multifunctional activity space on both levels, which would activate the building during the day.

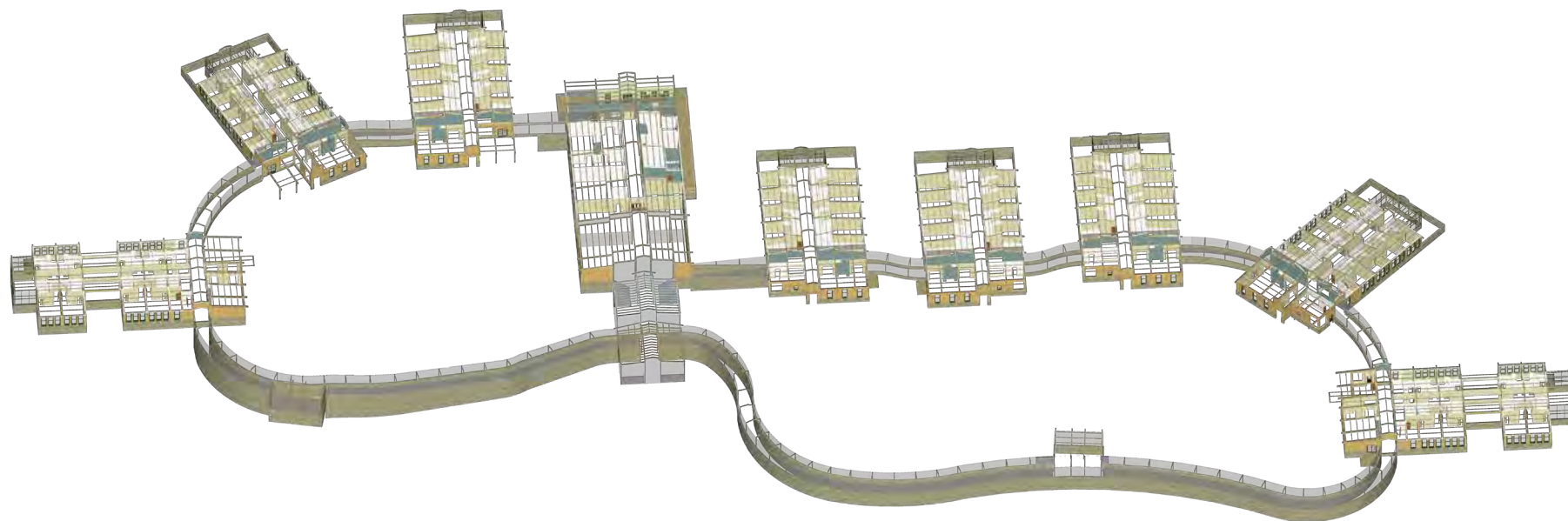


Common Building Lower Level beneath Mezzanine

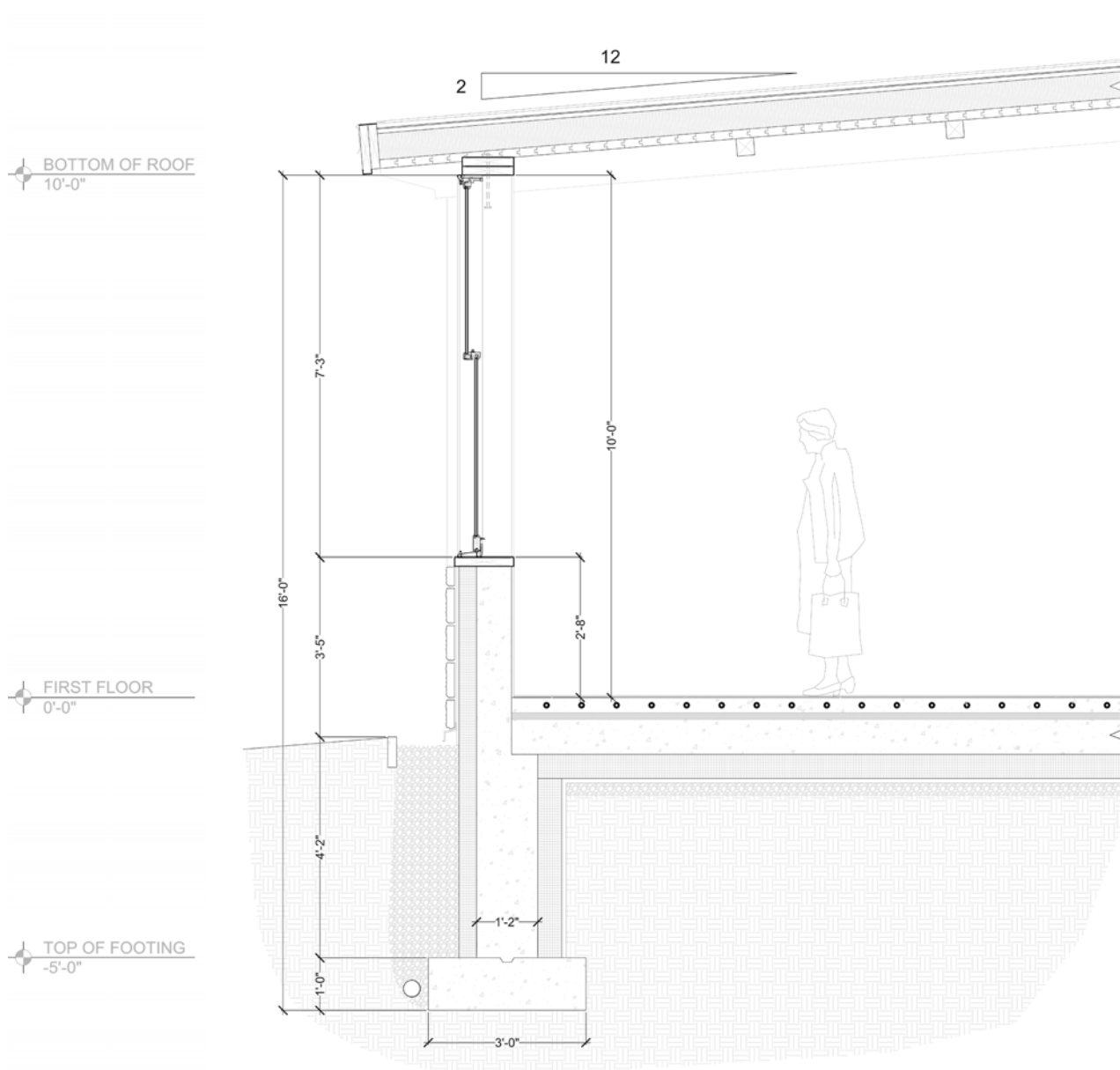
Parti







# Final Design Technical Solutions



## Typical Roof Construction

Metal Solar Roof Panels  
 Standing Seam Metal Roof Deck  
 Aluminum Drip Edge  
 Wooden Fascia Board  
 30# Roofing Felt  
 Water and Vapor Barrier  
 6" Mineral Wool Insulation  
 2 x 4 Tongue & Groove Wooden Roof Deck  
 8" x 6" Heavy Timber Beams @ 15' o.c.  
 4" x 4" Heavy Timber Purlins @ 4' o.c.

## Typical Wall Construction

Manufactured Stone Veneer  
 Mortar Setting Bed  
 Scratch Coat  
 Mortar Adhesive  
 Veneer Waterproofing Membrane  
 4" Rigid Insulation  
 Vapor Barrier  
 Substrate Studs and Sheathing  
 8" Cast-in-Place Load Bearing Concrete Wall  
 1/2" Gypsum Wall Board

## Typical Window Construction

Sheet Metal Framing Anchor  
 2 2 x 12 Wooden Headers  
 7'-4"H x 3'-0"W Double Hung Metal Window  
 2 x 12 Wooden Sill Plate

## Typical Floor Construction

1/4" Carpeting  
 Closed Cell Foam  
 3 1/2" Concrete Screed  
 3/4" Diameter Radiant Heating Tubes @ 8" o.c.  
 2" Mineral Wood Insulation  
 8" Cast-in-Place Concrete Slab  
 6" Rigid Insulation  
 Waterproof Membrane  
 2" Crushed Gravel  
 Compacted Earth

## Typical Foundation Wall Construction

Aluminum Drip Edge  
 6" Deep Gravel Trench  
 Waterproof Membrane  
 4" Rigid Insulation  
 Vapor Barrier  
 1'-2" Load Bearing Concrete Wall  
 5 1/2" Rigid Insulation  
 Waterproof Membrane

Unit Wall Section





## Final Design Perspectives







Living Room



122

Activity Room



Third Stage Lookout

## Final Design Conclusion

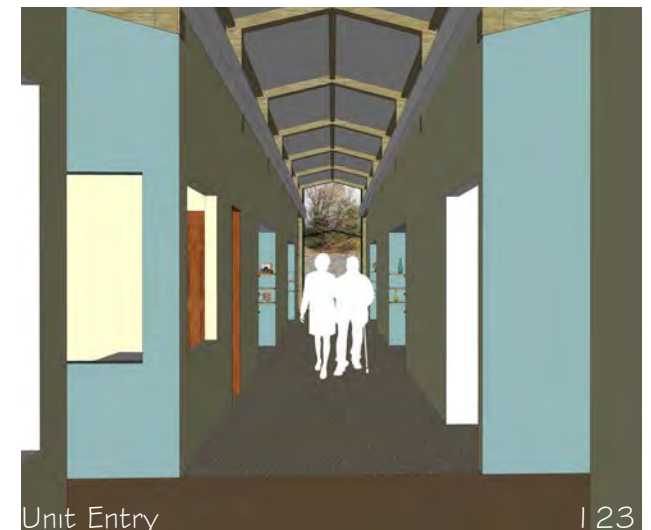


Double Bedroom

This thesis' mission remained the same for the entirety of the design process. The most important pieces of the project are the residents. They deserve to be happy. They deserve to enjoy their lives just as much as anyone else. Though going home is not realistic, the architecture should be as reminiscent of home as possible. They should have ample opportunities to enjoy the outdoors, whether they are gardening or just enjoying the view. They should have choices. Choices on where to eat, what to eat, where to sit, where to relax, who to talk to, what to do, and when to do it. They do not deserve to be locked away. They deserve to have an entire place all to themselves; where they work, play, and wander about. This community is just another place to live and make friends. This is a catalyst for the design of future Alzheimer's communities. This is a continuation of a life worth living.

