I’m not gone.

A new care environment for people with dementia

Explanatory Document
Supervisors: David Chaplin, Kerry Francis and Krystina Kaza

Jack O’Neill
1364160
Authenticity

This Explanatory Document has been prepared by myself, Jack O’Neill as partial fulfilment of the requirements of the Unitec Master of Architecture (Professional) programme.

I declare that all work included in this document is my own, unless stated otherwise in accordance with Chicago Manual of Style (16th edition).

Jack O’Neill 1364160

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Abstract

Dementia severely impacts an individual’s ability to think and reason coherently due to the deterioration of brain tissue. As it stands, there is no effective cure. In 2011, there were 48,000 people living with dementia throughout New Zealand. By 2050, this number will reach 150,000. People with dementia are frequently subjected to stark hospital-like facilities with little personality or comfort, resulting in a poor quality of life while in care. It is due to society wide anxieties around ageing and senility that these people with dementia are so poorly treated.

This research project proposes a new architecture of care that prioritises people with dementia not just living, but living as fulfilling a life as possible. To achieve this, the resulting architecture is established on five key principles; control of privacy, enabling autonomy, preserving dignity, assisting personhood, and empowering happiness. In addition, this care environment attempts to create a more caring and supportive community for those with dementia, by dealing with issues such as value and empathy.

Initially, research is presented illustrating the effect dementia has on the interpretation of space. The project then demonstrates the impact that this has on the design of care environments, and finally exhibits how good architecture can help enable these individuals to live as fulfilling life as possible. This has been achieved through the critical analysis of contemporary research in the field of dementia, as it relates to medicine and psychology. Thorough study of existing care facilities and models of care has assisted in translating this research into architectural environments.

The result of this research project is an architecture of care that enables people with dementia to live as fulfilling life as possible. The architecture is integrated into the existing cityscape, and demonstrates methods of shifting the way society thinks about people with dementia. Through careful intervention, the project creates opportunities for people with dementia to provide value to their community, and encourages community engagement with the care environment in an effort to create a societal empathy for people with dementia.
Acknowledgements

To my supervisors, David Chaplin, Kerry Francis and Krystina Kaza. Your guidance and insight has been invaluable throughout the course of this project. Thank you for the unwavering support.

To my friends. You have been an incredible support and distraction, and have always challenged me to do my best. This project would not have been completed without your incredible contributions, and for this I thank you. We have had a great year together, and I will never forget it.

To my family. Thank you for always supporting me. I cannot thank you enough for everything you have done and continue to do.

For my Nana and Poppa.
# Table of Contents

Authenticity .......................... 1  
Abstract .................................. 3  
Acknowledgements ....................... 5  

## Introduction .......................... 9
  Introduction ............................ 11  
  Project Outline ......................... 12  
  Aims and Objectives .................... 12  
  Architectural Question .................. 12  
  Scope and Limitations .................. 13  
  State of Knowledge ..................... 14  
  Methodology ............................ 15  
  Key Terms ................................ 17  

## Literature Study ....................... 19
  Ageism .................................. 21  
  Dementia and Alzheimer’s Disease .... 23  
  Complexities in designing for dementia 31  
  Determinants of a fulfilling life ....... 47  
  History of Care .......................... 68  
  Methodologies of Care .................. 71  

## Precedent Studies ...................... 101
  Results of Precedent Studies ........... 129  
  Notes from Precedent Studies .......... 131  
  Tool Matrix ............................. 133  

## Design Process ......................... 135
  Site Selection .......................... 137  
  Analysis of Site ........................ 147  
  Program ................................. 154  
  Additional Program ..................... 155  
  Site Study: Collage ..................... 157  
  Site Study: Sections .................... 165  
  Initial Design Investigation .......... 171  
  Moderate Care Development ............. 175  
  Developed Site Concept ................ 185  

## Conclusion ............................ 193
  Conclusion ............................. 194  

## Referencing ........................... 197
  Bibliography ........................... 202  

## Appendix ............................... 207
  Calculating Program Requirements .... 208  
  Initial Concept Plan .................... 210
Introduction
Introduction

When we became aware that my Nana had dementia, it all made sense. At first she was just forgetful and confused, exclaiming that she had travelled from Ireland on the HMS Endeavour, or stumbling her words when trying to place our names. As the disease took hold, her symptoms progressed and, eventually, with no other options available, she had to be moved into a nursing home.

She hated it. Every last bit of it. She didn’t know the people, and she didn’t understand what was going on. She was terrified. In her eyes, she was being held against her will. Every time we left, she would cry, begging we take her with us. I have never felt such guilt as I did in those moments.

Despite not recognising me, my Nana still loved when I visited. She did not know who I was. She didn’t need to know who I was. It just made her happy that I was there. The last time I saw my Nana was a beautiful spring day. Sitting by the windows, in a recliner soaked in the sun, she drifted in and out of sleep. I sat with her, holding her hand. When she woke, we ate chocolates and I would tell her stories, jokes, anything that came to mind. It was a special moment. Nana passed away on December the 16th, 2014.

I am very close with my Poppa. Three or four times a year, I make the trip over to Tauranga to visit him. We have some great memories, we’ve always been close, perhaps because I am his only grandson. We would kick a ball around the driveway, and he would teach me how to swing a golf club. He put money aside for me every week, and would spoil me on my birthday each year. My Poppa has been getting more and more forgetful. He has not yet been diagnosed with dementia, but it is clear that this is what it is.

I do not want my Poppa to have the same experience as my Nana did. I am worried that I too will have to place my mother in a home, because I have no other option.

I have sat in those nursing homes, formal and institutional, and I saw the effect this had on my Nana. I don’t believe it should be this way. Architecture cannot cure dementia, but I do believe it can change the way people live with dementia. This is the inspiration for this research project.
Project Outline

The result of this project is a dementia specific care environment, located within New Lynn, Auckland. Programmatically, the care environment creates a space for 71 individuals with dementia that helps retain their autonomy and dignity, and seeks to enable as fulfilling a life as possible. In addition, the architecture seeks to integrate with, and provide amenity for, its local community in an effort to change societal perceptions of people who have dementia and, in turn, create a more supportive and empathetic community around the care environment.

Aims and Objectives

The overarching aim for this research project is to investigate an alternative care environment that specifically caters for people with dementia. The objective is to create architecture that facilitates people with dementia living as fulfilling a life as possible while in care, and to disestablish widely held societal views of these individuals. The architecture should facilitate the local community becoming more empathetic and supportive of people with dementia.

Architectural Question

How can architecture enable people with dementia to live a fulfilling life in care?
Scope and Limitations

Dementia is a broad category of illnesses. This project has attempted to architecturally address the broad range of issues dementia can cause. However, the focus has primarily been on Alzheimer’s disease, as this comprises the majority of dementia diagnoses.

“You cannot separate out good design, effective management and user involvement for people with dementia.”1 This project seeks to investigate the architecture of an ideal care environment for people with dementia; however, without appropriate staffing and consulting existing residents, it is impossible to achieve a utopian care architecture. The published opinions of experts, staff and residents will be consulted extensively in an effort to overcome this constraint.

Existing laws and regulations around the care of elderly, particularly elderly with dementia, inhibit the creation of an ideal care environment. The goal of this project is to investigate how architecture can help create an ideal care environment. Therefore the existing laws and regulations have not been determinants in the research and design of the project.

Research into the suitability of existing care environments, primarily nursing homes, has not been the focus of this document. Experts in the field of dementia care have demonstrated extensively the shortcomings of these environments. Instead, this knowledge will be relied upon to inform the direction and outcome of the project.

1 Caroline Cantley and Robert C. Wilson, Put Yourself in My Place: Designing and Managing Care Homes for People with Dementia (Bristol, UK: Policy Press, 2002), 93.
State of Knowledge

When investigating dementia, it is imperative to review Tom Kitwood's *Reconsidering Dementia*. In this text, Kitwood discusses the perception of individuals with dementia as being valueless, lacking identity, and being less than human. It is proposed that a new, person-centred care model be constructed, in contrast to the existing medical care model. An understanding of this care model is essential to any new care environment. Two essential precedents of care environments should be considered, De Hogeweyk in Netherlands, and Whare Aroha in New Zealand, as environments that are crafted around Kitwood’s theories. These care environments will be investigated against criteria that enable the creation of a fulfilling life for people with dementia.

Niall McLaughlin and Yeoryia Manolopoulou were selected to design the Irish Pavilion at the 2016 Venice Bienalle. The focus of the pavilion was on showing how architecture might be viewed through the eyes of someone with dementia. McLaughlin and Manolopoulou published their extensive research, found at ‘www.losingmyself.ie,’ providing recordings of interviews with professionals in the field of dementia care and research. The ultimate goal for McLaughlin and Manolopoulou is to provoke the empathetic design of buildings, to make them more suitable for people with dementia. The Alzheimer’s Respite Centre, by Niall McLaughlin Architects, is a valuable precedent when examining care facilities. This complex will be investigated, primarily looking at the suitability for someone with dementia, and how this has been achieved.

In *Being Mortal,* Atul Gawande provides insight into the history of mortality in the human species. Gawande identifies key trends of care within the human race, examining a variety of locations across the globe. Of note is that this text provides essential insight into value structures of the elderly, and what provides them with fulfillment, demonstrating the inadequacies of Maslow’s Hierarchy of Needs. It also identifies the importance of the elderly being able to maintain existing relationships, and being a part of a community.

What is missing is quantitative research investigating the architectural implementation of person-centred care principles, with measurable results. Currently, this has not been developed. This would provide architects with a ‘dementia friendly toolkit’ that would enable them to create more suitable environments for people with dementia.

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2 Tom M. Kitwood, *Dementia Reconsidered: The Person Comes First* (Buckingham, Bucks: Open University Press, 1997).
3 Ibid.
Methodology

Research through Literature
Initially, research will be conducted into the failures of existing care methodologies and architecture. Analysis of Kitwood’s *Dementia Reconsidered* will be conducted to ascertain information about caring for dementia. Additional texts will be investigated to explore the concept of ‘a fulfilling life,’ methods of care, and to retrieve information regarding the symptoms of dementia and how to design for these. The focus of this research through literature is to establish how best to facilitate a fulfilling life for people with dementia.

Research through Precedents
Precedent research will be conducted on a variety of programs and buildings. The aim is to establish an understanding of existing care environments, how they function and their effectiveness. This precedent analysis will provide tools and methods that may aid in the final design of a new care environment. Five care environments will be studied; De Hogeweyk in the Netherlands, Whare Aroha in New Zealand, The Alzheimer’s Respite Centre in Ireland, ‘Home B’ in the U.S.A, and ‘Home C’ in the U.S.A. ‘Home B’ and ‘Home C’ are anonymous projects featured in the text *Put Yourself in My Place*, by Cantley and Wilson, along with a detailed description and analysis. Investigation into a variety of programs that can be incorporated into a care environment will be conducted throughout this text in an effort to understand how program can be used as a tool to create a more fulfilling life for people with dementia.