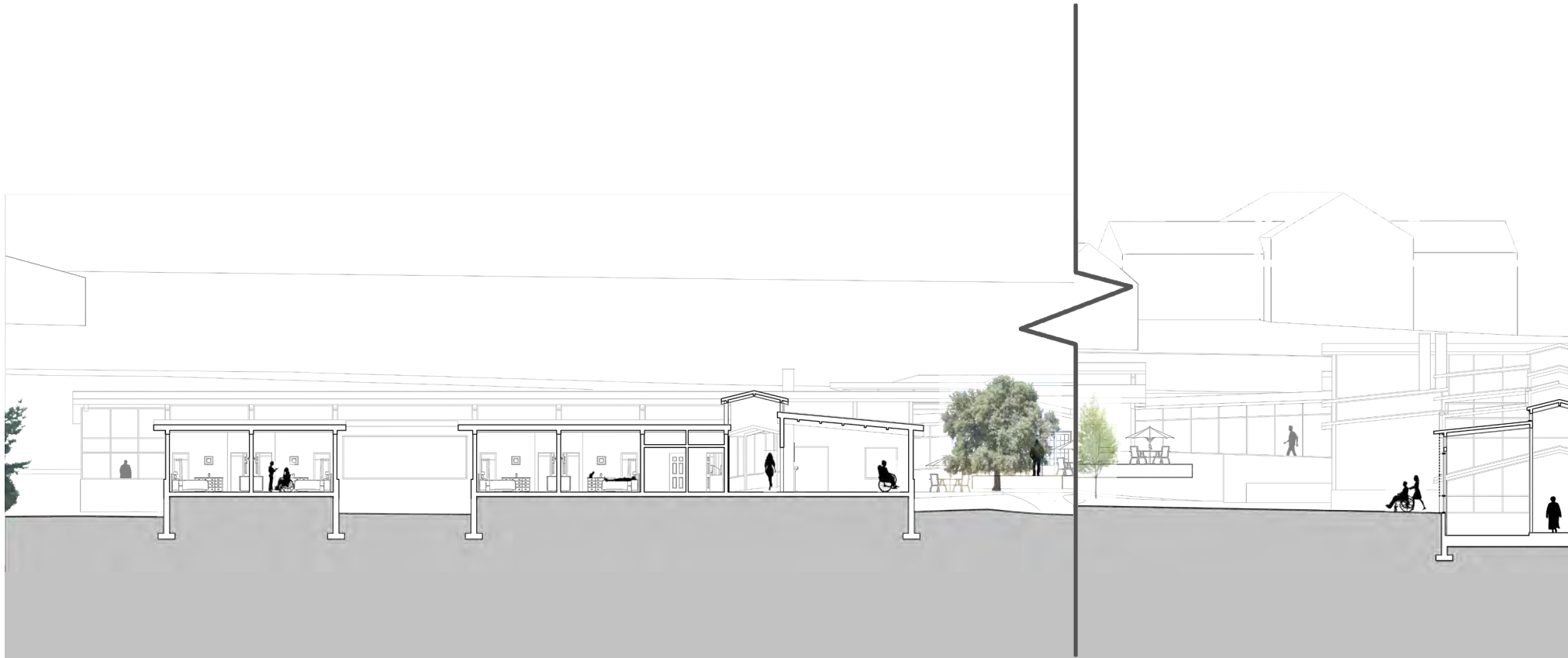


Wandering Path Through Unit



Unit Entry

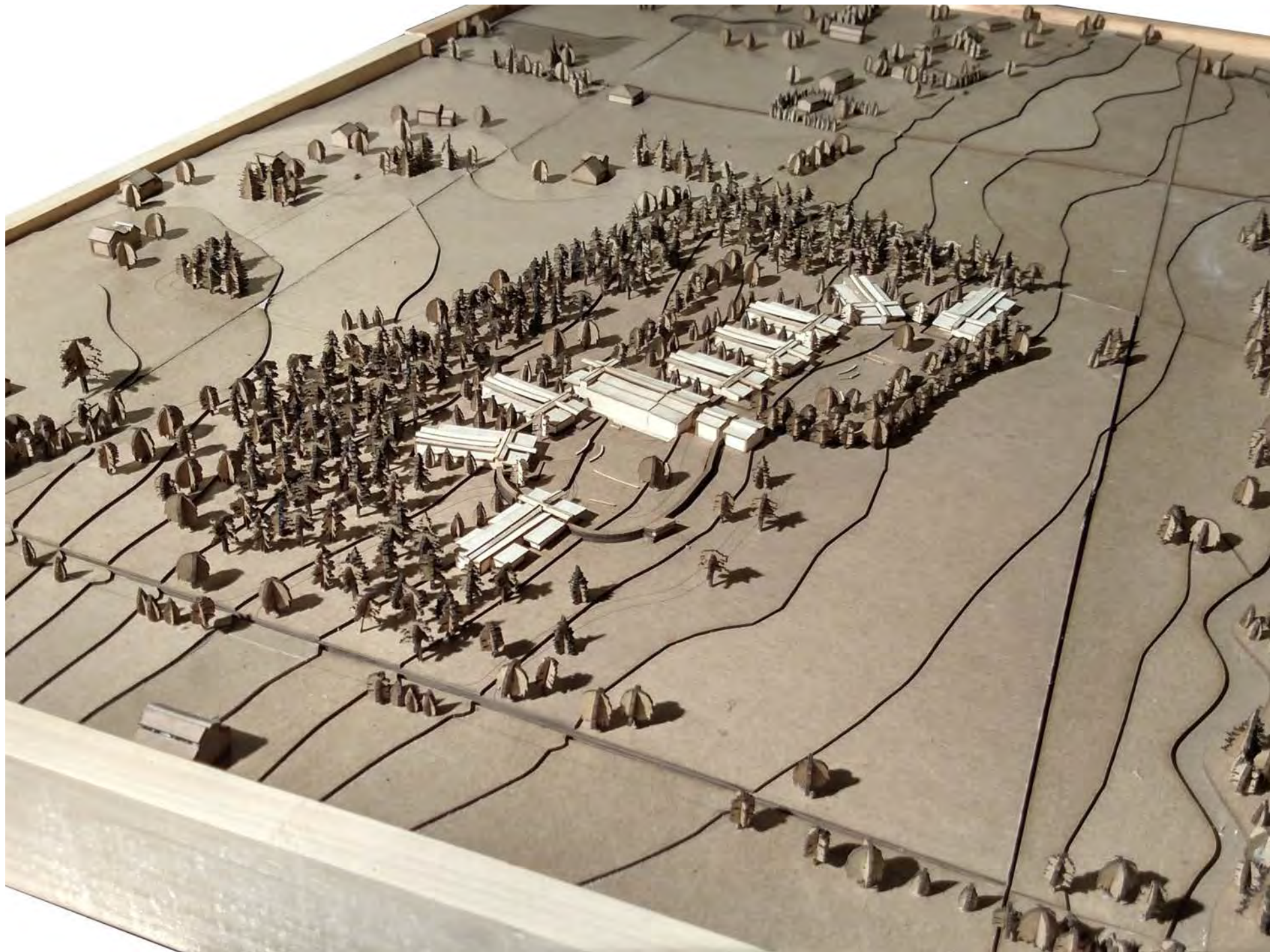




# Final Design



Fragmented Section Looking West





# Sources

"2015 Alzheimer's Disease Fact and Figures." *Alzheimer's Association*. 2015. <http://www.alz.org/facts/overview.asp>

"About." *The Schoolhouse*. 2015. <http://www.theschoolhousevt.org/about/>.

"A Brief History of Shelburne." *University of Vermont*. Accessed 14 Nov 2015. <http://www.uvm.edu/shelburnelandscapes/humans.html>.

Allen, Edward. *The Architect's Studio Companion*. Hoboken, NJ: John Wiley & Sons, Inc., 2012.

Anderzhon, Jeffrey W. et al. *Design for Aging: International Case Studies of Building and Program*. Hoboken, NJ: John Wiley & Sons, Inc., 2012.

"The Architecture and Design of Maggie's West London." *Maggie's*. Accessed 22 Sept 2015. <https://www.maggiescentres.org/our-centres/maggies-west-london/architecture-and-design/>.

Brawley, Elizabeth C. *Designing for Alzheimer's disease: Strategies for Creating Better Care Environments*. Hoboken, NJ: John Wiley & Sons Inc., 1997.

Brawley, Elizabeth C. *Design Innovations for Aging and Alzheimer's: Creating Caring Environments*. Hoboken, NJ: John Wiley & Sons, Inc., 2006.

"Burlington (city), Vermont." *United States Census Bureau*. 14 Oct 2015. <http://quickfacts.census.gov/qfd/states/50/5010675.html>.

"Burlington, VT Snowfall." *National Weather Service Forecast Online*. 28 Oct 2014. <http://www.weather.gov/media/btv/climo/extremes/late-erl-snow.pdf>.

Carr, Robert F. "Nursing Home." *Whole Building Design Guide*. 21 Apr 2011. [http://www.wbdg.org/design/nursing\\_home.php](http://www.wbdg.org/design/nursing_home.php).

Climate Consultant ©

"Climate: South Burlington." *Climate Data*. Accessed 9 Nov 2015. <http://en.climate-data.org/location/19097/#climate-graph>

Department of Justice. "2010 ADA Standards for Accessible Design." 15 Sept 2010. [http://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards\\_prt.pdf](http://www.ada.gov/regs2010/2010ADAStandards/2010ADAStandards_prt.pdf)

"Departments and Programs." *The University of Vermont Medical Center*. 2015. <https://www.uvmhealth.org/medcenter/Pages/Departments-and-Programs.aspx>.

Facility Guidelines Institute. *Guidelines for Design and Construction of Health Care Facilities*. Chicago: ASHE(American Society for Healthcare Engineering of the American Hospital Association), 2010.

"Find a Home." *The Green House® Project*. Accessed 22 Sept 2015. <http://www.thegreenhouseproject.org/about/find-a-home>.

Google Earth ©

Green Building Studio ©

"Green House Project." *Pacific Atelier*. 2015. <http://www.pacificatelier.com/?p=331>.

"History." *City of Burlington, Vermont*. Accessed 14 Nov 2015. <https://www.burlingtonvt.gov/CEDO/History>

Home Layout." *St. John's*. Accessed 22 Sept 2015. <https://www.stjohnsliving.org/about-st-ohns/home-layout>.

"Land Development Regulations." *Town of South Burlington, VT*. 10 Nov 2015. [http://www.sburl.com/vertical/Sites/%7BD1A8A14E-F9A2-40BE-A701-417111F9426B%7D/uploads/LDRs\\_DRAFT\\_For\\_Council\\_Hearing\\_12-7-2015\\_Complete1.pdf](http://www.sburl.com/vertical/Sites/%7BD1A8A14E-F9A2-40BE-A701-417111F9426B%7D/uploads/LDRs_DRAFT_For_Council_Hearing_12-7-2015_Complete1.pdf).

Lewin, Tamar. "Alzheimer's and Architecture: A Search for Order." *The New York Times*. 2 May 1990. <http://www.nytimes.com/1990/05/02/us/alzheimer-s-and-architecture-a-search-for-order.html?pagewanted=>.

Medina, Samuel. "The Story of Maggie's Centres: How 17 Architects Came to Tackle Cancer Care." *Arch Daily*. 27 Apr 2014. <http://www.archdaily.com/498519/the-story-of-maggie-s-centres-how-17-architects-came-to-tackle-cancer-care>.

"Memory Care." *The University of Vermont Medical Center*. 2015. <https://www.uvmhealth.org/medcenter/Pages/Departments-and-Programs/Memory-Program.aspx#TabTwo>. Millard, James P. *Historic Cities, Villages, and Towns...*

Burlington, Vermont: Home of General Ethan Allen. *America's Historic Lakes*. Accessed 14 Nov 2015. [http://www.historiclakes.org/towns/burlington\\_gallery.htm](http://www.historiclakes.org/towns/burlington_gallery.htm)

O'Connor, Anahad. "Exercise and Setting Ease Alzheimer's Effects." *The New York Times*. 4 Nov 2015.

Pallasmaa, Juhani. "Hapticity and Time: Notes on Fragile Architecture." *RIBA Annual Discourse*, 1999.

"Paimio Sanatorium." *Alvar Aalto: Paimio Sanatorium 1928-1933*. Accessed 23 Sept 2015. <http://www.alvaraalto.fi/net/paimio/paimio.html>.

"Parks." *South Burlington Recreation Department*. Accessed 14 Nov 2015. <http://www.sburlrecdept.com/parks.php>.

Perkins, Bradford L. *Building Type Basics for Senior Living*. Hoboken, NJ: John Wiley & Sons, Inc, 2013.

Perry, Leonard. "Native Trees for the Landscape." *University of Vermont*. Accessed 15 Nov 2015. <http://www.uvm.edu/pss/ppp/articles/nattree.htm>.

"Town of Shelburne: Zoning Bylaws." *The Town of Shelburne, VT*. 19 Aug 2015. <http://www.shelburnevt.org/documentcenter/view/728>.

University of Vermont Historic Preservation Program. "Burlington 1830: Introduction." *University of Vermont*. Accessed 14 Nov 2015. <http://www.uvm.edu/histpres/HPJ/burl1830/intro.html>

"Soil Map: Chittenden County." *United States Department of Agriculture Natural Resources Conservation Service*. Accessed 31 December 2015. <http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. w

"Vision/ Mission." *The Green House® Project*. Accessed 22 Sept 2015. <http://www.thegreenhouseproject.org/about/visionmission>.

Weal, Francis and Francesca Weal. *Housing for the Elderly: Options and Design*. London: The Mitchell Publishing Company Limited, 1988.

Zeisel, John, et al. "Environmental Correlates to Behavioral Health Outcomes in Alzheimer's Special Care Units." *The Gerontologist*. Vol. 43, no. 5 (2003): 697 - 711.



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## The Green House Effect: Homes for the Elderly to Thrive

### Jane E. Brody, *New York Times*, December 15, 2014

Jane E. Brody (1941 - Present)  
American Author on Health and Nutrition Topics for the *New York Times*  
Graduated from University of Wisconsin-Madison in 1963 with a Masters in Science Writing

#### Synopsis:

During the Industrial Revolution in the 18th and 19th centuries, the typology of a nursing home was born. Before this time, when women worked in their homes, the elderly were cared for by their families. These days, while most women (and men) have daytime or nighttime jobs, the older generations of their families have to choose not to be in a retirement nursing home community if they cannot live on their own.

Over the last century, nursing homes have become known as treatment centers that treat elderly "patients" as if they have an acute illness. These facilities have become very monochromatic and depressing not only for the elderly, but for their families.

The Green House® Project has become a "catalyst" for the improvement of nursing homes. Rather than a hospital-type setting, these facilities are broken up into small buildings that house ten people at a time. As seen in the plan, (top left hand corner) the residential units are organized around a common area that contains a kitchen, living area, and dining room. With nurses assigned to a particular building, they are responsible for the ten residents, and are able to connect with them on a more personal level. The residents have the freedom to choose when they want to eat and when they want to do other activities within reason.

This type of living community has increased positivity in the tenants, which have improved their health and well-being. Residents are more likely to talk, be able to walk without a walker, and eat on a regular basis. This is most likely due to the fact that the setting is more human and less institutionalized. They have access to the outdoors, and are able to communicate freely.

#### Conclusion:

The Green House® Project is a good example of the change in the nursing home typology. Though there are still problems being worked out, it has made a drastic improvement on the health of the elderly living there, statistics have shown. Though these complexes may not be the most contemporary Architecturally speaking, it makes an effort to change the depressing nature of nursing home societies. This is how we can help the residents, but also the nurses and staff, as well as the families that are affected by putting their loved one in a nursing home.



## The Task of Architectural Education by N. Michael McKinnell, FAIA

### Thresholds, Spring 1996 (MIT)

N. Michael McKinnell, FAIA (1935 - Present)  
Former at Kohn Pedersen Fox Associates  
Graduated from Columbia University in 1960 with a Masters in Architecture

Won the 1962 design competition for Boston City Hall  
(with former Columbia professor and design partner Gerhard Kallmann (1915 - 2012))

#### Synopsis:

The "Task of Architectural Education" is based on a student's skill in the craft of realization and understanding the value of a design solution in its context. It is up to the teacher to stimulate the student to deal with specific lessons that the student will question and test. A curious and motivated student will think of creative ideas to solve the problem, without going beyond the issue at hand.

With the set of skills that the student has achieved up until their thesis, they should be able to prepare their own set of ideas and questions, rather than the teacher. The student should not just pick a building type, site, and program and go from there. There needs to be a larger issue to solve. The thesis should be clear and concise and focus on a few different issues that one can fully understand, rather than trying to solve too many problems at once. The student should be open to any criticism and judgment that comes their way, however with their educational background, they should not have a problem with that.

#### Conclusions:

McKinnell understands how Architectural training is similar and different to other careers. He compares Architectural education to a career in musical composition for a person who has never played an instrument. Students have the advantage of studying past examples of buildings or musical compositions, but do not have the experience of creating it themselves. These students need to turn to other means to understand the profession, in Architecture, it is drawing, painting, sculpture, etc. This is where a student starts, and throughout their education, they will learn the techniques to solve the different problems that they will be given again and again.

When the idea of a thesis comes to the table, the student must look back at their previous training and realize what the problems were from before and how they solved them at their teacher's discretion. Through this training, the student should become more and more independent and thus able to execute a project that will aim to solve various issues depending on the project and location, whether it be social, political, economical, etc.



## The Task of Architectural Education by N. Michael McKinnell, FAIA

### The Green House Effect: Homes for the Elderly to Thrive

#### How these articles relate:

Though these articles are different in subject matter, they do relate to the idea of a thesis. This relates to McKinnell's article, because the idea of a nursing home is not just based on the building or community itself, but the people who go to live in a nursing home or facility. This goes beyond the well-being of the elderly, which is primary, but also the efficiency and attitude of the staff. Without a caring staff, any nursing home or retirement community would fail to operate effectively. This is not just about painting a pretty picture.

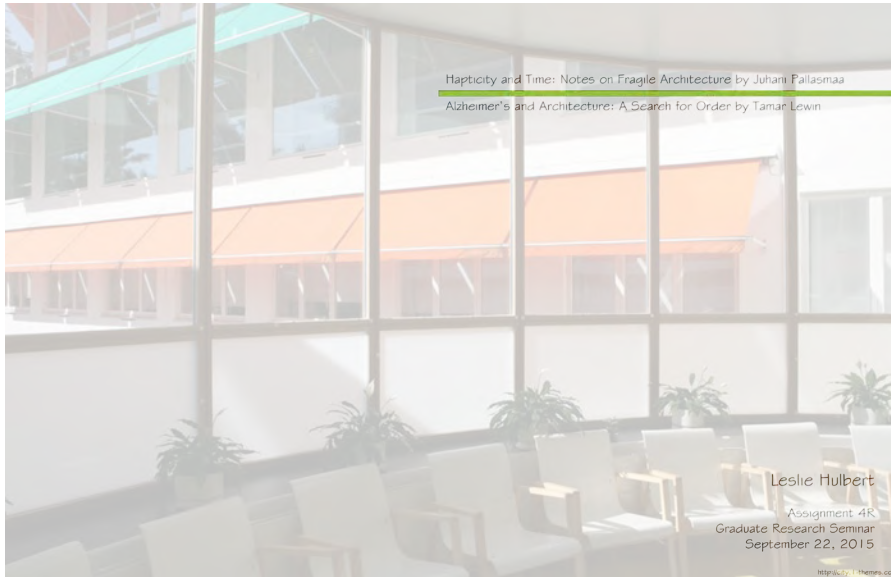
Economically, it is known that nursing homes are not very affordable for families. It would be necessary to keep costs low in building, in order to lower the costs for the residents and their families. All elders deserve the right to live in a community that will tend to their every need. This is a hard time for anyone involved, and the last thing they should have to do is suffer financially.

Socially, it is known that not all elders need the same amount of care. Rather than group the elders based on their levels of need, it is important for them to mix and mingle with others in order for them to use different facets everyday, so they don't feel trapped. It is crucial for the residents to feel as if they are still part of the outside world, otherwise they will slip into depression and suffer from loneliness, as is the case with many nursing homes in America.

Through my Architectural training, I have realized how important it is to understand the situation at hand, and understand the people involved. It is important to understand the situation that has been established in order to fully understand the problem. The location of the site will be a direct correlation with the data researched. In order to design a cohesive thesis, it is important that I research what has been done already, and how it has been successful or unsuccessful. By studying this, I plan to design a community that will create social, and economical change for everyone involved.

## Appendix A Thesis Prep Research Presentations





## Hapticity and Time: Notes on Fragile Architecture by Juhani Pallasmaa RIBA Discourse Lecture, 1999

Juhani Pallasmaa, FAIA (1936 - Present)  
Principal Architect at Aalto Architects; Juhani Pallasmaa KY  
Former Professor and Dean of the Helsinki University of Technology

Architectural Theory Writer  
Designed Multiple Buildings, mostly in Helsinki, Finland

### Synopsis:

The main argument of "Hapticity and Time," is the relationship between Architecture and People in an emotional sense. Pallasmaa looks to Art and Architecture as a means of evoking emotions in the people who experience it. Architecture is about the senses, most importantly "touch." Pallasmaa states, "Touch is the parent of our eyes, ears, nose, and mouth." He believes that the Architecture of the Modern Movement into today has become mostly about aesthetics, as a reaction to technological advances. He doesn't see this approach as empathetic to time. Time is inseparable, and the language of the Architecture should embrace time, rather than avoid it.

Specific use of materials should be based on its relationship with time. He uses stone, brick, bronze, and wood as examples of materials that "speak plausibly of time." Power and form should evoke positive reactions, such as with Ancient Monuments.

Pallasmaa believes that an Architectural design should grow over time. He does not believe in one concept during all decisions. The decisions should be made based on the human experience as the work of Alvar Aalto exemplifies. In the example of the Villa Mairea and the Paimio Sanatorium, the human experience is the main driving factor for all design decisions. Spatial qualities are number one. Pallasmaa defines this approach as "Fragile Architecture."

The universal approach of Modernism put its Architecture in a vacuum. The solid geometry and flat materials do not support human movement. It is a natural way. The concepts are seen as strong, but to Pallasmaa, it is the work concepts that make the most impact on a human level. He calls it the "Fragile of Architecture."

### Conclusion:

Pallasmaa is clear on his stance on Architectural design. He believes that the most successful Architects are the ones who put the inhabitants first above the form of the building. He looks to Art, as well as Architecture to support his theories on "Fragile" and "Fragile" Architecture. Though these terms may sound negative, he supports these theories with effective examples that have stood the test of time in a positive way.



## Hapticity and Time: Notes on Fragile Architecture by Juhani Pallasmaa Alzheimer's and Architecture: A Search for Order by Tamar Lewin

How these articles relate:

Both of these articles are focused on the human experience in a building. Pallasmaa is a firm believer in focusing on spatial qualities over a strong design concept that helps inform every decision in the design process. Pallasmaa's example of the Paimio Sanatorium by Aalto can be related to the typology of an Alzheimer's facility. The treatment of patients is based on how fundamental needs, such as activities to reduce light, natural surroundings, and access.

Aalto bases all design decisions on the treatment of tuberculosis. He was knowledgeable on the disease itself, and sought to design in a suit a way that would slowly increase the strength of the patients, so they could get better sooner. The Corinne Dolan Alzheimer's center is also inspired by the well-being of the patients. Though these patients can not improve fully, the progression of the disease can be slowed down if they have a good quality of life, including the staff as well as the architecture.

Though the use of the materials was not discussed in Lewin's article, it can be concluded that the more home like the spaces are, the more comfortable the patient will be. The patients need familiarity, in order to improve their well-being. They need to feel like they are long like they were in the past. Ultra Modern aesthetics would be inappropriate for this typology, and would most likely not be used to its full potential. Alzheimer's patients need order, structure, and stimulation, other than the usual, since many of these patients can not see as well as it is. The Architect needs to put themselves in their shoes in order to create an Architecture that is useful for them. Once the Architect does this, then they will be able to make informed design decisions that will make a positive impact.

Pallasmaa's focus on time is something that most Architects don't think of. Architect's need to imagine how their buildings will work in the future. If Modern aesthetics are used with a "strong" Architectural concept, the attention may be overlooked by the users, and they might come to resent the building. Aalto's buildings have stood the test of time, and are mostly still in use. Though tuberculosis is not a common disease as of today, the sanatorium is used as a University Hospital. The focus on the patient has made this building an effective manner of how a building can age gracefully. A building can still be added many years later than the users will find it with respect and recognize it when used for its true purpose to impact people's lives in an effective way, as it did when it was built.



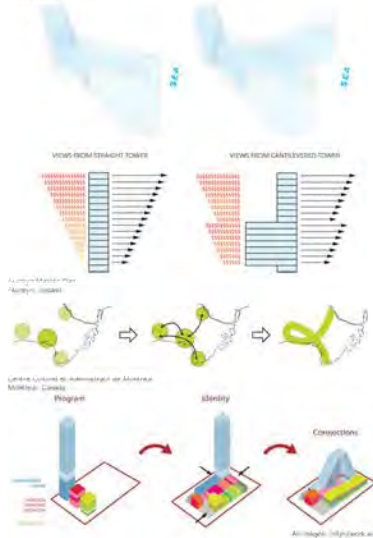


## Appendix A Thesis Prep Research Presentations





Acropolis Tower  
Beirut, Lebanon



## Program Primer v1.0: A Manual for Architects by D. Wood and A. Andraos

*Praxis*, Issue 8, 2006 p. 111-121

### Main Themes:

- Never Underestimate the power of a Diagram
- Quantitative and Qualitative Analysis should work together and create "synergy"

Embrace the unexpected clashes of program

Think beyond the written program that is given by the client, and reinvent spatial qualities that will help to sell the project

Examples of rethinking program:

#### 1.) Acropolis Tower

Zoning codes played a key role in this project, needed to embrace zoning codes rather than let them take over the project at the end

Differed from typical residential tower (as seen in Sectional Diagram)

Optimized different views of the site (i.e. toward the Mediterranean Sea)

5th and 6th Floors more desirable than 7th and 8th floors

#### 2.) Acropolis Master Plan

Plan includes various types of program, linked by a "common thread"

Continuous Pedestrian loop that connects all main sights in the city

Three Programs: Residential, Activity, and Ecology (Green Spaces)

#### 3.) Centre Culturel et Administratif de Montreux

Different programs merged into one form

Avoided a "schizophrenic pastiche"

Includes the Provincial Government, School for the Performing Arts, and Main Concert Hall

Uniqueness is created with different kinds of entries appropriate to each type of program (Public vs. Private)



## Program Primer v1.0: A Manual for Architects by D. Wood and A. Andraos

*Praxis*, Issue 8, 2006 p. 111-121

Dan Wood, AIA, LEED AP (P - Present)

Born in Rhode Island

Principal Architect and Founder of WORKac (Work Architecture Company) located in New York City

Has Taught at Princeton University, Cooper Union, Columbia University, Ohio State University, and UC Berkeley School of Environmental Design

Held the Louis I. Kahn Chair in 2013-14 at Yale School of Architecture

Anne Andraos (P - Present)

Born in Beirut, Lebanon

Principal Architect and Founder of WORKac (Work Architecture Company) located in New York City

Dean of Columbia University's Graduate School of Architecture, Planning, and Preservation

Has Taught at Princeton University, Harvard University, the University of Pennsylvania, and the American University in Beirut

Serves on the Board of the Architectural League in New York, and the Advisory Board of the Arab Center for Architecture in Beirut

Work Architecture Company (2003- Present)

"WORKac is interested in pushing architecture at the intersection of the urban, the rural, and the natural. We embrace reinvention and collaborate with other fields to rethink architecture - in the world."