Research through Design
Criteria for a new care environment will be extracted from the literature and precedent research, and architectural implications identified. These criteria will be used to assess the effectiveness of the new care environment providing a fulfilling life for people with dementia. Drawing studies will be conducted to investigate the care environment’s relation to context, with particular focus being directed towards the meeting points between community and residents, the social and transition spaces of the care environment, and the clustering of residences within the care environment. Through a process of iteration, and constant reference to the original criteria, the final design for each space within the project will be found. Drawing studies will be conducted through a process of sketching, diagramming, digital and physical modelling.

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8 Caroline Cantley and Robert C. Wilson, *Put Yourself in My Place: Designing and Managing Care Homes for People with Dementia* (Bristol, UK: Policy Press, 2002).
<table>
<thead>
<tr>
<th>Key Terms</th>
<th>Description</th>
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<tbody>
<tr>
<td>Ageism</td>
<td>Societies widely held anxieties regarding age and senility</td>
</tr>
<tr>
<td>Ageing-in-Place</td>
<td>A care strategy that prioritises aging in one's own home</td>
</tr>
<tr>
<td>Allocentric Processing</td>
<td>The mental process of relating an object to another object</td>
</tr>
<tr>
<td>Alzheimers Disease</td>
<td>The most common form of dementia.</td>
</tr>
<tr>
<td>Assisted Living</td>
<td>A modern form of elderly care, prioritising autonomy, privacy and dignity.</td>
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<tr>
<td>Cognition</td>
<td>Mental processes of perception, memory, judgement and reasoning.</td>
</tr>
<tr>
<td>Dementia</td>
<td>Disorder of the mental processes caused by brain disease or injury.</td>
</tr>
<tr>
<td>Egocentric Processing</td>
<td>The mental process of relating an object to the position of the self.</td>
</tr>
<tr>
<td>Episodic Memory</td>
<td>A part of the long term memory that is responsible for retaining information about autobiographical events.</td>
</tr>
<tr>
<td>Neurons</td>
<td>A specialised cell transmitting nerve impulses.</td>
</tr>
<tr>
<td>Organic Model</td>
<td>Conventional approach to illness taken by medical industry, where the individual is either well or ill.</td>
</tr>
<tr>
<td>Personhood</td>
<td>A standing or status that is bestowed upon one human being, by others, in the context of relationship or social being. It implies recognition, respect, and trust.</td>
</tr>
<tr>
<td>Plaques</td>
<td>Abnormal clusters of protein fragments, build up between nerve cells.</td>
</tr>
<tr>
<td>Procedural Memory</td>
<td>A part of the long term memory that is responsible for knowing how to do things, and does not require cognition.</td>
</tr>
<tr>
<td>Tangles</td>
<td>Dead and dying nerve cells contain tangles, which are made up of twisted strands of another protein.</td>
</tr>
</tbody>
</table>
Literature Study
This anxiety is also linked to the human fear of a long, drawn out death period.

The well documented fear that society holds of going insane. “The thought of being insane, deranged, lost forever in confusion, is terrifying.”
Ageism
Societal anxieties of elderly

“Many societies are permeated by an ageism which categorizes people as incompetent, ugly and burdensome…” and many of these cultures “have shown a tendency to de-personalise those who have some form of serious disability,” says Thomas Kitwood, a pioneering researcher in the field of dementia and author of *Dementia Reconsidered*. For those elderly suffering from dementia this de-personalization is magnified, as Kitwood highlights; “there is something special about the dementing condition – almost as if they attract to themselves a particular kind of inhumanity: a social psychology that is malignant in its effects.”

This ageism is not a conscious or deliberate feeling of malice or spite, but a product of natural and instinctual fears of ageing and senility, states Kitwood. The two dominant anxieties that contribute to ageism are:

1. The natural human fear of becoming frail and highly dependent.
   *This anxiety is also linked to the human fear of a long, drawn out death period.*
2. Fears of mental instability.
   *The well documented fear that society holds of going insane. “The thought of being insane, deranged, lost forever in confusion, is terrifying.”*

These anxieties are represented through widely held societal perceptions that “older people [are] frail, ‘past their sell-by date’, unable to work, physically weak, mentally slow, disabled or helpless.” This “ageism serves as a social divider between young and old.” The typical symptoms of dementia epitomise these societal ageist anxieties, and, therefore, the effects of ageism are magnified for those elderly suffering from the disease.

10 Ibid., 12.
11 Ibid., 14.
12 Ibid.
13 Ibid., 15.
14 Ibid.
**Dementia and Alzheimer’s Disease**

*An overview*

Dementia is not a disease in itself, but a range of diseases that share the common traits of: a) resulting in a permanent decline in a person’s ability to think, reason and manage their own life, and b) being onset by biological processes that deteriorate brain cells. The most common form of dementia is Alzheimer’s disease, with the second and third most common being vascular dementia, often brought on by a series of small strokes, and Lewy body dementia, similar to Parkinsonian dementia. Both Lewy body and Parkinsonian dementias share symptoms similar to those of Alzheimer’s disease.\(^\text{15}\) Other dementias include frontotemporal dementia, as well as Parkinson’s disease, with each dementia type having distinct characterizing symptoms.

Alzheimer’s disease is the most prevalent form of dementia, accounting for approximately 60% of dementia cases in New Zealand.\(^\text{16}\) The discoverer of Alzheimer’s disease was the 19th century German physician Alois Alzheimer. Alzheimer was a pioneer in linking symptoms to microscopic brain degenerations. The disease was first recognised in a patient by the name of Auguste D., who demonstrated profound memory loss, feelings of paranoia regarding her family, and cognitive decline. Upon autopsy, Alzheimer identified dramatic brain shrinkage and abnormal deposits in and around nerve cells. The disease would later be referred to as Alzheimer’s disease in 1910 by Emil Kraepelin, a colleague of Alzheimer’s.

With the onset of Alzheimer’s disease, a physical transformation occurs in the afflicted brain. As a symptom of Alzheimer’s disease, the cortex shrivels, the hippocampus shrinks, and the ventricles increase in size, primarily affecting the ability to plan and remember, as well as formulate new memories. This is caused by amyloid plaques (multiple tangles of tau proteins) gathering between individual neurons within the ‘neuron forest,’ disrupting the transmission of signals throughout the brain. The signals that fire within the neuron forest are what constitute human memory, thought and feeling.\(^\text{18}\)

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There is little understanding as to what causes Alzheimer’s disease, and no curative solution has been produced to date. Currently, there are significant results being made in a medicinal cure for the disease, however, the effectiveness of these cures have not yet been established. Pharmaceutical supplements have proven to have very little effect and are prohibitively expensive. They can temporarily slow the onset of the disease, but medicine is yet to cure the disease.

Alzheimer’s disease is a progressive illness, with sufferers moving from mild through to severe symptoms over a period of time. The time period of progression is inconsistent. The disease is typically categorised into three discrete stages:

1. Mild – In the mild stages of Alzheimer’s disease, the individual often still functions independently. Daily life is not inhibited a great deal, with the ability to work, drive, and seek out social interactions typically being retained. However, common symptoms at this early stage include memory lapses and difficulty with planning and organising. Additionally, tasks that require increased concentration are often considerably more difficult, particularly in social or workplace settings.

2. Moderate – Typically the longest stage for those afflicted with Alzheimer’s disease. At this stage, there is considerable damage to nerve cells within the brain, causing odd and often erratic behaviour. There is typically a need for care and assistance, and this will increase as the disease progresses. Symptoms at this point include; forgetfulness, confusion, incontinence, wandering, withdrawal from social activity, and often significant personality and behavioural changes. Throughout this stage of the disease cognitive functioning continues to diminish.

3. Severe – In the final stages of Alzheimer’s disease, individuals are likely to lose the ability to respond to their environment, requiring extensive assistance for even basic tasks, and are typically unable to carry out a conversation or control their movement.

In 2014, it was estimated that there were 53,000 people living with dementia in New Zealand. By 2050, this is expected to rise to 150,000 people, over 2.6% of the population. This is due to increased life expectancy coupled with a dramatic increase in population, but is primarily due to the incidence rate of diagnoses increasing dramatically.

20 Richard Cheston and Michael Bender, Understanding Dementia: The Man with the Worried Eyes (London: Jessica Kingsley, 1999), 74.
Medical Model

Well

Ill
Diagnosis and Treatment

Leading up to the 1980’s, dementia and Alzheimer’s were broadly classified as brain disorders, numbered among the many common diseases that could not yet be explained. Alois Alzheimer’s name was elected to represent these collective brain disorders in an effort to gain more government funding. “The [rebranding] of Alzheimer’s disease may have facilitated an explosion in funding for biomedical research, but it served to place people within a constricting explanatory framework in which they tend to be perceived as diseased brains rather than as social beings with active mental lives.”

The medical approach emphasises “organic changes in the brain,” and has thus been deemed the ‘organic model.’ The organic model prescribes a logical method of diagnoses. “If a doctor sees specific symptoms, then a specific diagnosis is made, and from this a specific treatment follows.” If this doesn’t work, the process is repeated until a cure is found. This medical based approach seeks to classify whether someone afflicted with a dementing condition is ‘ill,’ or ‘well,’ much the same as for any other disease.

This has led to a focus on ‘curing’ dementia, promoting funding into pharmaceutical aid with little resulting success. “The [organic model of care]… sees dementia predominantly in terms of the loss of brain tissue and, stemming from this, the loss of cognitive functioning, emotional control and personality.”

Kitwood criticises the existing medical paradigm, asserting that there is little to no acknowledgement that dementia sufferers are social beings and that their identity is ignored. Kitwood and Bredin, with additional explanation provided by Cheston and Bender, assert that through the medical model of treatment, individuals can be “disempowered (things are done for them that they are able to do for themselves); intimidated (e.g. through the use of scans, psychological tests and seemingly irrelevant questions); and invalidated (the subjectivity of the dementia sufferer is ignored or overlooked).”

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23 Cheston and Bender, Understanding Dementia.: The Man with the Worried Eyes (London: J. Kingsley Publishers, 1999), 44.
24 Ibid., 50.
25 Ibid., 81.
26 Ibid., 80.
27 Ibid., 81.
Kitwood proposes a new way of conceiving the dementia treatment model, a person-focused model as opposed to the traditional organic model. Cheston and Bender state; “The person-focused approach assumes that a person with dementia is a person trying, as are we all, to make sense of the world they inhabit.” A person-centred methodology is established on four key principles;

**Focus:**
1. On the **person with dementia**, not their diseased brain
2. On their **emotions and understandings**, not memory losses
3. On the **person within the context of a marriage or a family**
4. On the person within a **wider society and its values**.

This methodology relies on the acknowledgement of the individual’s subjective experience, and of the importance of the social and ecological world of the dementia sufferer.