Specialize in Master Planning, Sustainable Urban Projects and Interiors

Have written several books, including *49 Cities* (2009), *About the Pavement: The Firm* (2010), and *54 Years of WORKac*

## Nursing Home by Robert F. Carr

*Whole Building Design Guide: A Program of the National Institute of Building Sciences*, April 21, 2011

### Fundamental Design Guidelines:

Create a home-like environment, rather than an institution. Remember that these patients are most likely there for the long term and do not reject hospitalization

Need to respond to the physical and emotional needs of patients and their families

Think of the Nursing Home as a world all on its own

Need to meet the standards of Medicaid, as well as Medicaid support (which is much more demanding)

The architect needs to be knowledgeable on the particular Nursing Home's mission and patient profile

### Design Considerations:

Use of natural light will give off a more home-like feeling, as well as traditional residential qualities on the inside and the outside

Use non-reflective and familiar surfaces (keep in mind that some colors and textures are inappropriate for elders, since it can confuse them)

Include access to the outdoors

Provide space for privacy and personalization

Make sure spaces are easy to find, use, and identify (promote easy way finding techniques)

Minimize distance of travel and allow for easy supervision for staff

Make sure toilets are visible from all spaces (bedrooms and common spaces)

Make sure staff can easily clean the facility, since sanitation is a main priority in Nursing Homes

Provide effective ventilation

Comply with ADA requirements or CSA ADA Accessibility Standards (if Federally funded)



## Appendix A Thesis Prep Research Presentations



### Nursing Home by Robert F. Carr

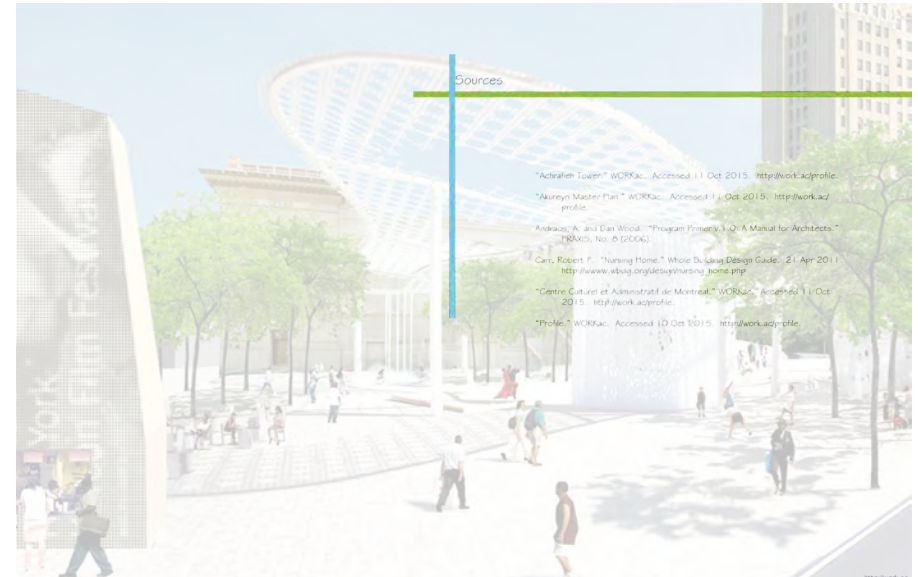
*Whole Building Design Guide: A Program of the National Institute of Building Sciences, April 21, 2011*

#### Technical Solutions:

- Avoid tripping hazards by using non-reflective surfaces and non-slip floors
- Control access to hazardous spaces (stairways and exits for visitors and staff)
- Make sure private spaces are safely secured to protect property of patients and staff
- Nurse workstations should be as private (visual and acoustic) as possible to comply with HIPAA rules and regulations to secure and protect patient medical information

#### Aesthetics:

- Make sure Artwork is prevalent
- Provide clocks and calendars to prevent disorientation and confusion
- Use signage with large text where appropriate
- Use "landmarks" around the building near popular spaces (i.e. Fountains, Plants, and Benches)
- Increase use of natural light as compared to typical residences
- Provide a variety of spatial experiences
- Exterior of buildings should be empathetic to surrounding context
- Pay attention to scale and proportion of each room (large open spaces for the public, and small comfortable bedrooms for individual patients)



#### Sources

- "Activating Tactile" WORKAc. Accessed 11 Oct 2015. <http://work.ac/profile>
- "Akureyn Master Plan" WORKAc. Accessed 11 Oct 2015. <http://work.ac/profile>
- Andrew, A. and Dan Wood. "Program Priority: User A Manual for Architects." (2006). No. 6 (2006)
- Carr, Robert F. "Nursing Home." Whole Building Design Guide. 21 Apr 2011. [http://www.wbdg.org/design/nursing\\_home.php](http://www.wbdg.org/design/nursing_home.php)
- "Centre Culturel et Administratif de Montréal." WORKAc. Accessed 11 Oct 2015. <http://work.ac/profile>
- "Profile." WORKAc. Accessed 10 Oct 2015. <http://work.ac/profile>

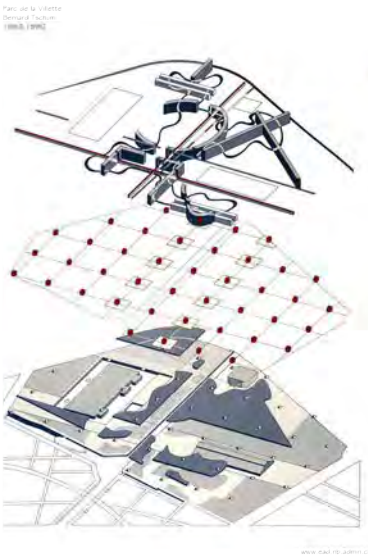




Leslie Hulbert

Assignment BR  
Graduate Research Seminar  
October 29, 2015

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Introduction by James Corner

*Recovering Landscape as a Critical Cultural Practice*, 1999, p. 1-26

Landscape Architecture should focus on enhancing a specific culture, rather than being an aesthetic or an after-thought. It should enhance the mind.

Examples of Modern Architecture were mostly designed in a vacuum, and most likely did not consider place.

The landscape architect or architect should think about how their projects will respond to the progression of time.

They should also look back at how the land was used in the past to inform decisions and enhance the cultural history of place.

Ecology should be considered, as to how certain landscape will effect biodiversity and habitat.

Landscape and the Environment are not the same. The environment links a society with space and nature. Landscape is the "visible aspect" of this relationship.

Landscape should be designed with perspectives, as well as maps, plans and other means of representation (sections, diagrams, aerial photography, etc.)

In recovering landscape, architects should not focus on the past, but look forward after the landscape is re-made.

The way the landscape is used will change over time.

Architects such as Zaha Hadid, Kim Koolhaas, Peter Eisenman, and Bernard Tschumi have developed new ways of thinking about landscape integrated with buildings. They represent a contrast to the Modern era of landscape thinking.

The Parc de la Villette by Tschumi brought the city to the park, as suggested with layering of urban elements.

The urban surface is also a landscape, it is not just located outside of city walls.



Introduction by James Corner

*Recovering Landscape as a Critical Cultural Practice*, 1999, p. 1-26

James Corner (1961 - Present)

Landscape Architect and Theorist

Principal and Founder of James Corner Field Operations (Landscape Architecture Firm and Urban Design Practice) in New York City

Received Bachelor's Degree from Manchester Metropolitan University in England and Master's Degree in Landscape Architecture at the University of Pennsylvania in 1990

Projects include:

The High Line, New York  
Navy Pier, Chicago  
Seattle Central Waterfront, Seattle  
MGM Mirage City Center, Las Vegas  
Fresno State Park, Fresno, CA

Main Themes in Introduction:

"The Collection (of essays) is oriented around two aspects of landscape development: first, the apparent recovery of landscape, or its reappearance in the cultural sphere, after years of neglect and indifference; and, second, the recovery of the very nature of landscape itself, restoring what landscape actually is, or might yet become - in such idea and artifact." - pg. 1

"Landscape is typically viewed as the soothing antithesis to the placeless frenzy of technological urban life. we would share the view that the contemporary metropolis, in its essence, is a landscape - or find it easy to imagine landscapes other than the pastoral and the gleaming city." - pg. 2

"In those places where ordinary and exciting work is taking place (the Netherlands, France, and Japan, for instance), there is an underlying public and political will to both nurture and support diverse urban and landscape design, and to see these activities as fundamental to both a healthy economy and a vibrant culture. But here too, the cultural, ecological aspects of landscape architecture are often overshadowed or even suppressed as emphasis is placed on more technical procedures aimed at the restoration of an essentially cultureless natural world." - pg. 3

"The concern is less for finding a new aesthetic style than for increasing the scope of the landscape in a broader cultural milieu." - pg. 5

Innovative Audubon Program Connects Elders with Alzheimer's to the Outdoors While Creating Healthy Bird Habitats by aperry

Audubon, February, 13, 2013

Audubon Society (Founded 1905)

A non-profit environmental organization that is dedicated to conservation.

Focuses on protecting waterbird populations

Bird Tales:

"Low cost, high impact program to improve the lives of people living with Alzheimer's disease."

Developed by Randy Griffin, RN, MS, FNC (Dementia - Care Expert), National Audubon Society, Toyota Togetherwines, and Transcon Builders (Constructors of Nursing Homes)

Taught by Ken Elms (Audubon Education Program Manager)

Main Themes:

"Bird Tales uses multi-sensory stimulation and the outdoor world of birds to help people living with dementia share a meaningful experience with others while also providing local bird populations with newly improved habitats."

"In today's nursing homes and assisted living facilities, more than half of residents may have some level of Alzheimer's disease or other dementia and struggle to stay connected to their surroundings... communities across the country are striving to keep these citizens meaningfully engaged and active."

"Nature is one of our best medicines, the Bird Tales program brings peace and joy to people living with dementia by connecting them with the healing power of birds. And at the same time, by encouraging facilities managers to create bird-friendly habitats, the program gives birds a boost too." - Audubon President and CEO, David Yarnold



## Appendix A Thesis Prep Research Presentations



### Innovative Audubon Program Connects Elders with Alzheimer's to the Outdoors While Creating Healthy Bird Habitats by aperry

Audubon, February, 13, 2013

This program will help nursing homes and assisted living communities to design environments that are ideal for the elderly and the birds at the same time.

This will allow the elderly to be outdoors and engage in an activity that will stimulate the senses and create a positive, soothing environment.

Though Alzheimer's patients struggle with memory at different stages, it does not hurt to teach patients new skills. It may help slow the progression of the disease.

This program works for patients in the later stages of Alzheimer's, along with those in the earlier stages.

It gets patients interested in their environment, which can help prevent or improve depression.

These workshops can be held indoors or outdoors, since they become familiar with plush birds that sing and activity cards before they become familiar with the actual birds.

Patients will want to feed and take care of the birds, which will help them continue with their daily lives as usual. It is beneficial to have a routine.

This activity will help patients communicate with each other and get to know one another to create a cohesive community.

This program will give them something to look forward to. There needs to be more activities in nursing homes that patients will become excited about.

### Sources



Aperry, "Innovative Audubon Program Connects Elders with Alzheimer's to the Outdoors While Creating Healthy Bird Habitats," *Audubon*, 06 Feb 2013. <http://www.audubon.org/news/innovative-audubon-program-connects-elders-alzheimers-outdoors-while-creating>

"Bird Tales," *Health Professionals Press*. Accessed 28 Oct 2015. <http://www.healthprofessionspress.com/product/bird-tales>

Corner, James, ed. *Recovering Landscape as a Critical Cultural Practice*. New York: Princeton Architectural Press, 1999.

"People," *James Corner Field Operations*. Accessed 28 Oct 2015. <http://www.heldoperations.net/about-us/people.html> 

www.pnh.com



## Form and Function should Influence Each Other

In my Architectural Career, I have noticed myself repeating the same themes over and over again, but in different ways. I find that some concepts work for specific projects, and other concepts don't. Through my studies of Architectural History, I have developed emotions and theories about certain projects, and discerned why I believe it is a good design or not with empathy to its time period and location. When traveling, I have seen a number of examples of projects I have studied, and developed differing conclusions of what I originally thought. I feel that personal experience has been my best teacher. I have differed my opinions many times based on observing how a building or space is used in real life.

By combining my personal experience with my educational experience, I have developed some of my own theories through researching and designing projects myself. The famous quote by Louis Sullivan, "Form follows function," is a quote I initially agreed with at the beginning of my education. However, through multiple design studios, I have determined that the form and the function should work together simultaneously. They should influence each other. The form should enhance the function. A building can be completely functional in a technical sense, but the form can affect people negatively. The form does not have to be completely utilitarian. The form should be derived from multiple factors, including the context, the culture, and the people using the building regularly. The fundamental program is most likely known from the beginning, however through research and tests, the form and the function (the way that people use it) can change throughout the design process.



## Fundamental Sustainability is Essential



Secondly, in the world we live in today, the focus on sustainability is essential. Through good design, the environment has improved. Over the past ten years or so, a difference can be seen in multiple areas. People are more conscious of the devastation they were causing, therefore more change has been occurring recently. When Architects are shown, it can make a much larger difference. This being said, the idea of sustainability, if by design, does not have to be complicated by any costs. As it takes in the correct orientation, the use of local materials, and a relationship with the outdoors. To design economically and efficiently, the use of complicated technologies is not always practical. If a building is designed correctly from the beginning, that the costs to maintain the building will decrease, and the impact of the environment will increase in the correct direction.



## Research of the Site and its History Inform Design Decisions

The approach I take when beginning a project is to research the context at length, its history, and its people. Most projects that are successful, are due to the fact that the Architect and his or her team researched the surrounding area, and determined what the people indigenous to that area do in a daily basis. Culture affect Architecture greatly. It is important not to copy the Architecture of the past, but to represent it in a modern way. It is also to do this, the context remains needs to be done. The best research is to walk the site yourself, however, that is not always possible. Through research strategies that I have learned in certain design studios, most information can be found by other means. It may take longer to understand, but once you do, you are ready to start designing a concept. Other design strategies will come naturally after this has been done.