In *Dementia Reconsidered*, Kitwood asserts that dementia is better understood as a **disability**, as opposed to a disease. In New Zealand, there is a regulatory framework established with the goal of systematically ensuring the inclusion of those suffering from physical disabilities. This is reflected architecturally in the provision of accessibility, wayfinding and communication aids. If this regulatory framework was to be extended to place emphasis on the disabled sufferer having an impaired memory, limited learning and reasoning abilities, high levels of stress, alongside an acute sensitivity to the built, natural and social environment, an appropriate architectural response would be required to compensate for the disability.  

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29 Cheston and Bender, *Understanding Dementia*.
Egocentric

Allocentric
Complexities in designing for dementia
Symptoms and their effect on spatial interpretation

Due to the physical deterioration of brain tissue brought on by dementia, an individual’s ability to understand and interpret space in time is affected. An understanding of how sufferers of dementia experience architecture is critical to understanding how to design suitable spaces of care.

Impaired Allocentric Spatial Processing
Humans have two distinct spatial coding systems; allocentric (object-to-object), and egocentric (self-to-object). Allocentric spatial processing is a complex method of mental analysis and manipulation, where the world is “assessed and understood by examining and imagining the relationships between multiple objects.”31 This is opposed to egocentric spatial processing, whereby the world is assessed and understood through the examination of objects and the self.32 Allocentric spatial processing, or the ability to think and abstract outside of oneself, is essential for a complete understanding of space. The ability to orientate and navigate a space is determined through the combination of egocentric and allocentric spatial processing models. Sebastian Crutch, a neuropsychologist, stresses that dementia is a physical disease that deteriorates physical brain tissue and, as a result, it is common that there is a “reduction in the individual’s ability to experience the world on an allocentric level.”33

Allocentric processing is heavily relied on for interpretation of the “size, familiarity and intrinsic structure of [an] environment.”34 Impairment of the ability to think allocentrically has significant impact on the interpretation of architecture, particularly that which is outside of an individual’s immediate sensory environment.35 Brennan summarises this well, stating “that people with dementia lose the ability to totalise a building,”36 and that an individual’s “ability to project beyond the space [they] can see is impaired as well.”37 The inability to think allocentrically is in direct contrast to how architects design a space, as architect Niall McLaughlin asserts during his interview with Brennan.38 Architects often design buildings around an experience over time, or a journey through the architecture. However, sufferers of dementia typically demonstrate an “impaired ability to create

32 Ibid.
33 Ibid.
36 Ibid., 31min.
37 Ibid., 36min.
38 Ibid., 32min.
Memory

Working Memory
- Navigation of complex tasks requiring conscious thought

Explicit Memory
- Episodic: Storage of personal experiences
- Semantic: Storage of factual information

Procedural Memory
- Perform tasks without conscious thought

Long Term Memory

Occurs in prefrontal cortex
Typically the first area of the brain to degrade due to dementia
new memories of places just visited,” rendering the creation of a specific journey or passage largely irrelevant. Space is experienced moment by moment, as if the individual is “living in a continuous present tense.”

An individual’s relation to space is directly informed by their memory. “Memory is the process [by] which information is encoded, stored, and retrieved.” When brain neurons fire, [their] path creates distinct and individual patterns. To remember something is to prompt neurons to fire in that exact pattern, whether that be through physical or chemical stimuli. Dementia impedes neurons firing in particular patterns, and this is why it typically impacts memory so heavily.

Working memory occurs in the prefrontal cortex of the brain, and is essential for “navigating complex tasks such as comprehension, learning and reasoning.” It has been demonstrated that sufferers of Alzheimer’s and other dementias experience deterioration in their working memory. Commonly, it is the effects of dementia on an individual’s working memory that are recognised first.

Long term human memory occurs deep inside the temporal lobe in what is known as the limbic system. It is split into two distinct types; Procedural memory (Implicit memory), and Explicit memory. Procedural memory helps people perform tasks without requiring a conscious awareness of the previous experiences. The cerebral cortex is tasked with learning procedural tasks, i.e. driving. Once learned, the cerebellum at the back of the brain takes over and is responsible for enacting procedural memory. The cerebral cortex is responsible for complex sensory and neural functions as well as the initiation of voluntary activity, while the cerebellum’s role is to coordinate and regulate muscle activity. Procedural memory, as a result, does not require conscious thought.

Note: Explicit memory is further divided into episodic and semantic memory. Episodic memory is the long term storage of specific personal experiences. Semantic memory is the storage of factual information.

39 Ibid., 36min.
40 Ibid., 36min.
42 Ibid.
43 Brennan, “Patterns of Neurons Firing,” 18min.
46 Brennan, “Patterns of Neurons Firing,” 16min.
47 Ibid., 16min.
Impaired ability to write new memories to procedural and explicit memory

Learned habits formulated over lifetime

Relation to space informed by habitual reactions

Instinct

Unique

Memory

Working Memory

Explicit Memory

Procedural Memory

Unique Instinct
An individual’s reaction and relation to space is a learned reaction, and these learned reactions are established through the repetitious firing of neurons, and embedded in their procedural memory. We have patterns of behaviour because we have patterns of neurons that fire. Space is not an independent static model, standing separate from our relation to that space. Space is only an individual’s relation to space. In essence, human reactions to space, emotional or otherwise, are learned habits formulated over a lifetime. These learned habits are a form of procedural memory. An individual’s feelings about their position in time and space is dependent on their unique learned behaviours. Some of these are inherent in the human species, instinctive and adaptive responses to an environment at any given moment. Others are entirely unique.

Sufferers of dementia are typically “coming [to a care facility] without the ability, [or with an impaired ability] to create new memories” suggests Brennan, and continues; “designs need to speak to our learned experiences and behaviours, not necessarily in a model way, but in an experiential way.” Individual’s homes do this well, as they are so finely tuned to the user over a lifetime of living that they can be navigated almost entirely by procedural memory, with little to no cognitive input.

Architectural Summary:

Familiarity - The creation of a comfortable environment for sufferers of dementia is reliant on a sympathetic understanding of environments that would have been familiar to the individual during their lifetime. This would logically affect spatial scales and arrangements, distances between spaces and personalisation of private spaces within residences. Model spaces may constitute typical streetscapes, residences, as well as urban and rural outdoor environments. Research infers that creating environments that are familiar in this way results in less accidents and falls, and further enable residents to navigate and interact with their environment in a more independent manner.

52 Brennan, “Patterns of Neurons Firing,” 18min.
53 Ibid., 12min.
54 Ibid. 31min.
55 Ibid., 12min.
Colour coding not great. Better to appear residential, through use of residential features.

Make skirting line more discernible for easier reading of floor - wall connection.

Wall mounted heating units difficult to differentiate. Change colour or position.

Figure 1: Corridor in Alzheimer's Respite Centre, by Niall McLaughlin Architects

Figure 2: Diagramatic analysis of Alzheimer's Respite Centre corridor
Sight Disturbance

It has been found that sufferers of dementia experience significant sight disturbance as the disease progresses. Symptoms in sufferers of dementia include; less contrast sensitivity, less able to detect movement, less able to recognise objects and shapes, poor depth perception, and double vision. These visuo-perceptual difficulties often result in poor interpretation of surfaces and spaces. An example of this is the tendency for those afflicted with dementia to step over shadows, as the colour changes are read as a step. Another common occurrence is the avoidance of shiny floors, as an individual may interpret this surface to be slippery or wet.  

Sight disturbance has been shown to cause issues with orientation and navigation and, in more extreme circumstances, trigger episodes of anxiety and fear. Clarity of materiality between spatial elements, such as floors and walls, enables easier interpretation of a space. It is of critical importance to clearly differentiate between windows and doors. This has been well articulated in the Alzheimer’s Respite Centre, Dublin by Niall McLaughlin Architects, where particular attention was paid to the differentiation between floor, wall and ceiling. Some facilities have used the nature of sight disturbance as a method of deterring wandering and exit-seeking, by placing large areas of black carpet in front of exits and elevators. This was perceived as a hole in the ground, and prompted a natural reaction of aversion. Caregivers state that this caused less conflict than simply locking the door. 

Materiality is critical to the suitability of a care environment for dementia sufferers, and it is known that familiarity of scale, proportion and texture are desirable properties of this materiality. Nikos Salingaros published compelling evidence of how particular material qualities are biologically interpreted. He states, “ornament is valuable for us to experience architectural form in a positive way,” continuing, “minimalist surfaces and edges negate the way human beings have evolved to process information… when we go against our neurophysiological make-up… our body reacts with physical and psychological distress. Such effects are… symptoms of triggering our defensive mechanisms against a threat.” For an individual with complete mental acuity, they are able to conceptualise that the environment is non-threatening. For individuals with dementia, this capacity to conceptualise is typically impaired, and, therefore, these individuals are far more susceptible to inadequate...

58 Ibid.
59 Curtis, “Alzheimer’s Respite Centre, Dublin, by Niall McLaughlin Architects,”
63 Ibid., 84.
64 Ibid.
Figure 3: Photographs demonstrating complexity of scale

Figure 4: Patients being cared for in a public park. Paris, France
https://www.architectural-review.com/archive/typology/typology-quarterly-hospitals/8629443.article
environmental conditions. Salingaros identifies that the material qualities of a surface, when understimulating, can provoke depression and posits that humans “require above a minimum threshold of informational load from [their] environment in order to function normally.” Salingaros cites natural materiality as being most effective in this regard, as it contains appropriate scales of complexity for visual stimulation at any distance.

**Architectural Summary:**

**Clarity of Architectural Elements** - Clearly articulating elements of architecture can remove the impact of sight disturbance for people with dementia. Additionally, well placed specific materiality can assist staff in encouraging and discouraging activity. This needs to be considered particularly carefully, as it could result in adverse effects.

**Natural Materiality** - An architectural environment of care must utilise a variety of natural materials, as they provide an appropriate level of visual stimulation. This could also be extended, bringing in living natural elements to provide this stimulation, as an accompaniment to good material selection.
Exit-Seeking and Wandering

Approximately 60% of dementia sufferers will wander during the course of their disease. Wandering is a symptom of dementia that is concerning for family and staff, but can be fulfilling and stimulating for the wanderer. Typical causes of wandering include; restlessness and boredom, the urge to fulfill a former obligation, socialization, feeling lost, anxious or confused.68

Exit-seeking wandering is a highly motivated, goal directed behaviour, and is often considered to be a higher order behaviour, as it requires the cognitive capability to conceive of and execute a plan.69 Mary Lucero identifies two types of dementia exit-seeking:

1. Elopers – Seemingly unconcerned about the fact they are in a long term care facility. Typically, elopers are driven to leave by a wish to complete past responsibilities, such as work, or family commitments. Staff are usually notified by the resident that they are leaving, as the resident usually considers themselves a visitor to the facility, as opposed to a resident.

2. Runaways – Retain insight into their circumstance, and are angry or anxious about being in a facility. Their will to leave is typically spurred by a concern for their loved ones, or that a loved one is coming for them. They make highly emotional statements about the will to leave, but will not ask staff how to leave and have a tendency to attempt to slip out when staff are busy.