To me, the people and the history are the most important parts of Architecture. History is important, since it helps define a place. Every style in Architecture is a direct result of the past. Without an understanding of the progression of Architecture, it is very hard to design anything anywhere. The great Architects of today are very educated in Architectural History. The clues can either be obvious or hidden in their projects, however, it is obvious to me that they studied it properly. No one can design in a vacuum, at least not in the real world.



# Appendix A Thesis Prep Research Presentations



## The People affected by the Architecture are Most Important

The people are the single most important thing in Architecture. The way that people behave, they give society determines what an Architecture will be. It does not matter what style originated in a particular culture, what matters are their behaviors. Their behaviors determined the historical facades that grace their streets. Without an understanding of how they use their environments, one cannot design a building that will be utilized to its full potential.

In conclusion, the past six years of my Architectural education have boiled down to two theories. The culture (people) and their history. These are both linked to the context. Without having any knowledge of either of these two, you are not ready to design on that site. A good Architect would educate him or herself in both areas. This includes extensive research that will inform the design strategies to come. With a full understanding, one will be able to design efficiently and sustainably based on the specific location. Not every project can be the same. A residential complex in India is not going to be designed the same way as a residential complex in California. The form and the function will be vastly different. There is no one design solution for any specific function.



## Designing for our Elders: An Elder Community

### Thesis Project Proposal



### Project Statement

An Elder Community is one solution to the Nursing Home Typology. Though the proper health care is necessary, these environments do not need to feel like a hospital. A hospital is for patients that have the possibility of getting better and going home. The elderly want to go home as well, but this is most likely not possible. Therefore, a "Nursing Home," needs to act a home, as the name suggests, not an institution that promises healing. If it felt like a home, then the thought of escape could possibly decrease. The comfort of these people is the number one concern. However, it goes beyond physical comfort, but emotional comfort as well. It would give them a more positive outlook, an extension of life, rather than nearing the end.

The main focus of this thesis will be on Dementia and Alzheimer's disease. The disease is expected to impact 2 billion more people than today's 5.3 million by 2025, and 13.8 million by 2050 in America alone. The sheer number of people impacted by this will begin to cause a serious issue in elder care. This will not only effect the elders, but their loved ones and health care workers. It is our job as Architects to start making a difference in this community, in order to prevent complications in the near future.

### Introduction

Seven Years Ago, I was exposed to the reality of adult facilities and nursing homes. Before I had started my Architectural Education, I was already concerned with the well-being to the people who felt trapped in this type of living situation. It was obvious that these "patients," affected by dementia and Alzheimer's disease wanted to escape. My grandmother was no exception, having successfully escaped from every home she was in, and a hospital. At a young age, I was already interested in Architecture and knew that the type of environment she was living in was not empathetic to making her feel at home. These environments were sterile, dismal, and institutional, with only a small sense of a community.

### Problem Themes

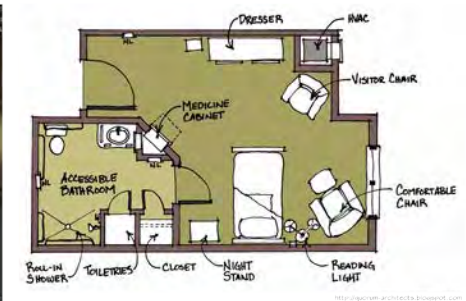
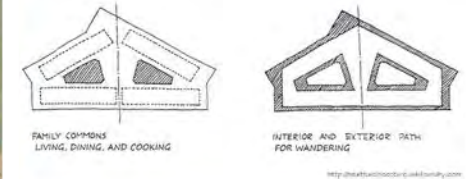
This situation does not only seek an Architectural solution, but a social and economical solution as well. This is what makes this project a Thesis. The elders are the primary focus, but the families and staff are also affected. Families suffer financially, as nursing homes are expensive. The staff is affected as well, since they will spend much of their time in these facilities, and should have personal relationships with their "patients." The problem goes much deeper than improving a depressing living situation. If this issue is not dealt with, it will become more of an issue for the aging baby boomers and eventually our generation. The population is inevitably growing, and the quality of these facilities could begin to decline even more. Fortunately, the problem has been recognized by many, but the numbers need to grow in order to keep up with the increasing number of people who will need care in the coming years.

As stated in the Statement of Thesis, the experience of individuals in the community are the most important. The architecture should enhance their lives, in order to promote positivity that will have the potential to improve the residents' well-being. This will not only affect the residents, but all of their families and nursing staff that would use the facility day in and day out. The elderly should not feel as if they are a burden to society and are being "put away" because they can't be dealt with. They need to feel as if they are part of a community that is making a difference. They need activities to do and complete, as they would have done in the past. They need to keep their minds busy, and continue to do the sorts of activities they did in their younger days. They need not to be isolated for most of the day, but stay active to improve health and well-being.

# Appendix A Thesis Prep Research Presentations

## Architectural Intentions

- Form: Broken up or Unified?
- Style: Residential (Home-like) or Contemporary
- Presence of Daylight
- Common spaces connected to Individual Rooms
- Sense of Identity for each patient (Custom-ability)
- Access to Controlled Green Spaces
- Space for Multiple Activities (Cooking, Exercise, Reading, etc...)
- Visible Bathroom Facilities
- Staff Visibility to Patients
- Wandering Paths
- Design for the Senses
- Designing for different stages of Dementia and Alzheimer's Disease (First Stage, Second Stage, and Terminal Stage)



## The Greenhouse Project® Model

Multiple Locations in United States (2003- )

Excerpts from The Green House Project®:

Vision:

"We envision homes in every community where elders and others enjoy excellent quality of life and quality of care; where they, their families, and the staff engage in meaningful relationships built on equality, empowerment, and mutual respect; where people want to live and work; and where all are protected, sustained, and nurtured without regard to the ability to pay."

Mission:

"We partner with organizations, advocates, and communities to lead the transformation of institutional long-term care by creating viable homes that spread THE GREEN HOUSE® Project vision—demonstrating more powerful, meaningful, and satisfying lives, work, and relationships."

The Green House Project must be organized as a collection of houses connected by greenery.

The Green House Model Typically Includes: (i.e. St. John's Home in Rochester, NY)

- 8,000 square feet per house
- Ten rooms with private bathrooms
- Large hearth area adjoining a kitchen that allows elders to participate in meal preparation
- Laundry, spa, pantry, and storage
- Indoor and outdoor activity space and gardens; perhaps common outdoor space between two Green House® residences

Green Houses are located in 32 states as of 2015, however four New England states are not involved yet. These states include: Maine, Vermont, New Hampshire, and Connecticut





## Maggie's West London by Rogers Stirk Harbour + Partners

London, England 2008

Quote from Richard Rogers:

"The idea was to try to minimize the overbearing impact of Charing Cross Hospital (adjacent to site). The roof, the landscaping, the hearth inside, the views out, each was to take you away from the hospital and the bustle of the road." (maggiescentres.org)

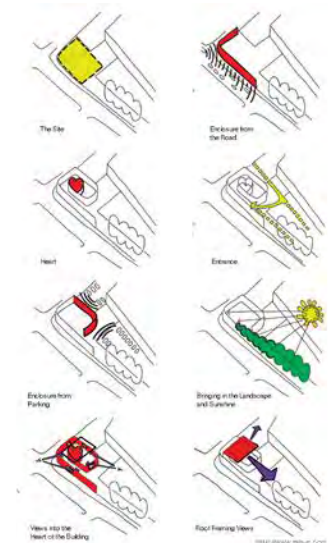
This Particular Maggie's Center Includes:

- Open Kitchenette
- Arty Sitting Room
- Library
- Personal Space (for one-on-one consultations)
- Winter Gardens
- Courtyard Gardens
- Office and Meeting Room
- Roof Terrace

The presence of natural light and gardens is required for each Maggie's Center. These centers are designed specifically to help cancer patients cope with the disease in the most comfortable way possible. As of today, there are 17 Maggie's Centers built.

According to Charles Jenck's (founder of "Maggie's"), "Their success can be attributed to the "architectural placebo effect"—a building, while not wholly capable of curing illness, can act as "a secondary therapy, a feedback therapy."

Rogers' use of neutral materials (wood, concrete, and steel) with the contrast of foliage works to create a soothing, relaxing environment that is conducive to healing. An escape from the outside world.



## Paimio Sanatorium by Alvar Aalto

Paimio, Finland 1932

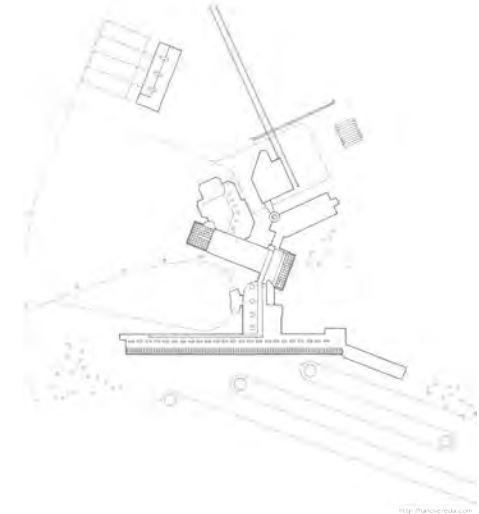
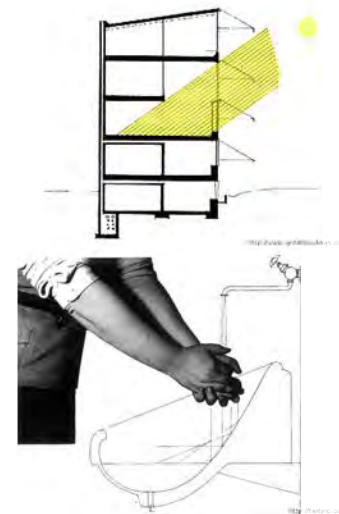
Quote from Juhani Palassma:

"Using this method of analyzing experiential situations, Aalto conceived the sanatorium as a carefully and empathetically studied instrument of healing for the benefit of human beings at their weakest, 'the horizontal human being,' as Aalto calls his hospitalized client. Aalto's sanatorium could well be the one building in the history of modernity that contains the highest concentration of technical innovations, yet it is firmly rooted in human experiential reality." (Hapticty and Time, 1999)

Important Architectural Features:

- Sun Balconies (part of Sanatorium Architecture)
- Each Building wing acts as a Unit (specific program)
- Roof Terrace
- Inner Courtyard
- "Plastic Form" - Continuity of Spaces
- Bright Colors (Peaceful Atmosphere)
- Single Loaded Corridors (Natural Light in Hallways and Patient Rooms)
- Furniture and Fixtures were designed specifically for the Sanatorium by Aalto

The Paimio Sanatorium is seen as a purely functionalist buildings, that was empathetically designed from the inside out. Aalto was more concerned with the experience of the people from a spatial standpoint. Aalto was knowledgeable on the disease of tuberculosis, and designed in a way that would promote specific healing. He was devoted to enhancing the lives of the patients, as well as the staff.



# Appendix A Thesis Prep Research Presentations



## Program

My objective is to create an atmosphere that feels more like a home than an institution, in order for the patients to feel as though they belong and are being cared for, and do not need to find a better place to go. My intention is to eliminate the thought of escape and encourage safe wandering for Alzheimer's patients in the first two stages of the disease, as well as an appropriate caring facility for those suffering from the final stage.

### First and Second Stage (Patient Needs):

Individual Bedrooms with Individual Bathrooms (each display cases by every door)  
Common Area with Kitchen in Center (Dining Area and Nearing Included)  
Enclosed Green Spaces (Adjacent to Bedrooms)  
Library  
Spaces for Activities (Multifunctional, i.e. Dancing, Exercise Groups, Workshops, etc...)  
Fitness Room and Space for Group Activities such as Yoga  
Wandering Paths (Enclosed in Glass - Natural Lighting)  
Laundry Room  
Communal Bathrooms

### Terminal Stage (Patient Needs):

Individual Bedrooms with Green Balconies  
Individual Bathrooms (?)

### Staff Needs:

Hidden Locked Entry for Staff and Visitors  
Overlooking Area(s) to Common Space  
Break Room/ Kitchenette  
Bathrooms  
Commercial Kitchen  
Offices  
Garage (for Ambulance) with easy access to nearby hospital

Parking (for staff and visitors) directly adjacent to entry

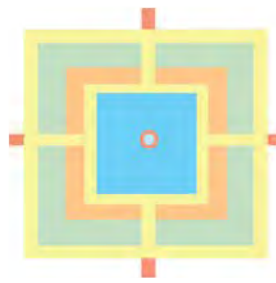
Program (Combined)	Area (sqft)	Quantity	Total (sqft)
<b>First and Second Stage</b>			
Single Occupancy Bedrooms (1 per unit)	200	30	6000
Individual Bathrooms (1 per unit)	100	30	3000
Double Occupancy Bedrooms (1 per unit)	250	30	7500
Individual Bathrooms (1 per unit)	100	30	3000
<b>Total</b>			<b>19,500</b>
<b>Third (Terminal) Stage</b>			
Single Occupancy Bedrooms (2 per unit)	200	20	4000
Individual Bathrooms (1 per unit)	100	20	2000
Double Occupancy Bedrooms (2 per unit)	250	20	5000
Individual Bathrooms (2 per unit)	100	20	2000
Subtotal (4 per unit)	100	40	4000
<b>Total</b>			<b>17,000</b>
<b>Communal Spaces</b>			
Lobby	500	1	500
Multipurpose Space	1500	1	1500
Central Common Area (1 per unit)	500	10	5000
Kitchen (1 per unit)	420	10	4200
Reception (1 per unit)	50	10	500
Public/Visitor Bathrooms	100	11	1100
Library	1000	1	1000
Workshop	500	1	500
Exercise Room	2000	1	2000
Salon	350	1	350
Interior Courtyards	500	11	5500
Dining Area	800	1	800
Commercial Kitchen	600	1	600
<b>Total</b>			<b>17,150</b>
<b>Staff</b>			
Hidden Locked Entry/Exit	200	22	4400
Offices	150	10	1500
Nurses Station/Consultation	250	11	2750
Break Room/ Kitchenette	300	11	3300
Bathrooms	150	11	1650
Clean Utility	40	10	400
Soiled Utility	40	10	400
Clean Linen	25	10	250
Medication Room	50	10	500
Housekeeping Closet	50	11	550
Storage	200	11	2200
Garage (for ambulance and van)	720	1	720
<b>Total</b>			<b>18,420</b>
<b>Subtotal Net</b>			<b>72,270</b>
<b>Gross</b>			<b>1,068,000</b>
			<b>1,206,450</b>

Program (Combined)	Area (sqft)	Quantity	Total (sqft)
<b>First and Second Stage</b>			
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<b>Gross</b>			<b>1,068,000</b>
			<b>1,206,450</b>

## Adjacency to Hospital



## Parti



Common Spaces  
Individual Bedrooms with Bathrooms  
Wandering Paths  
Enclosed Green Spaces  
Staff Spaces

## Access to Outdoors



## Sources

Alzheimer's Disease Fact and Figures. "Alzheimer's Association." 2015. <http://www.alz.org/facts/view-all>

Arch, Edward. "The Architecture of a Single-Career Home." Hoboken, NJ: John Wiley & Sons, Inc., 2012.

Anderson, Jeffrey West, et al. "Design for Aging: International Case Studies of Building and Program." Hoboken, NJ: John Wiley & Sons, Inc., 2012.

The Architecture and Design of Maggie's First London. "Maggie's." Accessed 22 Sept 2015. <http://www.maggiescentres.org/en/care-centres/first-london>

Braxley, Elizabeth G. "Designing for Alzheimer's: Strategies for Creating a Safe Care Environment." Hoboken, NJ: John Wiley & Sons, Inc., 2012.

Braxley, Elizabeth G. "Designing for Aging and Alzheimer's: Creating a Safe Care Environment." Hoboken, NJ: John Wiley & Sons, Inc., 2012.

Clark, Robert F. "Housing Home." *Architectural Record* 211 (Apr 2011): 100-101. <http://www.architecturalrecord.com/issue/211-4>

"Find a Home." *The Green House® Project*. Accessed 22 Sept 2015. <http://www.thegreenhouseproject.org/FindAHome>

"Green House Project." *Public Access*. 2015. <http://www.thegreenhouseproject.org>

Home Layout. "3D Models." Accessed 22 Sept 2015. <http://www.thegreenhouseproject.org/about-us/3d-models>

Levin, Tamar. "Alzheimer's and Architecture: A Search for Clues." *The New York Times*, 2 May 1990.

<http://www.nytimes.com/1990/05/02/us/alzheimers-and-architecture-a-search-for-clues.html?pagewanted=all>

Moskowitz, Samuel. "The Story of Maggie's Centres: How 17 Architects Came to Create a New Kind of Care." *Architectural Record* 211 (Apr 2011): 100-101. <http://www.architecturalrecord.com/issue/211-4>

Palazzo, John. "History and Time: How to Create a Home." *Architectural Record* 211 (Apr 2011): 100-101.

"Palm Springs." *Alan Kohn: Palm Springs*. 1928-1935. Accessed 22 Sept 2015. <http://www.alankohn.com/palm-springs.htm>

Perkins, Bradford L. *Building Type: Senior Living*. Hoboken, NJ: John Wiley & Sons, Inc., 2013.

"Pursuing Mission." *The Green House® Project*. Accessed 22 Sept 2015. <http://www.thegreenhouseproject.org/pursuing-mission>



## Designing for Alzheimer's: An Elder Community

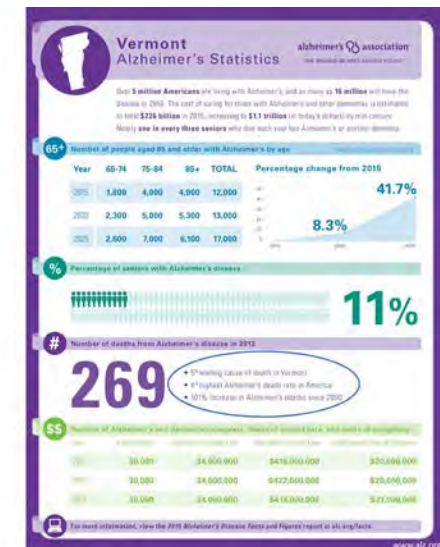


## Reasons for City Selection

- Vermont has the 4<sup>th</sup> highest Alzheimer's death rate in America
- Burlington is the greatest populated city in Vermont (population: 42,417 as of 2010, US Census)
- Is the central city for multiple small cities and towns, such as:
  - South Burlington
  - Winooski
  - Colchester
  - Essex
  - Williston
  - Shelburne
- Houses the University of Vermont Medical Center, that serves the greater region on Burlington (over 1 million people in Vermont and Northern New York)

THE  
**University of Vermont**  
MEDICAL CENTER

[www.myhealthonline.uvmmedicalcenter.org](http://www.myhealthonline.uvmmedicalcenter.org)



## Reasons for City Selection

- The University of Vermont Medical Center is an integrated health network that collaborates with multiple health facilities around the state, including:
  - Central Vermont Medical Center
  - Champlain Valley Physicians Hospital
  - Elizabethtown Community Hospital
  - Alice Hyde Medical Center
  - Canton-Potsdam Hospital
  - Inter-lakes Health
  - Visiting Nurse Association of Chittenden and Grand Isle Counties
- The treatment services provided at the main campus include:
  - Cancer Care
  - Children's Hospital
  - Heart and Vascular
  - Orthopedics
  - Primary Care
  - Urgent Care
  - Women's Health
- The Memory Care at the Fanny Allen Campus is located North of Burlington in Colchester, Vermont, which includes specific services, such as:
  - Evaluation and Diagnosis
  - Treatment of age-related Memory Disorders
  - Family Support and Counseling



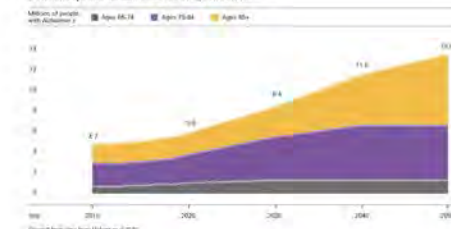
## Burlington Demographics

- Population (Burlington): 42,111 (2014)  
Population (Vermont): 626,562 (2014) 6.7%
- Age: 0 - 9 7.8%  
10 - 19 17.2%  
20 - 39 31.2%  
30 - 49 21%  
50 - 64 13.4%  
65+ 13.1%
- Gender: Male 48.6%  
Female 51.4%
- Nationality: White 88.9%  
Black 3.9%  
Asian 3.6%  
Hispanic 2.7%  
American Indian .3%  
Other .6%
- Projected Number of People affected by Alzheimer's  
2015: 12,000  
2025: 17,000 (41.1% increase)

Estimated Lifetime Risk for Alzheimer's, by Age and Sex, from the Framingham Study



Projected Number of People Age 65 and Older (Total and by Age Group) in the U.S. Population with Alzheimer's Disease, 2010 to 2050



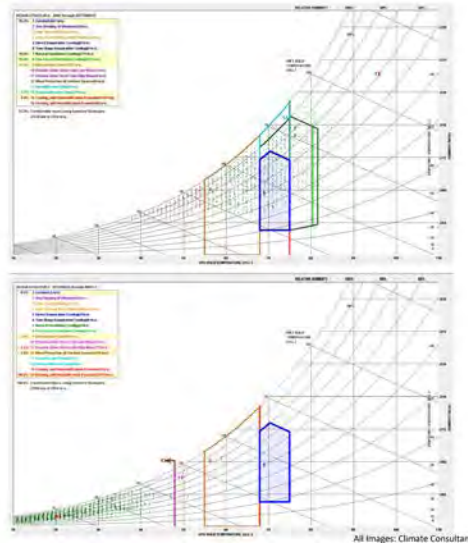
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# Appendix A Thesis Prep Research Presentations

## Burlington Climate

- Cold and Temperate
- Temperatures ranges from 8 degrees Fahrenheit in February to 79 degrees Fahrenheit in July
- Average Annual Temperature: 45 degrees
- Rainfall ranges from 1.75 inches in February to 4 inches in August
- Average Annual Rainfall: 34.5 inches
- Snowfall occurs on average in mid-October to the end of April
- Wind comes from the West and the South, with highest wind velocity in January and March at an average of 12 mph
- Lake Champlain is located West of Burlington, with Mt. Mansfield located to the East
- In the Summer, internal heat gain, sun shading, natural ventilation cooling, fan-forced ventilation cooling, and dehumidification can increase comfort levels
- In the Winter, wind protection, passive solar heating, and internal heat gain can increase comfort levels



## Native Trees

Evergreens	Max Height
• Balsam Fir	75 feet
• White Spruce	60 feet
• Red Pine	80 feet
• White Pine	80 feet
• White Cedar	60 feet
• Eastern Hemlock	70 feet

Shade Trees	Max Height
• Red Maple	60 feet
• Sugar Maple	75 feet
• Paper Birch	70 feet
• American Hornbeam	30 feet
• White Ash	80 feet
• American Hophornbeam	40 feet
• Red Oak	75 feet

Flowering Trees	Max Height
• Pagoda Dogwood	25 feet
• Hawthorn	30 feet
• American Mountainash	30 feet



## History of Burlington

- 1734 – Region was granted to the Sieur de la Perrier, a captain of the French Military
- 1759 – Burlington became part of the British empire after the French defeat in the French and Indian War.
- 1773 – Felix Powell becomes one of the first settlers, he built a log home on Apple tree Point, after this the village settled along the waterfront.
- 1763 – Burlington received its charter from the crown.
- 1791 – University of Vermont is chartered and first building is constructed a year later
- 1830 – Burlington becomes a city rather than a Vermont village
- 1823 – Champlain canal is opened, providing easy access to New York City
- 1830 – Becomes leading center of commerce and industry on Lake Champlain
- 1830 – Architect, Ammi Burnham Young draws out the "Plan of the Village of Burlington, Vermont." He designed multiple buildings in Vermont, included the Vermont State House in Montpelier in the Greek Revival Style.



## History of the Waterfront

- Mid 1800's – Third largest lumber port in America, waterfront was the economic driver of the city
- Expansion of Waterfront was encouraged by the "Public Trust Doctrine," to benefit lumber companies and create jobs for Burlingtonians
- Early 1900's – Lumber industry begins to decline, therefore public trust land went under drastic changes to support the rail lines and other infrastructure
- Mid 1900's – Rail line begins to decline, therefore the waterfront changes again to support the Petroleum Industry.
- Late 1980's – Waterfront becomes neglected as petroleum shipments become phased out. The rail is still in decline, and conditions on the waterfront become very poor. The north waterfront was inaccessible for a short period of time
- Late 1980's – Mayor Bernie Sanders and CEDO Director Peter Clavelle used the "Public Trust Doctrine" in court to bring about the attention that petroleum storage and rail lines are no longer relevant to the public. The Public Trust lands became reserved for recreational uses.



### Cleanup of the Waterfront

- 1998 – Burlington Community Boathouse is constructed
- 1991 – Waterfront Park is completed. A new shoreline is completed by covering contaminated soil with clean earthen fill and constructing raised boardwalks.
- 1998-1999 – Clean fill covers Waterfront Dog Park. The fill breaks down compounds over time and aid roots and plants that can now grow in the soil
- 1999 – 2000 – the city reclaims the "Astroline Site," the former site of the main distribution of petroleum. Three buildings were demolished and disposed on hazardous building materials such as Asbestos and Lead.
- 2000-2003 – the city rebuilds Burlington breakwater and creates historic replica lighthouses on the site. In addition to these projects, the city provides additional cleanup by removing leftover concrete and asphalt, repairing the seawall, and placing 18' of clean fill over the "Astroline Site."
- 2006 – The Underwater Cultural Resources survey is completed. The harbor bottom is scanned and photographed to locate rubble, storm water problems, etc. Oil bollards are located, in studies to find if they can be removed without disrupting cultural resources.