Lucero identified four critical times throughout the day that sufferers are likely to attempt to exit; after each meal, and during the afternoon change of shift. It is recommended that engaging residents in purposeful, work related activities during these critical times would greatly reduce the likelihood of exit-seeking behaviour.

It is understood that preventing exit-seeking, and enabling productive wandering, is primarily achieved through staff intervention. However, the creation of a stimulating architectural environment can enable a more positive experience for the dementia sufferer. Tilly explains that the creation of a “safe, uncluttered path for people to wander that has points of interest and places to rest” is crucial to the safe wandering of residents. As boredom or lack of stimulation is often an instigator of wandering, it is important that the wandering environment is stimulating and engaging, in an effort to reduce exit-seeking behavior. Sarah Barnes, of the Design in Caring Environments Study Group in Otago, presents research that engaging multiple senses at a time has been proven to improve

70 Jane Tilly, Responding to the Wandering and Exit-seeking Behaviors of People with Dementia (Washington, DC: Office of Supportive and Caregiver Services, 2015), 5.
Figure 5: The Humble Administrator’s Garden. Suzhou, China. A meandering pathway moves through a stimulating garden environment, and engaging with a series of pavilions of activity.
http://www.china-tour.cn/images/Suzhou/Humble-Administrator-Garden.jpg

Figure 6: Plan drawing of the Humble Administrator’s Garden. Suzhou, China. The pathway is a composition of short segments that facilitate movement through the garden, broken, but still retaining a clear direction of travel. Space opens up around pavilions of activity.
http://aaa.uoregon.edu/sites/aaa1.uoregon.edu/files/images/news/2013/humbleadministrator_sm.jpg
mood and disposition, and that a variety of public and private settings should be provided. Outdoor environments such as gardens can provide a variety of wandering paths of varying length and diverse experience, and are an effective multi-sensory environment. Lesley Palmer, Chief Architect at the Dementia Services Development Centre of the University of Stirling, suggests that the external and internal environments be integrated, to provide a variety of wandering experiences for residents. Access throughout the facility could be reconsidered as a stimulating environment, a wandering path between residences. Robin Evans discusses the dissolution of the corridor to a “matrix of rooms,” arguing that this spatial arrangement, where every space holds an activity or program, is far more suited to the human condition. Corridors reinforce a notion of the server and the served, and typically lack a program. These spaces should be either removed, or reconsidered as ‘streets’ throughout the architecture of care. Dementia sufferers, despite their illness, retain a familiarity of scale and proportion, and this should influence the scale and architectural quality of the ‘streets’ throughout a facility.

Architectural Summary

Wandering Paths - In order to facilitate a positive wandering experience for sufferers of dementia, a pathway should be provided that integrates both interior and exterior spaces at a variety of scales. The variance of scale will encourage a range of interaction between private and public. The pathway should be clear and logical, comprised of short lengths, and with no dead ends, and must provide a range of wander lengths and experiences. It should be representative of a street, not a corridor, and so will be of a larger average width than a typical hospital corridor.

Paths as Multi-Sensory Environments - The pathway will need to interact with a variety of multi-sensory environments, of which gardens are often the most successful.

Opportunities for Meaningful Work - Through the choreographing of the way residents move along the path, it is possible to direct residents towards work related activities that may prevent exit-seeking behaviour and provide opportunities of interest and engagement.

71 Barnes, and Design in Caring Environments Study Group, “The Design of Caring Environments and the Quality of Life of Older People.”
73 Robin Evans, Translations from Drawings to Building and Other Essays (London: Architectural Association, 1997).
74 Barnes, and Design in Caring Environments Study Group, “The Design of Caring Environments and the Quality of Life of Older People.”
Spatial Daisy Chains

Placemarking
Wayfinding
Due to an impaired ability to think allocentrically, and a loss of working memory, wayfinding within a care architecture is particularly difficult for people with dementia. Clear signage, visual connections between space, and significant architectural signposts are all proven methods of improving wayfinding in care facilities. A facility size of no more than 50 residents, broken into organised clusters of units, has been determined to ease wayfinding for people with dementia. A common technique for aiding wayfinding is implementing colour coding systems; however, it has been suggested that this is a poor solution to the problem. June Andrews states that colour coding typically does not work, as it relies on sufferers learning a new language to navigate. Instead, it is recommended that a spatial daisy chain be created, where spaces link to one another in a logical sequence, and there is a clear visual connection between spaces. Brennan states that designs should “speak to our learned experiences and behaviours… not necessarily in a model way, but in an experiential way.”

Architectural Summary

Spatial Daisy Chains - It is important that an architecture of care enables residents of a care environment to see the function or activity within a space prior to actually moving towards or going into that space. Visual impairment of the resident must be considered, so viewing distances should be relatively short to facilitate wayfinding. Clear visual links between spaces establishes a spatial daisy chain. Additionally, utilising other senses should be considered. For example, the smell of food will instinctively enable individuals to navigate towards the source.

Placemarking - Architectural elements may also enable easier wayfinding. One logical method of achieving this would be to use large architectural elements to provide waypoints for residents. Another method could be through the differentiation of architectural elements and surfaces, depending on the function of the space. An example, larger social gathering spaces may be acknowledged through a larger scale architecture, with significantly different material treatment than that of a smaller scale, cosier residence. This may also be indicated through the soft furnishing of a space.

75 Barnes, and Design in Caring Environments Study Group, “The Design of Caring Environments and the Quality of Life of Older People.”
76 Andrews, “Disneyland Retro,” 33min.
77 Palmer, “Fear of Jumping,” 22min.
78 Brennan, “Patterns of Neurons Firing.”
Fulfilling Life in Care
To achieve or realise, or gain happiness or satisfaction

Privacy  Autonomy  Personhood  Happiness

Dignity
Determinants of a fulfilling life

Fulfill, by definition, is to achieve or realize, or gain happiness or satisfaction. Fulfillment transcends the basic human requirement of survival and safety. It encapsulates not only what people need, but also what people want. A life that only satisfies human need is not guaranteed to be a happy and rewarding life, or necessarily one that will even be enjoyed. As posited by Atul Gawande “what makes life worth living when we are old and frail and unable to care for ourselves?” It would seem that the answer must be split into two sections. First, an understanding of an individual’s needs for a high quality of life. Second, a clear understanding of what makes individuals, particularly elderly, happy and fulfilled.

There are a number of standards that can be referred to when considering an individual’s quality of life, the most notable of these being published by the World Health Organisation. The document is prefaced by stating, “… the measurement of health and the effects of health care must include not only an indication of changes in the frequency and severity of diseases but also an estimation of wellbeing and this can be assessed by measuring the improvement in the quality of life related to health care.” The document stands as an excellent resource for assessing the quality of an individual’s life, providing a general platform for assessing life quality. However, specialists in the field of aged care and dementia provide more specific determinants of life quality for the aging populous.

In 1993, Rosalie Kane and Keren Wilson asserted that the factors most critical to ensuring quality of life for those in care are privacy, autonomy, and dignity. These would seem to be supported and added to by Sarah Barnes who asserts that the determinants of a high quality of life for elderly in care are factors that allow individuals to control and organize their own lives.

80 Gawande, Being Mortal, 112.
83 Barnes, and Design in Caring Environments Study Group, “The Design of Caring Environments and the Quality of Life of Older People.”
Figure 7: The verandah at the front of the traditional villa housing model serves as a transitional space between the privacy of the home, and the publicity of the street. This space extends the privacy gradient, easing the transition from zone to zone.


Figure 8: The verandah provides a space to meet individuals attempting to enter the home. A series of steps and landings provides the homeowner, ‘the defender’ with a position to look down from.


Figure 9: Establishing control of one’s private, personal space creates defensible space.
https://nellyali.files.wordpress.com/2012/07/personal-space.jpg
Privacy

“Research suggests that privacy is a most important part of the environment of older people…” states Barnes. Barnes references Ann Netten, who describes “privacy in terms of the social environment, and defines it as the need to be separate from others or the degree to which one is separate from the community.” The space immediately surrounding an individual is defined as ‘personal space.’ If this space is controllable, the individual ‘claims’ this as their defensible space, or a space of their own. When a resident of a care facility inhabits their own room they control the space within and it becomes their defensible space. However, the consistent intrusion of staff or other residents breaks down this defensible space, removing a sense of “ownership of personal territory.” An appropriate example of managing personal space might include allowing a resident to lock their front door, thereby allowing the individual control over access to their room. Alternatively, some assisted living facilities allow the residents to have financial ownership of their own house/unit. Ownership has been shown to dramatically shift the hierarchy of power between resident and staff as it results in staff entering a resident’s home, not just another room. Researchers Debra Morgan and Norma Stewart found that while designers and administrators typically favour facility models that promote social interaction, with less focus on individual private space, residents consistently prefer models that prioritise good private spaces for each individual. Morgan and Stewart demonstrate that residents far prefer facilities that prioritize individual private space, and suggest that residents would likely be more open to social engagement if private spaces were better designed.

Christopher Alexander suggests that “too much contact results in an inability to empathise with [another] person.” Retreating into a personal space has been shown to not only benefit residents themselves, but to incite more empathetic treatment from staff and carers. Alexander’s assertion that “mental damage is associated with [a] systematic lack of privacy” demonstrates the critical importance well-designed private spaces being provided for residents.

The careful design of the privacy gradient between public, social and private spaces, as well as the incorporation of diverse social spaces of varying scale and intimacy, is critical to the design of a suitable space for sufferers of dementia. Rena McArthur, facility manager at Cappella House Care Services in Auckland, discussed how they have incorporated a variety of spatial types and scales into the facility to allow residents the ability to choose a space based on how they feel at any given moment. The staff have found that this has alleviated issues of aggression and fear, thereby

84 Ibid., 782.
85 Ibid. 783.
86 Ibid.
89 Ibid.
Figure 10: Lack of defensible space being established. The room, as a result, is uncomfortable, and provokes feelings of vulnerability.

Figure 11: Defensible space being established through providing an entryway, extending the privacy gradient, and removing direct site from door to bed.
making it more pleasant for staff and residents alike.\textsuperscript{90}

Niall McLaughlin Architects was engaged to produce an investigative report prior to starting design of the Alzheimer’s Respite Centre in Dublin, Ireland. The report, based on interviews with existing and potential residents and analysis of critical research, highlights both the needs and the wants for the key stakeholders involved. Of particular note, the report suggests that the bedrooms be designed as small flats or bed-sits, providing a small private socialization space and a dedicated entry. This would extend the privacy gradient of the room and, according to Cheston and Bender, it could be expected that the facility would see greater socialization between residents.\textsuperscript{91 92}

**Architectural Summary**

**Private Socialisation Space** - Research by Niall McLaughlin Architects indicates that there is a desire for residents to be able to interact in a variety of social and private spaces and that this in fact lowers the staff burden in existing facilities.\textsuperscript{93} This indicates that there should be a private socialization space in the resident’s units, as demonstrated in the Alzheimer’s Respite Centre. Coupling this with a private outdoor space allows residents both internal and external privacy.