### Statistics of South Burlington and Shelburne

#### South Burlington

- First chartered in 1865
- Population: 18,000 people
- Vibrant Hospitality, Retail, Medical, and Corporate Business Community
- Known for excellence in public schools and recreational opportunities, dedicated city services, and livable neighborhoods.

#### Shelburne

- Located South of South Burlington
- First chartered in 1763
- Population: 62,000
- Covers 14,000 acres today
- Supports a wide variety of service and manufacturing industries as well as housing developments and conservation land.

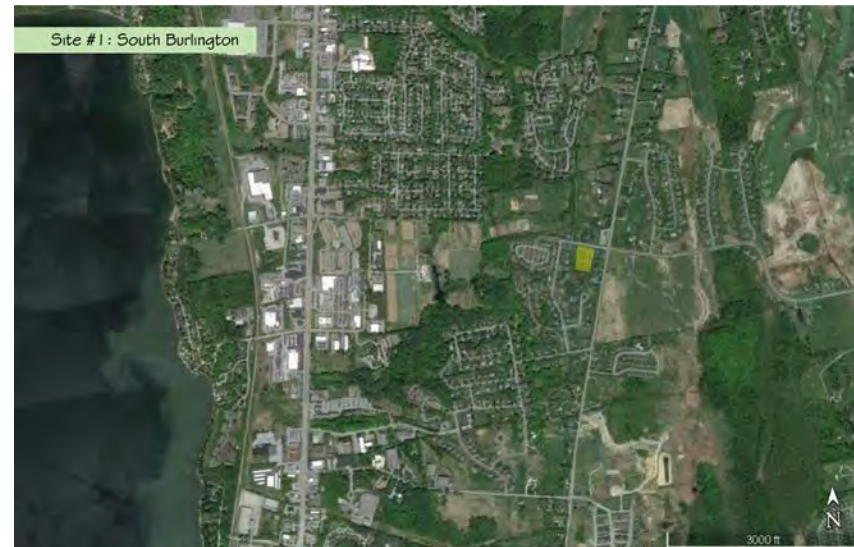


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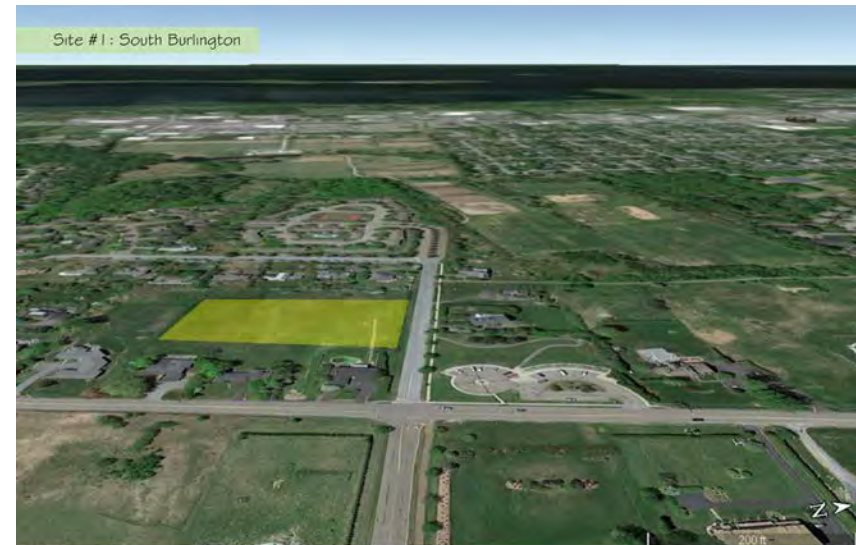


### Site #1: South Burlington





## Appendix A Thesis Prep Research Presentations



Site #1: South Burlington

- Located Adjacent to Overlook Park, which overlooks Lake Champlain to the West
- Surrounded by a Residential Neighborhood
- Surrounded by Greenery (mostly mowed grass)
- Distance from Hospital: 4 miles, 8 minutes by vehicle
- Distance from Memory Care Center: 6 miles, 12 minutes by vehicle
- Dimensions: 283 feet x 378 feet (approx. 126,956 square feet) which is approximately 3 acres
- Near six nursing homes and retirement communities with various levels of care:
  - Armistead Caregiver Services (Alzheimer's Care)
  - Cathedral Square Corporation
  - Pillsbury Manor South
  - Armistead New (Alzheimer's Care)
  - The Residences at Shelburne Bay
  - Home Instead Senior Care (Alzheimer's Care)



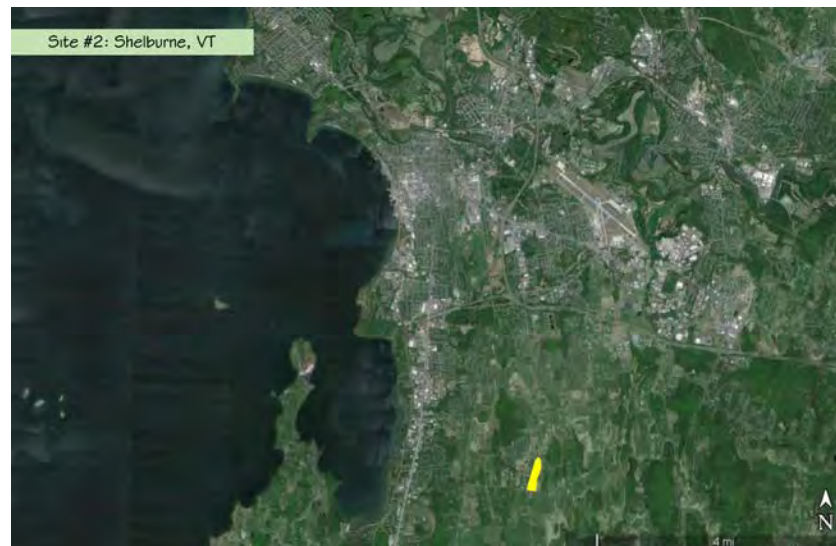
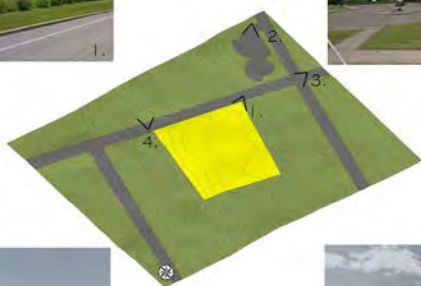
Site #1: South Burlington

### Overlook Park

- Categorized as an Urban Park
- Scenic Views of Lake Champlain and the Adirondack Mountains
- Features Recreational Path
- Area: 1.7 Acres

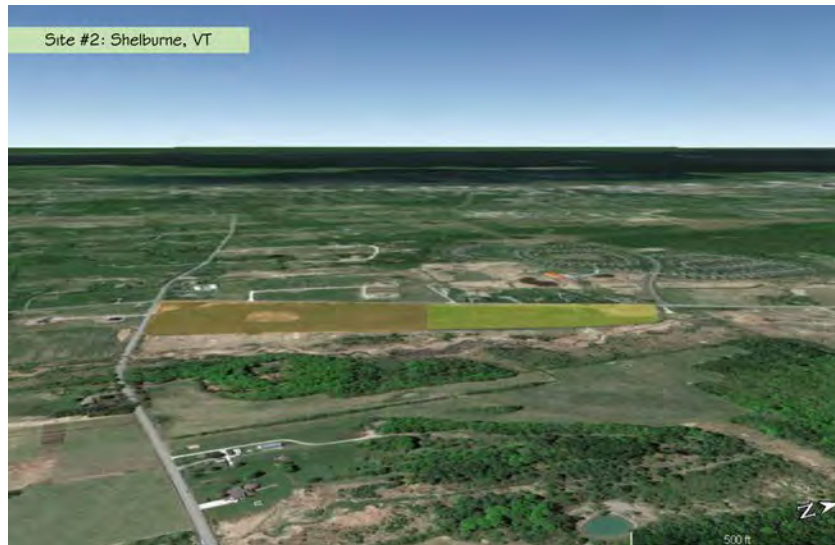






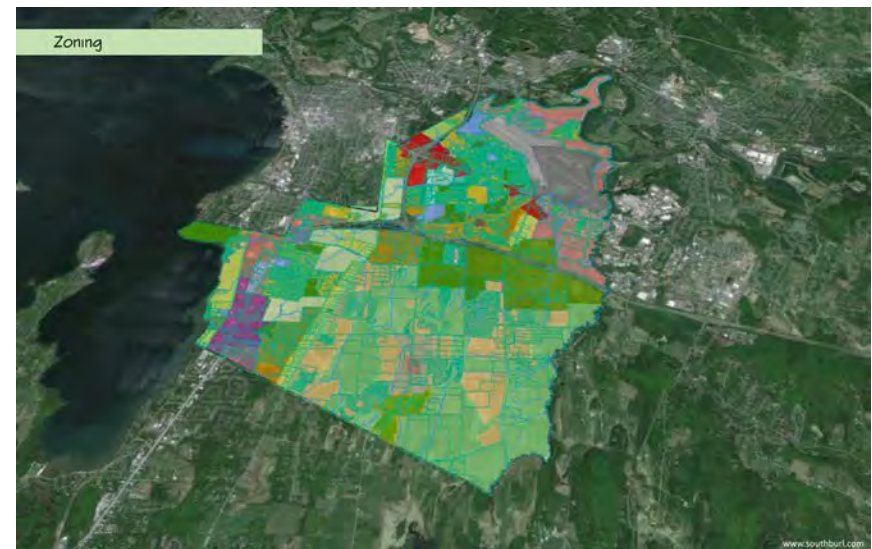
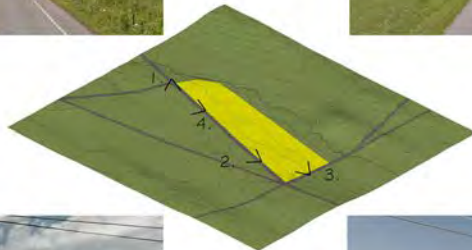


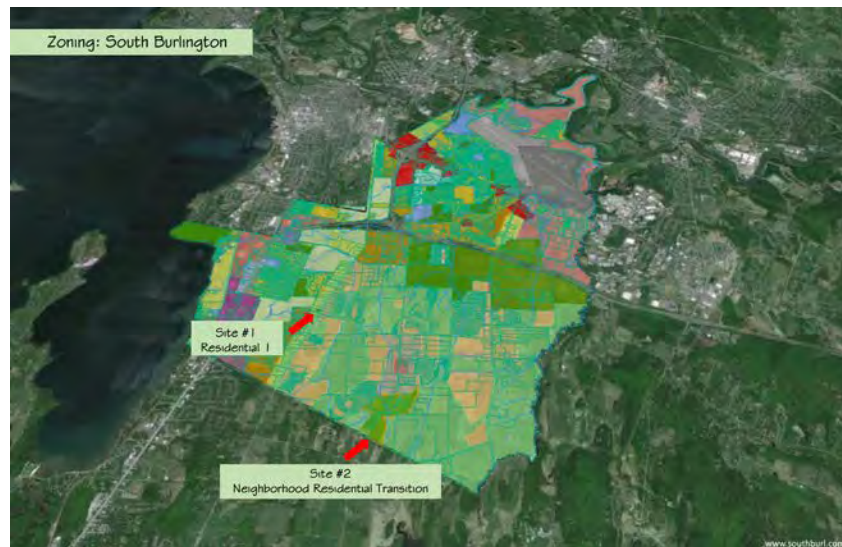
## Appendix A Thesis Prep Research Presentations



Site #2: Shelburne, VT

- Surrounded by low-density residences and conservation land
- Distance from Hospital: 5 1/2 miles, 11 minutes by vehicle
- Distance from Memory Care Center: 7 1/4 miles, 14 minutes by vehicle
- Dimensions: 2,770 feet x 600 feet (approx. 1,513,335 square feet) which is approximately 35 acres. North half of site: 13,340 feet x 550 feet (approx. 16 acres)
- Near six nursing homes and retirement communities with various levels of care:
  - Pillsbury Manor South
  - Armistead New (Alzheimer's Care)
  - The Residences at Shelburne Bay
  - Home Instead Senior Care (Alzheimer's Care)
  - The Arbors at Shelburne (Alzheimer's Care)





**Sources**

"2015 Alzheimer's Disease Facts and Figures." Alzheimer's Association. 2015. <http://www.alz.org/facts/overview.asp>

"A Brief History of Shelburne." University of Vermont. Accessed 14 Nov 2015. <http://www.uvm.edu/shelburnelandscapehumans.html>

"Burlington (city), Vermont." United States Census Bureau. 14 Oct 2015. <http://quickfacts.census.gov/qsd/states/VT/05010675.html>

"Dyrington, VT Snowfall." National Weather Service Forecast Office. 28 Oct 2014. <http://www.weather.gov/muskeget/forecast/late-ent-snow.pdf>