**Defensible Space** - The creation of defensible space is critical to the successful design of each unit. The defensible space could be extended past the internal space, gradually extending the privacy gradient from residence to public space. Previous research on spatial familiarity would suggest that the privacy gradient between private and public spaces within an architecture of care should be informed by privacy gradients that individuals have previously experienced.\textsuperscript{94}

\textsuperscript{91} Cheston and Bender, *Understanding Dementia*, 81.
\textsuperscript{92} Niall McLaughlin Architects, *What You Told Us* ([London]: Niall Mclaughlin Architects, 2008).
\textsuperscript{93} Ibid.
\textsuperscript{94} Brennan, “Patterns of Neurons Firing.”
Autonomy
“She expected more from life than just safety…” laments Gawande of a close family friend who was placed in care at an old age. A new care model and architecture will need to support resident’s health, but enable their autonomy to live the life that they desire. To live autonomously is to have choice over how you live your life, through the decisions you make. Living autonomously better enables the individual to retain their dignity.

Margaret Calkins explains how nursing homes have been described as “unintentionally designed to foster dependence” by supplying an environment and care model that keeps residents ‘well cared for, safe and powerless.’ This can leave residents feeling disempowered, as “things are done for them that they are able to do for themselves.” Sabina Brennan states that the existing system undermines the value of residents and asserts that “people need to feel valuable” is a factor in a quality life.

Nursing homes are highly managed environments, designed around the functional requirements of the staff, not the quality of life of residents. What this has typically established, says Brennan, are segregated environments of staff and residents. Residents are programmed into the staff schedule and must conform to it if they are to be cared for. This is often not a result of poor quality staffing, but of understaffing.

Methods of providing autonomy can be both broad and narrow in focus. On a larger, system-wide scale, enabling sufferers to remain in their own home for longer can buffer the effect of dementia on their day-to-day lives. Proprioceptive memory, commonly referred to as ‘muscle memory,’ allows for a more autonomous life in familiar environments, the most familiar of which is an individual’s own home. Through better housing design, as well as minor architectural interventions at a later stage (increasing natural light, simplifying access, etc.), individuals can remain in their home for longer. This has been shown to reduce the likelihood of injury and assist in retaining a positive sense of self-worth.

Independent spatial navigation is a particular struggle for many with dementia, typically due to a loss of cognition and an inability to think allocentrically. Dementia sufferers have difficulty creating and retaining a mental, spatial model of an entire

95 Gawande, Being Mortal, 92.
97 Ibid.
99 Cheston and Bender, Understanding Dementia, 81.
100 Brennan, “Patterns of Neurons Firing.”
101 Ibid.
102 Andrews, “Disneyland Retro.”
Complete Residences
building, outside of the space they are currently experiencing. Brennan states that designs should “speak to our learned experiences and behaviours… not necessarily in a model way, but in an experiential way.” ¹⁰³ Therefore, any design that promotes autonomy should take into consideration the way the residents live, and facilitate this as a priority, as opposed to enforcing a new and unfamiliar lifestyle upon them. The layout of spaces within residential units should be carefully considered to achieve clarity when attempting to enable independent spatial navigation. Of note is that the person with dementia must be able to see the toilet from their bed to aid autonomous navigation within their personal space. This helps retain a sense of personal dignity, as requiring assistance to bathe and toilet can be deeply humiliating.¹⁰⁴

Architectural Summary

**Complete Residences** – Clear and simple spatial planning, planned to provide an internal spatial daisy chain. The ability to live autonomously should be provided, therefore providing amenities such as an ensuite and kitchenette should be considered.

**Dignity**

By definition, human dignity means that an “an individual or group feels self-respect and self-worth. It is concerned with physical and psychological integrity and empowerment.”¹⁰⁵ By providing appropriate private spaces and by using systems and an architecture that supports and encourages autonomy, patients are best equipped to retain their own dignity in care, retaining more control over their own lives. Kitwood and Bredin assert that through the medical model of treatment, individuals can be “disempowered, intimidated, and invalidated.”¹⁰⁶ Further definition is provided by Richard Cheston and Mike Bender; “disempowered (things are done for them that they are able to do for themselves); intimidated (e.g. through the use of scans, psychological tests and seemingly irrelevant questions); and invalidated (the subjectivity of the dementia sufferer is ignored or overlooked).”¹⁰⁷ It is suggested that through the respect of privacy and the promotion of autonomy these issues can be alleviated.

¹⁰³ Brennan, “Patterns of Neurons Firing.”
¹⁰⁷ Cheston and Bender, *Understanding Dementia*, 81.
Existing Lack of Personhood

 Established Personhood

How to re-establish personhood for people with dementia?
Personhood

Personhood is defined as “a standing or status that is bestowed upon one human being, by others, in the context of relationship or social being. It implies recognition, respect, and trust.” Clive Baldwin and Andrea Capstick assert that boundaries must be set to define what a person is, as this is critical to bestowing personhood. Where an individual lands in relation to these boundaries is determinant of whether that individual is considered a person, or not.

Dementia significantly affects an individual’s ability to create new, and maintain existing, human relationships and, as a result, makes it difficult for the person with dementia to maintain their personhood within the context of these relationships. Kitwood posits, on the topic of societal ageism, that many cultures “have shown a tendency to depersonalise those who have some form of serious disability” and continues, stating that “there is something special about the dementing condition – almost as if they attract to themselves a particular kind of inhumanity: a social psychology that is malignant in its effects.” Kitwood states that “all of us live and are cared for within a social world of relationships and communication [and] it is through these relationships that we establish a sense of who we are - our identity…”

Dena Shenk discusses how “an individual’s ability to produce and retain self-identity...
Figure 12: De Hogeweyk, a care village in Weesp, Netherlands, provides an environment complete with shops and cafes for its residents. http://hogeweyk.dementiavillage.com/

Figure 13: The Barbican Centre in London integrates a theatre, a department store, a daycare centre, and other such programs for its residents. Its objective was to provide an ‘all-inclusive’ environment for those living in the integrated apartments. joasphotographer.deviantart.com/

Figure 14: Successful integrations of stand up and improvisation comedy have been demonstrated in a wide variety of care environments. People with dementia, despite their disease, have successfully interacted and engaged with this method of performance.


Figure 15: Defensible space being established through providing an entryway, extending the privacy gradient, and removing direct site from door to bed.

www.citylab.com/housing/2015/10/the-nursing-home-thats-also-a-dorm/408424/
is a requisite skill for social interaction.”

Research has demonstrated that the ability to produce and retain this identity is not lost with the onset of dementia, nor with the progression of the disease. The inevitable neurological impairment, however, creates difficulty for the person with dementia to organise and sustain their various ‘selves.’ When an individual has dementia, their identity is retained through “recounting memories and life experiences, personal values and views.” The focus is on the experience and life decisions the individual has made and brings with them through life and on into their existence with dementia.

Cheston and Bender assert that individuals “with dementia will best be able to hold on to a positive sense of their own identity if the people around them treat them with respect and consideration,” establishing the importance of society bestowing personhood on those who suffer from the disease. The relationship between a person without dementia and a person with dementia is different than the relationship between two non-sufferers, and is likely to be unconventional, due to the many symptoms brought on by the disease. It can make non-sufferers uncomfortable, as many do not understand how to interact with someone with dementia. However, this does not mean people with dementia should be made to struggle with their identity, as they currently are, due to society’s notion that they are lesser humans.

Existing care architectures relegate sufferers of dementia to the fringes of society, both structurally and socially. Facilities are typically internally focused, hiding sufferers of dementia away, in response to society’s ageism as discussed earlier. Currently, facilities make very little attempt to physically engage with local communities and often have to provide private transport services to allow residents to access facilities such as restaurants, supermarkets, clothing stores and cinemas. Lesley Palmer states that we, as a society, are “creating predominantly ghettos for older people with one particular condition…” Palmer continues, stating that we should be “creating supportive cityscapes to allow people to stay at home.” Brennan agrees, stating that “Institutional homes should be integrated not segregated. We should care for our young children where we care for everybody who needs care.” Palmer has identified that co-housing designs are better for dementia care, places to live that include people with and without dementia.

117 Ibid.
118 Ibid.
119 Ibid.
120 Cheston and Bender, Understanding Dementia, 81.
121 McArthur, “Interview at Capella House.”
122 Palmer, “Fear of Jumping,” 1min.
123 Ibid.
124 Brennan, “Patterns of Neurons Firing,” 9min.
125 Palmer, “Fear of Jumping,” 1min.
Figure 16: Sketches illustrating potential methods of handling a care environment boundary
Summary

Integration - An architecture that seeks to re-establish personhood to those who suffer from dementia must be integrated into the community. This facilitates both residents being able to leave the facility, but also encourages the community to engage with the care facility itself. There are difficulties with this however, due to the differing care requirements of residents, and the requirement of some residents to be within a completely secure and controlled environment.

Boundaries - Particular focus must be placed on the dividing line between ‘society’ and facility. In some areas, it will be necessary for this line to be a wall, a solid division. However, in others, it will be possible to create openings, facilitate engagement, and convert this boundary from a hard line into a gradient between the two conditions.
Physiological needs

Safety needs

Social needs

Esteem needs

Self-actualisation

Inner potential | creativity | acceptance | purpose

Respect for others | individualisation | achievement | confidence

Sense of connection | family | friendship | intimacy

Social stability | family | health | property | employment

Breathing | water | sleep | clothing | shelter | food

Spontaneity | morality | meaning | experience
Enabling Happiness

_A Theory of Human Motivation_ by Abraham Maslow in 1943, suggests that humans have a hierarchy of needs. This hierarchy is typically depicted as a pyramid, with the bottom representing the essentials of physiological survival (food, water, shelter, warmth) and safety (stability and order). Above this is the human need for love and for belonging. One level higher is the innate desire for growth and evolution, the opportunity and possibility of attaining personal goals, mastering skills and knowledge, etc. At the top of the four level pyramid we find self-actualization, or self-fulfillment, the pursuit of creativity and expression of morals and values for one’s own sake.\(^{126}\)

“Maslow argued that safety and survival remain our primary and foundational goals in life, [especially] when our options and capacities become limited. If true, the fact that public policy and concern about old age homes focus on health and safety is just a recognition and manifestation of those goals. They are assumed to be everyone’s first priorities.”\(^{127}\) This manifestation of Maslow’s original theorem is quite logical, when considering the origins of nursing homes in the medical profession. There is a clear link between the systems and structures of nursing homes, and Maslow’s original theorem, where there is a base level focus on survival. Nursing homes were never intended to address issues above the base level of Maslow’s pyramid, they were solely focused on curing illness.

Gawande argues that Maslow’s model of human needs is too static. Gawande demonstrates that a person’s ‘pyramid’ can be flipped: “People readily demonstrate a willingness to sacrifice their safety and survival for the sake of something beyond themselves, such as family, country, or justice. And this is regardless of age.”\(^{128}\) Additionally, he posits that individual’s concerns and priorities change over time, in “ways that don’t quite fit Maslow’s classic hierarchy.”\(^{129}\) In our youth, we as human beings seek a life of self-actualisation, growth and fulfillment, aligning with Maslow’s theory. Gawande describes this as ‘opening out;’ where we “search out new experiences, wider social connections, and ways of putting our stamp on the world.” As we move into the later stages of our life, however, people’s priorities shift considerably. “Most reduce the amount of time and effort they spend pursuing achievement and social networks. They narrow in.”\(^{130}\) They no longer align with Maslow’s traditional pyramid. “Studies find that as people grow older they interact with fewer people and concentrate more on spending time with family and established friends. They focus on being rather than doing and on the present more than the future.”\(^{131}\)

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127 Gawande, _Being Mortal_, 113.
128 Ibid.
129 Ibid.
130 Ibid.
131 Ibid.
Laura Carstensen has researched the relationships between happiness, fulfillment, and age. Her hypothesis can best be explained as: “how we seek to spend our time [depends] on how much time we perceive ourselves to have.”\(^\text{132}\) When you are young and healthy, and you measure your future in decades, you most desire things at the top of Maslow’s pyramid, attributes of self-actualization such as achievements and creativity. However, Carstensen provides categorical evidence that, as we age and our future is far more finite and uncertain, our focus shifts “to the here and now, to everyday pleasures and the people closest to you.”\(^\text{133, 134}\) Carstensen also demonstrates that culture has no effect on this curve, with comparative studies conducted between the United States and Hong Kong. The resulting thesis is that as individual’s lives become more fragile, their motives and goals in everyday life shift entirely.\(^\text{135}\) “It’s perspective, not age, that matters most.”\(^\text{136}\) People have found living to be “a more emotionally satisfying and stable experience as time passes, even as old age narrows the lives they lead.”\(^\text{137}\) This suggests that of most importance to elderly are the existing relationships they have, whether this is with a partner, family members, close friends, or acquaintances, and also the other unique elements of their life with which they have an emotional relationship. This could be a garden or the walk they take each morning. These things mean something to people. Self-actualization, creativity and new social encounters are not of particular importance.

When individuals move into a care home, their familiarity with their location, their relationships with neighbours and their daily routines should be retained and supported. To do this, individuals should be able to remain in their community. People get old everywhere; therefore people should be able to be cared for everywhere too. For sufferers of dementia moving home is incredibly stressful. By minimizing the location change, community connections are more likely to be retained. According to Carstensen’s theories on happiness this would result in happier residents, thereby living a more fulfilling life.

\(^{132}\) Ibid., 117.
\(^{133}\) Ibid., 118.
\(^{134}\) Laura Carstensen, “Older People Are Happier,” Lecture, TEDxWomen, last updated December 2011, www.ted.com/talks/laura_carstensen_older_people_are_happier?language=en
\(^{135}\) Ibid.
\(^{136}\) Gawande, Being Mortal, 120.
\(^{137}\) Ibid., 115.
On the issue of resident happiness within care facilities Brennan has said that there is a clear link to personalisation, particularly the personalisation of an individual’s space. Ideally, each space would be personalised entirely for each resident, however, this would be prohibitively expensive long term. Brennan suggests that the architecture of resident housing “can be manipulated to facilitate the personality of a place.” An example of this personalisation has been demonstrated in several progressive facilities, whereby the resident’s front door from their home is rehung as their front door to their personal residence in the care facility, creating a personal connection as well as aiding in familiarity. This could be extended to include letterboxes, replanting garden beds, etc. Additionally, providing plenty of storage and shelving is desirable, as it allows residents to display objects and photos from their life.

Architectural Summary

Local Care Environment - A care facility should be located in each locality, designed to service those who have lived in the area and are now diagnosed with a form of dementia. This will enable individuals to retain existing human relationships, which is of utmost importance as people age.

Family Spaces - Within facilities, the creation of architecture that enables families to maintain relationships with those needing care should be integrated. The ability for life partners to live together would immensely improve the fulfillment of life within any care architecture. Residences should accommodate a queen bed, two singles, or one single bed. Spaces could also be provided to allow families to gather with the elderly resident, these spaces may be used for important family events such as birthdays or other celebratory occasions, allowing the person with dementia to remain involved within the family.

138 Brennan, “Patterns of Neurons Firing,” 40min.
139 Niall McLaughlin Architects, What You Told Us, 32.
**History of Care**

A brief history of care and its relation to dementia treatment

For “most of human history… elders were cared for in multi-generational systems, often with three generations under one roof.”\(^{140}\) Throughout the 20th century, there was a gradual dissolution of the extended family model in western society as the average family income rose enough that it was feasible to live apart as ‘nuclear’ families, the family model of a solo parent, or parents, living with their unmarried children.\(^{141}\) But even with the rise of the nuclear family model, “the elderly were not left to cope with the infirmities of age on their own. Children typically left home as soon as they were old enough to start families of their own. But one child usually remained, often the youngest daughter, if the parents survived into senescence.”\(^{142}\) However, within contemporary western societies, there has been a move away from providing aged care within a multi-generational family framework and a reliance on extended family for support.\(^{143}\) There has been a transition to “a more or less private state – something experienced largely alone or with the aid of doctors and institutions.”\(^{144}\)

Since the 19th century, communal care for the elderly has been provided by a combination of government run housing and benevolent institutions. The government run poorhouses offered very similar services and quarters to the benevolent almshouses, the advantage of the almshouses being improved cleanliness and quality.\(^{145}\) Between them, these typologies housed many elderly who were unable to work and, therefore, could not afford to pay rent. Following World War I, poorhouses and almshouses were an essential support network for returning servicemen with an inability to work. With the increase in numbers, these institutions, particularly those run by the Government, were subject to more regulations than they had been previously, prohibiting alcohol consumption, dictating bathing requirements, etc.\(^{146}\)

Following World War II, the U.S. Government dramatically increased its funding of hospitals and other medical institutions, as well as approving a bill that implemented a pension system. During the late 1940’s, the U.S. Government made significant efforts to close poorhouses nationwide as they were deemed unnecessary. However, this was met with resistance from the public, and it was subsequently found that the elderly gravitated towards these facilities not only due to inadequate finances,

143 Ibid., 28.
144 Ibid.
but also due to the availability of aid, and the ability to socialise. Despite this, the Government at the time pushed for closure, and succeeded in closing the greater majority of poorhouses by the early 1950’s, with care for the infirm being transitioned to State Welfare Departments.\(^{147}\)

The sick and disabled were moved into hospitals, where they were given appropriate medical treatment. However, hospitals were designed to fix relatively short term illnesses and ailments, not house individuals who were not necessarily in need of a cure, but required assistance for extended periods of time. As hospitals filled, the ability of such institutions to service society suffered and a decrease in profits was seen due to lower patient turnover. The mid 1950’s saw hospitals and insurance companies petition Federal Government to fund long term care wards, spaces for extended recovery from illness, to be attached to existing hospitals. These new hospital wings would free up beds in the primary wards, as well as staffing resources, allowing for hospitals to better service patients in need of immediate medical attention. The funding was approved, and the modern ‘nursing home’ was born.\(^{148}\)

In his seminal text *Discipline and Punish* Michel Foucault extensively discusses imprisonment and prisons. Clear similarities can be drawn between the centralised power structures of a penal system, and that of a typical elderly care facility.\(^{149}\) These international style facilities were designed for staff and prioritised efficiency, with the dehumanisation of the residents being an unfortunate by product. The design of spaces was far from optimised for those with dementia, and often caused further harm to the resident, particularly those experiencing issues with sight disturbance. “[People with dementia] get disorientated, scared or frustrated”\(^{150}\) when they are unable to interpret space, states Sarah Waller, continuing that “…other, more-challenging symptoms can manifest.”\(^{151}\)

\(^{147}\) Gawande, Being Mortal, 88.
\(^{148}\) Ibid.
By the 1970’s, nursing homes throughout the United States were rife with neglect and mistreatment, due to inadequate laws and policies governing the care of elderly in facilities.\textsuperscript{152} Nursing homes throughout New Zealand experienced similar issues, and public perception of these facilities has since been largely negative, due to a perceived inability to provide a good quality of life.\textsuperscript{153} There is good reason for this, as there have been a number of reports into the serious mistreatment of individuals in care.\textsuperscript{154} Meg McHugh, a registered nurse with 12 years’ experience in aged care, states “New Zealand lags behind in its laws [protecting elderly in care].”\textsuperscript{155}

In response to these concerns, and with an increase in knowledge regarding gerontological care, the government has shifted its focus towards ‘Ageing-in-place’ strategies, where the individual typically ages in his or her own home, with external assistance as required.\textsuperscript{156} Despite this shift in focus, there remains 700 care facilities currently in operation throughout New Zealand.\textsuperscript{157}

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{152} Gawande, Being Mortal, 88.
\item \textsuperscript{153} Karen Dorman Marek and Marilyn J. Rantz, “Aging in Place: A New Model for Long-Term Care,” Nursing Administration Quarterly 24, no. 3 (2000): 1-11.
\end{itemize}
\end{footnotesize}
Methodologies of Care
A discussion of the existing methodologies of care

Retirement Villages:
“Multi-tiered complexes providing independent residential units, medium-dependency and possibly high-level rest home beds.” 158 Dementia care and private hospital beds may be provided.

Public Nursing Homes:
“Facilities which provide medium dependency rest home beds, and possibly high-level private hospital and dementia care beds.”159

Private Hospitals:
“Facilities which only provide private hospital beds.”160 This includes private dementia hospitals, or private hospitals with dementia beds.161

Therapy in Care:
There are two primary spatial therapy methods used in care environments. Reality Orientation Therapy is about spatially “presenting information about time, place or person in order to help a person understand their surroundings and situation.”162 Architecturally, this may suggest adding more windows so that residents can easily tell the time of day, or incorporating seasonal planting so residents can better interpret the season. An alternative method is Reminiscence Therapy, whereby a care environment is themed around a time in history that individuals are likely to have experienced, in order to provide better psychological wellbeing.163 Many care environments use a combination of both therapy methods.

Ageing in Place:
“The ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level.”164

Ageing in Place is “commonly perceived as taking place in one’s own place (i.e. one’s own home); however the New Zealand Positive Ageing Strategy (NZPAS) explains that to “age in place” means to “be able to make choices in later life about where

158 Ibid., 4
159 Ibid.
160 Ibid.
161 Ibid.
to live, and receive the support needed to do so.”\textsuperscript{165} Marek and Rantz, highlight that the key feature of Ageing in Place is the “separation of type of care [from] place of care.”\textsuperscript{166} New Zealand’s approach to Ageing in Place has typically been one that encourages ageing in the community and prioritising staying in one’s own home, as opposed to moving into residential care.\textsuperscript{167}

There are clear advantages to remaining in one’s own home, as studies have demonstrated that on average residents live a more fulfilling life, and the onset of dementia is significantly slower. This suggests that facilitating an individual’s ability to age in place is the best course of action for care. According to Lesley Palmer individuals “shouldn’t have to leave [their] own home until [their] care needs are so acute that it is required.”\textsuperscript{168}

Nurses, food providers and other such services are contracted to visit the individual in their home, and assistance can scale up or down depending on the individual’s dependency level. Additionally, there are support structures available to aid ‘non-regulated carers’ (such as a spouse, or other family member) that include supplementary income support from the government or, if needed, a minder/sitting service at specific times during the week.\textsuperscript{169} This support network allows individuals who are no longer entirely independent to retain a sense of control over their lives, and minimises the intrusion of assistance and aid on their chosen lifestyle.