Climate Consultants

"Climate: South Burlington." Climate Data. Accessed 9 Nov 2015. <http://en.climate-data.org/location/19097/#climate-graph>

"Departments and Programs." The University of Vermont Medical Center. 2015. <https://www.uvmhealth.org/medicalcenter/Pages/Departments-and-Programs.aspx>

Google Earth

"History." City of Burlington, Vermont. Accessed 14 Nov 2015. <https://www.burlingtonvt.gov/CDD/History>

"Memory Care." The University of Vermont Medical Center. 2015. <https://www.uvmhealth.org/medicalcenter/Pages/Departments-and-Programs/Memory-Program.aspx#TabTwo>

Miland, James P. "History: Cities, Villages, and Towns...Burlington, Vermont: Prime of General Ethan Allen." *Ardenia's Historic Lakes*. Accessed 14 Nov 2015. [http://www.historicallakes.org/towns/burlington\\_gallery.htm](http://www.historicallakes.org/towns/burlington_gallery.htm)

"Parks." South Burlington Recreation Department. Accessed 14 Nov 2015. <http://www.sburinccdept.com/parks.php>

Perry, Leonard. "Native Trees for the Landscape." University of Vermont. Accessed 15 Nov 2015. <http://www.uvm.edu/proj/ppp/articles/nattree.htm>

University of Vermont Historic Preservation Program. "Burlington 1830: Introduction." University of Vermont. Accessed 14 Nov 2015. <http://www.uvm.edu/histpres/HFJ/burl1830Intro.html>



# Appendix A Thesis Prep Research Presentations

## Designing for Alzheimer's: An Elder Community

Leslie Hulbert   Graduate Thesis Research Seminar   Hasan-uddin Khan   Fall 2015

### Intent

**Abstract**  
An Elder Community is one solution to the Nursing Home Typology. Though the proper health care is necessary, these environments do not need to feel like a hospital. A hospital is for patients that have the possibility of getting better and going home. The elderly want to go home as well, but this is most likely not possible. Therefore, a "Nursing Home," needs to act as a home, as the name suggests, not an institution that promises healing. If it felt like a home, then the thought of escape could possibly decrease.

**Architectural Intentions**

1. Create Wandering Paths
2. Provide Secured Green Spaces
3. Design for all Senses
4. Encourage Customization of Private Spaces
5. Allow for Daylight to Penetrate Spaces



### Project Statement


Alzheimer's disease is expected to impact 2 million more people than today's 5.3 million by 2025, and 13.6 million by 2050 in America alone (Alzheimer's Association®, 2015). The sheer number of people impacted by this will begin to cause a serious issue in elder care. This will not only affect the elders, but their loved ones and health care workers. It is our job as architects to start making a difference in this community, in order to prevent complications in the near future.

### Site Selection

The state of Vermont was chosen for its statistics of people affected by Alzheimer's Disease. Vermont currently holds the fourth highest Alzheimer's death rate of all 50 states (Alzheimer's Association®, 2015). In addition, Alzheimer's is the 5th leading cause of death in the state.

### Location


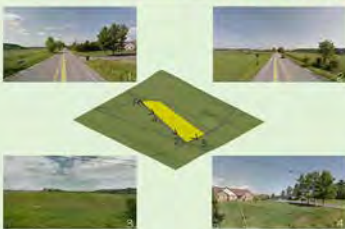
**South Burlington Situations**

**Site Distances to Healthcare Facilities**



**3005 Green Street, Southbury, VT 05403**





### Program/Adjacencies




Common Building	
Multipurpose Space	1 @ 1500-sf
Library	1 @ 2000-sf
Workshops	2 @ 300-sf
Fitness Room	1 @ 2000-sf
Salon	1 @ 250-sf
<b>Services</b>	
Public Bathrooms	2 @ 300-sf
Mechanical Rooms	1 @ 500-sf
<b>For Three (3) Levels (Total)</b>	
<b>First and Second Stage Bedrooms</b>	
Single	40 @ 200-sf
Double	18 @ 250-sf
Bathrooms	54 @ 100-sf
<b>Third (Terminal Stage) Bedrooms</b>	
Single	16 @ 200-sf
Double	8 @ 250-sf
Bathrooms	8 @ 100-sf
<b>Common Space per Unit</b>	
Common Space w/ Dining	8 @ 100-sf
Interior Courtyard	8 @ 500-sf
<b>Services</b>	
Nurses Station/ Central	8 @ 250-sf
Chapel Solid Lovers	16 @ 40-sf
Public/ Visitor Bedrooms	4 @ 300-sf
<b>Total Net:</b>	53,470-sf
<b>Total Gross:</b>	69,117-sf

**Connie Dolan Alzheimer Center**  
Stephen Nemtan, ca. 1988  
Chardon, Ohio



**The Green House Project**  
Multiple Architects, 2003-  
Multiple Locations in U.S.



The project utilizes wandering paths as a design strategy for circulation. Wandering is inevitable for the disease. Through this design strategy, patients can be assured security, and staff can be more at ease.

Another design strategy is the implementation of display cases next to each inhabitants bedroom door for easy wayfinding. Individual bathrooms are visible in each bedroom, to remind patients when they have to use it.

The Green House® Project has become a "catalyst" for the improvement of nursing homes. Rather than a hospital type setting, these facilities are broken up in to small buildings that house ten people at a time. The residential units are organized around a common area that contains a kitchen, living area, and dining room. The setting is more homelike and less institutionalized. They have access to the outdoors, and are able to communicate freely.

Program/Precedents



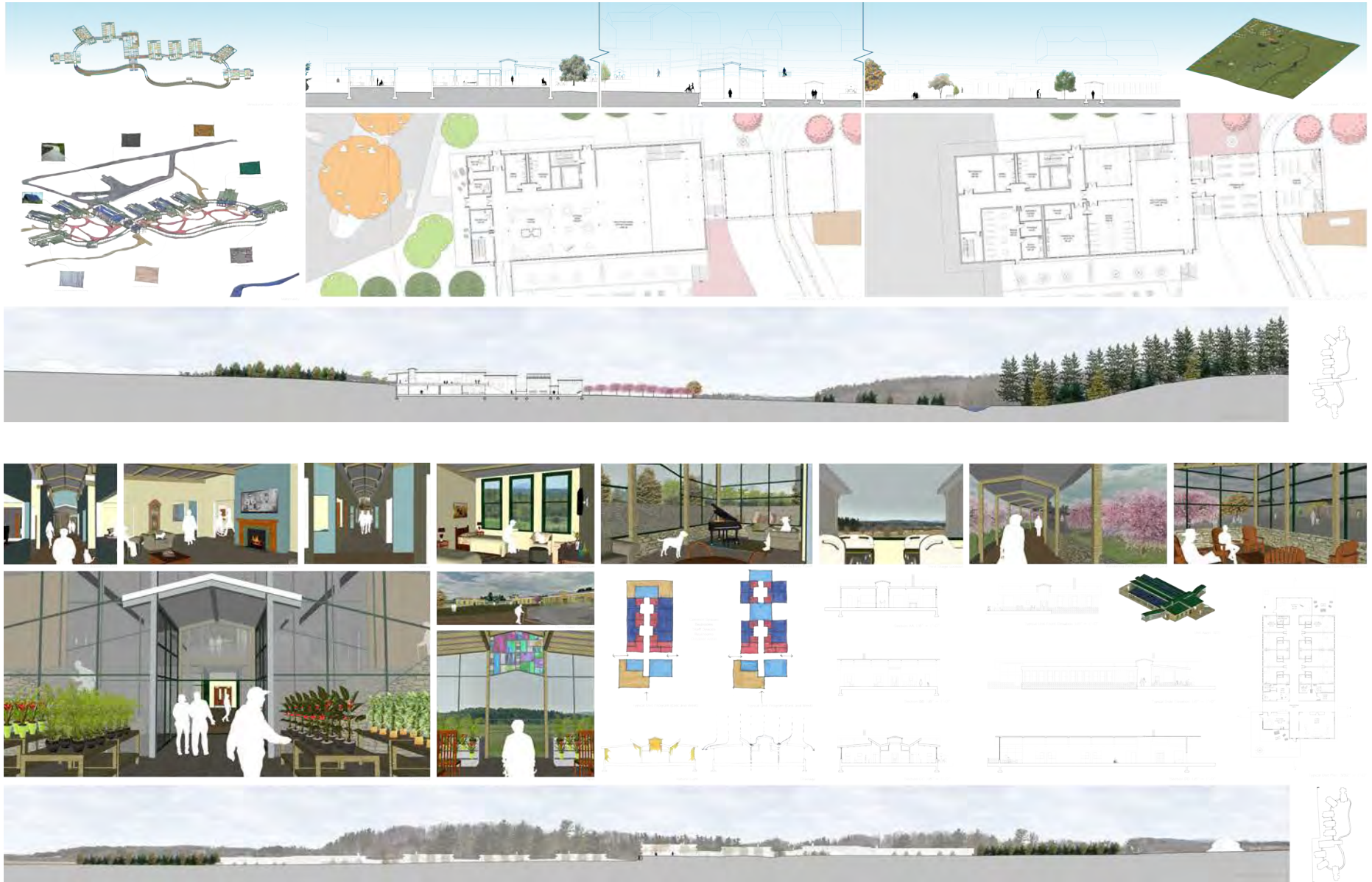
## Appendix B Gate Review Boards







## Appendix C Final Review Boards



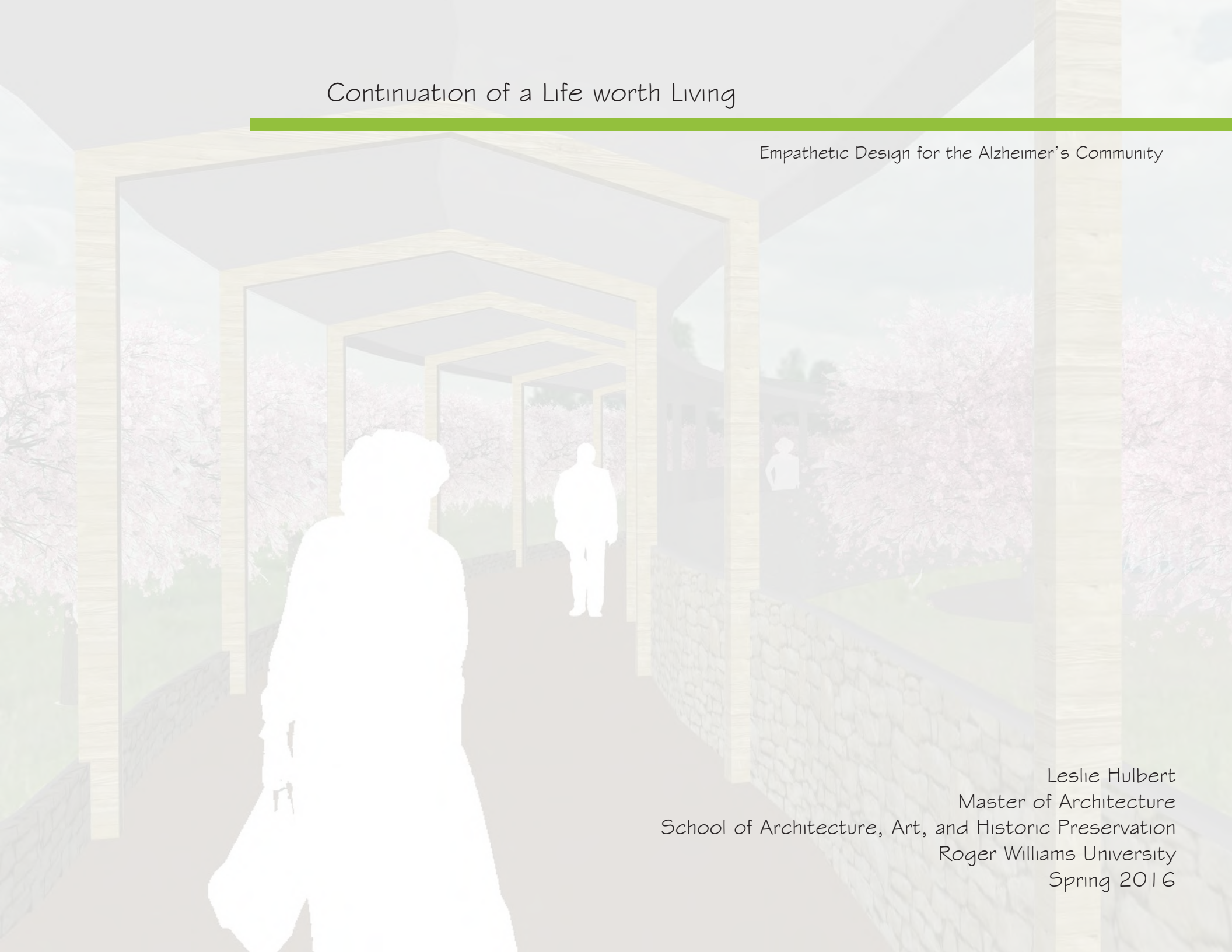




# Continuation of a Life worth Living

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Empathetic Design for the Alzheimer's Community



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Spring 2016