This method of care can put additional strain on family members, especially immediate connections. “An elderly married couple will not generally become infirm at the same rate. This means that when one partner enters the frail, ‘very-old’ stage of life, the other partner is required to pick up the ‘slack’ or perform the duties that, had their partner been in a [rest home], paid staff would see to (for example, helping them to the toilet at night.) For a person who is elderly themselves, this can be exhausting and take its toll on their own health.”\textsuperscript{170}

Once the care needs of an individual have surpassed four hours per day, the government has determined it to be economically unsustainable to continue in-home based care and alternative care arrangements must be made if that individual is to continue to receive public funding.\textsuperscript{171}

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\textsuperscript{165} Lazonby, The Changing Face of the Aged Care Sector in New Zealand, 29.  
\textsuperscript{166} Marek and Rantz, “Aging in Place,” 2.  
\textsuperscript{167} Lazonby, The Changing Face of the Aged Care Sector in New Zealand, 29.  
\textsuperscript{168} Palmer, “Fear of Jumping,” 1min.  
\textsuperscript{170} Ibid.  
\textsuperscript{171} Andrews, "Disneyland Retro," 22min.
\end{flushright}
Assisted Living:
“Assisted living is a long-term care alternative that involves the delivery of professionally managed personal and health care services in a group setting that is residential in character and appearance; it has the capacity to meet unscheduled needs for assistance, while optimising resident’s physical and psychological independence.”

The first assisted living facility was established by Keren Brown Wilson, in Portland, Oregon. The development incorporated full apartments, which are owned and primarily operated by the residents. The care facility was revolutionary in that it allowed residents to scale their assistance based on their individual care requirements. Each unit contained a full bathroom suite, small kitchen, living space, and bedroom, and prioritized individuals living independently and autonomously. Studies conducted on the residents in the years following the facilities opening found that not only was happiness dramatically higher than the average nursing home, but the government supplement rate was 20% less than what would traditionally be expected. Residents were happier, the government was spending less, and there was no rise in accidents and falls as was expected by regulators.

Nine attributes of an Ideal Assisted-Living Model:
1. Residential Appearance
2. Smaller Scale Arrangements
3. The Person as a Unique Individual
4. Family Involvement
5. Mental and Physical Stimulation
6. Residential Privacy and Completeness
7. The Surrounding Community
8. Independence, Interdependence, and Individuality
9. Targeted Towards the Frail Older Person

In 1999, future developments in the field of assisted living were identified by Victor Regnier, who stated that assisted living was ideally suited for the care of residents with Alzheimer’s disease and other dementias. Regnier says that although “their need for more complex medical treatments increases… this normally does not trigger nursing home placement until the last few months of life.”

173 Gawande, Being Mortal, 108.
174 Schwarz and Brent, Aging, Autonomy, and Architecture, 8-10.
175 Ibid., 13.
176 Ibid.
1 Ageing in place
2 Assisted living
3 Nursing care
Ideal Method of Care

Palmer states that we as a society should be “creating supportive cityscapes to allow people to stay at home.” A supportive cityscape is not only a suitable architectural environment, but appropriate support networks that enable individuals to maintain their day-to-day life for as long as possible. The supportive cityscape would provide people with dementia the ability to age in place, and provide adequate services and support to enable this. In addition, this would require a supportive community around individuals with dementia. This will be further discussed later.

However, currently the care needs for individuals with dementia cannot exceed four hours per day, before they are required to forego ageing in place for another care model.

When people with dementia are required to go into care, the resulting architecture of care should be established around the principles of assisted living. As previously discussed, under an assisted living care methodology individuals move from their own home to a new location that has the ability of scaling care to suit their individual needs, while imposing as few restrictions on their lifestyle as possible.

Summary

The new location of care should be situated as close to their existing community as possible, to minimise disruption. As the individual progresses through the stages of the disease, it is typically found that more intensive nursing care is required in the last few months of life, to better manage their health and wellbeing. However, despite the short time period, this facility needs to be designed to enable an individual to live as fulfilling and high quality lifestyle as possible, given the circumstances.

**Ageing in Place** - Care for people with mild dementia will be cared for at home.

**Assisted Living** – Care for people with moderate dementia will be cared for in an assisted living care environment.

**Respite** – Care for people with severe dementia will be cared for in a well-designed nursing home environment.
Figure 17: Wintringham Specialised Aged Care by Allan Kong Architects, in Australia, provides residents with individual housing units reminiscent of typical housing models throughout Australia. All buildings are of a residential scale, and have a distinctly residential appearance.

www.wintringham.org.au/

Figure 18: Sketches demonstrating variation in form and shape of residences.

Figure 19: Sketch testing the application of varying verandahs as a method of differentiating between residences.

Variation of Building Elements

Residential Scale
Nine attributes of an Ideal Assisted-Living Model:

**Residential Appearance** – An ideal assisted living environment prioritises residences that appear homelike, and convey a feeling of homeliness. The care environment should incorporate characteristics of residential architecture to aid in establishing familiarity. Typical residential housing spatial assemblages may inform how this is achieved. New Zealand’s housing stock has historically been comprised of single detached dwellings, each possessing a unique architectural character. Detached dwellings within the care environment may be unrealistic in more dense urban environments. However, semi-detached residences, or giving the appearance of an individual residence, may be a more practical and realistic implementation of residential appearance.

The existing housing stock of New Zealand has consisted of three iconic models; the villa, the bungalow and the state house. These may serve to inform the visual character of residential units in a care environment. Variation in elements such as window and door placement, building height, roof shape and size, colour, texture and general materiality differences are methods of creating a residential appearance unique to each unit. Internally, units should appear residential; spaces should feel homely, as opposed to institutional. The architectural character of the interior space should be soft and warm, with soft non-glaring natural light sources and should be of an appropriate human scale, not too tall and open. Smooth, textureless materials should be avoided; surfaces should have a tactile quality to them, and natural materials are preferable to synthetic. These are the qualities important for creating a homelike environment.

**Architectural Summary**

**Variation of Building Elements**

**Residential Scale**

**Smaller Scale Arrangements** - Clustering residences together in groups of three was found to be desirable, as it had the greatest potential for positive mental health of individuals. This creates a small scale community, which provides an intimate scale of social interaction. Combining these clusters creates opportunities to form ‘communities’ of 6-10 residences, which then may feed into a shared communal space, a central courtyard or open space functioning as the heart of the ‘community.’ The courtyard serves to extend the privacy gradient between private residence and public space, making the transition between these two extreme states more gradual.

178 See Appendix
180 Barnes, and Design in Caring Environments Study Group, “The Design of Caring Environments and the Quality of Life of Older People.”
Clusters

Small Scale Social Interactions

Courtyards

Figure 20: Wintringham Specialised Care provides units for residents, with a verandah attached to the front of each residence. This facilitates a smaller scale social environment for residents, encouraging small engagements between individuals. www.wintringham.org.au/

Figure 21: The Serpentine Pavilion by Peter Zumthor creates an internal courtyard garden. The focus is not on the outside world, but on the garden, the natural element in the centre. The courtyard facilitates a special connection between human and nature. It is a meeting point, of sorts. This demonstrates a courtyards power to focus attention inward. In addition, the courtyard establishes a smaller scale social environment, dislocated from space outside the courtyard. http://www.archdaily.com/146392/serpentine-gallery-pavilion-2011-peter-zumthor

Figure 22: The Aranya Development in Indore, India, utilises chalice shaped courtyards to create smaller scale, semi public spaces attached to the primary circulation routes throughout the settlement. In turn, this establishes smaller scale social interactions between neighbouring houses. Kaza, K. (2010, July). The otla: A ‘free space’ in Balkrishna Doshi’s Aranya settlement. Paper presented at the 5th International Seminar on Vernacular Settlements, Colombo.

Figure 23: In Montreuil, France, farmers established a method for protecting their peach trees by building protective walls. Structures were built within the confines of the “Murs à pêches”, focused inward, rejecting the environment external to the walls. These become clusters, small communities united by proximity. http://socks-studio.com/2014/02/24/artificial-microclimates-nature-within-walls-in-montreuil-and-pantelleria/
easier for someone with dementia. Courtyards have been implemented successfully in the Aranya Housing Development of Indore, India, by the architect Balkrishna V. Doshi and the Vastu-Shilpa Foundation. The courtyards within Aranya provide a critical multi-use space for the surrounding houses, and foster a smaller scale of social interaction than the larger public spaces.

**Architectural Summary**

- Clustering of Residences
- Small Scale Social Interaction
- Courtyards

Amalgamation of clustering, courtyards, and biologically stimulating elements as the central focus of the courtyard. Inherently, these environments create small scale interactions due to their closed nature.
Figure 24: The Aranya Development, Indore, India, by Balkrishna Doshi. The use of the otla, a small adaptable space provided in front of housing units, becomes a platform for personalisation, and reflects the nature of the household it fronts.

Figure 25: Wintringham Specialised Care provides units for residents, with a verandah attached to the front of each residence. The variation of this element changes the appearance of each residence, and provides an environment for residents to soft furnish to express personality.
www.wintringham.org.au/
Person as Unique Individual - A care environment should promote the person as a unique individual through the architecture of that environment. Uniqueness should be integrated into the design of the care facility, such as changing the appearance and form of residences, but should also provide opportunities for personal expression and resident individuality. As an example, space for the resident’s own furnishings should be provided, and a window that allows viewing of personal objects from outside to help dementia sufferers identify their own residence. Alexander discusses how important it is for homes to have space to hold things from your life, as this is a reflection of the unique individual.181 Niall McLaughlin Architects propose that residential units should include plentiful storage, as residents did not want to have to leave their belongings behind when they enter a care environment.182 These belongings are what make them a unique individual.

Architectural Summary

Incorporate Uniqueness into Built Environment
Provide Opportunity for Personalisation

181 Alexander, Ishikawa and Silverstein, A Pattern Language 1165.
182 Niall McLaughlin Architects, What You Told Us, 32.
Figure 26: The terrace is a common spatial element of Italian architecture. Often, the terrace ‘borrows’ the background of the landscape, and hides the middle ground, in an attempt to create an intimate environment with a view. This hiding of the landscape is achieved by creating a low wall, or raising the terrace above the ground below.

appassionatoitaly.files.wordpress.com/2014/06/casa-giacomo-terrace.jpg
Family Involvement - A care facility should provide appropriate spaces for family members and residents to gather, aside from provided private socialisation spaces within units. Family members are often located overseas, so accommodation should be considered for short visits. Multi-use spaces should be provided for by families on special occasions and for gatherings, for birthdays or religious occasions. In this way, the resident of the facility can meaningfully contribute to the family and be involved in important occasions. This suggests that a care environment must incorporate a multi-purpose, private gathering space for residents to book as they see fit. In addition, one or two accommodation units should be provided for guests to visit for periods of time.

Architectural Summary

Provide Guest Accommodation
Provide Multi-Purpose Family Spaces

Mental and Physical Stimulation - Opportunities for mental stimulation should be provided within the facility. The selection of specific programs that allow residents to undertake meaningful work can provide such stimulus, and the additional physical stimulus that may be included with the task. Mental stimulation is often provoked through the physical environment, as Salingaros points out when discussing ‘scales of complexity,’ mentioned earlier in this text. The inclusion of multi-sensory environments, such as gardens, provides physical and mental stimulus, which has been demonstrated to improve mood and disposition. This would also suggest that a care environment should utilise natural materiality, that retains this complexity. Other spaces that have been seen to provide such stimulus are kitchens with space for residents to help with cooking, tool sheds and laundries.

Architectural Summary

Opportunities for Meaningful Work
Incorporate Multi-Sensory Environments
Use Stimulating Materiality

McArthur, “Interview at Capella House.”
Integrate with Community

Complete Residences

Private Indoor Environments

Private Outdoor Environments
Residential Privacy and Completeness - The architecture of care should provide the amenities within residential units that would be expected in a typical house: a bathroom, kitchen, living area and bedroom. This allows residents to live a more complete life within their own residences and further enables individual autonomy. In addition, there should be a private outdoor space for residents. The private space of residences should not be overlooked by other units.

Architectural Summary

Design Complete Residences
Provide Private Indoor and Outdoor Environments

The Surrounding Community - The facility functions as a part of the surrounding community, architecturally integrated to become a valuable part of the existing urban fabric. Endeavours should be made to aid residents in safely leaving the facility, if they are able. If they are unable to do so, then provision should be made to enable residents to engage with the local community, possibly through private transport and staff accompaniment. The surrounding community can also be brought into the care environment through the selection of specific programs. Niall McLaughlin Architects identified specific programs that may be incorporated into the Alzheimer’s Respite Centre, including; a gym, swimming pool, café, hairdresser, library, sports facilities, nursery/daycare, charity shops and dry cleaning services.\[^{184}\]

Architectural Summary

Integrate into Surrounding Community
Privacy Gradient

Easy Access to Facilities

Accessibility
Independence, Interdependence, and Individuality - The architecture should facilitate independent living and existence, while encouraging interdependence with other residents and the community at large. Creating a gradual transition from private to public space within the care architecture and avoiding abrupt transitions from private to public enables residents to engage, based on their comfort in that moment. This gradual transition would be created through a series of adjoining spaces, with a scale change from small and more private, to large and public. The more enclosed spaces may be made to feel more private, and wider open spaces made to feel more public. Access to each area is a determining factor in the spatial condition within a care environment. Level changes could also be used to create a more public or private spatial condition. Within residences, amenities will be provided that allow residents to live independently. In communal spaces, services such as toilets will be easily locatable in all spaces to allow independent toileting, helping to retain dignity and reducing burden on staff.

Architectural Summary

Establish Gradual Privacy Gradient
Easy Access to Essential Facilities

Targeted Towards the Frail Older Person - The architecture must be easily navigable for the elderly, and the movement of individuals with a disability should be a design priority. This will be achieved through implementation of proven design techniques for those with disabilities, utilising ramps and handrails throughout the care environment, avoiding excessive use of staircases, and providing elevators where required. Elevators, however, will typically be avoided, as they can create confusion for sufferers of dementia. Throughout the care environment there should be frequent rest points for residents, providing cues to sit and rest before continuing on.

Architectural Summary

Maximise Accessibility
Creating a Supportive Social Fabric

As an individual aged in traditional societies, they could expect heightened respect within their community, and it was likely that they would hold a more prominent administrative role within the community. The elderly retained a wealth of knowledge essential to the traditions and survival of the tribe, therefore necessitating their continued respect, support and preservation. “In such small scale, kin-focused societies, passage through the lifespan [allowed] the accumulation of social debt and cultural knowledge that forms the basis of respect and support of older adults.” Gawande asserts that historically, elders have been cared for in “multigenerational systems, often with three generations under one roof.” This stands in contrast to contemporary western societies, where “old age and infirmity have gone from being a shared, multi-generational responsibility to a more or less private state - something experienced largely alone or with the aid of doctors and institutions.”

The transition from a communal care model to a model that is far more individualised, has been attributed to the societal perception that the elderly have little to no value to modern society. In modern Western societies, asserts Jared Diamond, the perceived lack of value of the elderly is a result of four critical factors:

1. Protestant Work Ethic - Old people who are not working, and so not actively contributing, are viewed as less valuable.
2. Societal Emphasis on Self Reliance and Independence - As elderly become less independent, they are considered a burden.
3. Cult of Youth - A marketing focus on younger audiences, with focus only given to elderly in regards to sickness and retirement.
4. Availability of Knowledge - Elderly are objectively less useful than they were in traditional societies, as widespread literacy and access to knowledge has removed their societal position as repositories of essential knowledge.

“Ageist attitudes can portray older people as frail, “past their sell-by date”, unable to work, physically weak, mentally slow, disabled or helpless. Ageism serves as a social divider between young and old” states Kitwood. This social divide, stemming from a perceived lack of value of the elderly, inhibits the creation of a social fabric that supports and integrates the elderly. The creation of a supportive community and wider society is essential to establishing ‘supportive cityscapes,’ the care methodology Palmer identifies as being the utopian method of caring.

185 Gawande, Being Mortal.
186 Ibid.
for individuals with dementia.\textsuperscript{189} Research has identified that establishing a more supportive community can be instigated by two criteria; perceived value and empathy.\textsuperscript{190}

Pamela Amoss and Steven Harrell present research demonstrating the more value elderly and disabled can provide to a community, the more likely it is for that community to respect and support these individuals. They conclude that there are two critical determinants of how the elderly are treated in their particular cultural settings. “The position of the aged in a given society can be expressed in terms of how much old people contribute to the resources of the group, balanced by the costs they exact, and compounded by the degree of control they have over valuable resources.”\textsuperscript{191} In traditional societies, the elderly provided value by:

1. Preparing food
2. Caregiving for young children
3. Providing mastery of craft
4. Retaining a wealth of knowledge\textsuperscript{192}

As a result of the symptoms of dementia, sufferers are not able to retain a wealth of knowledge. However, there is precedent to demonstrate that people with dementia are able to contribute in the areas of food preparation, caregiving and crafting objects, thereby creating an opportunity to provide tangible value. By enabling those in care to provide value for their community, it follows that there will be a change in perception of these individuals by members of that society.

\textsuperscript{189} Palmer, “Fear of Jumping.”
\textsuperscript{191} Ibid.
\textsuperscript{192} Diamond, “How Societies Can Grow Old Better.”
Figure 27: Tokyo’s Edogawa Ward facilitates elderly interacting with children on a daily basis.

Figure 28: Elderly engage with children at an integrated care center in the U.S.A.
Edogawa ward, a care environment in Tokyo, Japan provides ‘yoro shisetsu’ for its residents. Yoro shisetsu, translating directly to ‘facility for children and the elderly,’ provides opportunities for the young and old to interact and spend time with one another. Staff report that it eases the burden of caring for the children, and the elderly residents state they feel more energized and fulfilled from the time they spend with the children.\footnote{Casey Baseel, “Yoro Shisetsu: Japan’s Progressive Joint Care Centers where Kids and Seniors Interact,” RocketNews24, last updated February 1, 2015, \url{http://en.rocketnews24.com/2015/02/01/yoro-shisetsu-japans-progressive-joint-care-centers-where-kids-and-seniors-interact/}} A similar program run in the U.S.A has seen significant results for both elderly and youth. Donna Butts, of Generations United, a group that advocates for intergenerational involvement, stated that the children receive extra attention from the elderly, there has been significant improvement in the children’s social skills, and they have learned much about ageing and people with disabilities. For the elderly, Butts describes a significant improvement in the energy and general happiness of the residents.\footnote{Ashley Collman, “Pensioner Playmates: The Amazing Daycare within a Nursing Home where Youngsters Sing, Color and Read with the Elderly,” Mail Online, last updated October 23, 2015, \url{http://www.dailymail.co.uk/news/article-3285008/Pensioner-playmates-amazing-daycare-nursing-home-youngsters-sing-color-read-elderly.html}.} Such program examples all provide opportunities for people with dementia to provide value to the community they reside within.

The second criterion of establishing a successful supportive community is to create empathy for those with dementia. Empathy is defined as “the capacity to understand or feel what another person is experiencing from within the other being’s frame of reference.”\footnote{Paul S. Bellet and Michael J. Maloney, “The Importance of Empathy as an Interviewing Skill in Medicine,” \textit{JAMA: The Journal of the American Medical Association} 266, no. 13 (1991): 1831.} The creation of empathy for individuals with dementia is particularly difficult, as the frame of reference for the sufferer is dramatically different from that of a person without dementia. Due to unfamiliarity, discomfort and a difficulty to connect with dementia sufferers, it can be challenging for a society to develop empathy for those with dementia.\footnote{Ibid., 17.} To encourage empathy within society, the physical segregation of dementia sufferers must be overcome, as must the psychological barriers society has towards dementia.

Roman Krznaric has written extensively on the creation of an empathetic society, asserting that, although adults can develop empathy, it is best developed in youth. As an individual ages they are subject to societal ideas and morals and these are difficult to change once already ingrained.\footnote{Roman Krznaric, \textit{Empathy: Why it Matters, and How to Get it} (New York, NY: Penguin, 2014), 42.} Krznaric identifies that the easiest method of creating empathy is through direct experience, as this allows the individual to formulate their own opinions on topics and minimises the potential formation of stigmas and stereotypes.\footnote{Ibid., 75.} Krznaric proposes that the most effective method of creating an empathy inspiring direct experience is to create an ‘empathy museum.’ The empathy museum is an interactive environment where an individual
Figure 29: Rochester ‘Human Library’ Project. A successful implementation of provoking empathetic reactions in a community.
http://www.rochester.edu/news/show.php?id=8082

Figure 30: Di Peng, an industrial designer, simulates the experience of dementia with a sense-distorting helmet. The helmet simulates auditory hallucinations, blurs people’s faces, and inhibits the ability to speak certain words of the wearer.
can experience another individual’s frame of reference, which Krznaric suggests would occur through a human ‘library,’ where you ‘borrow’ an individual to have a conversation about their situation and their personal frame of reference. The empathy museum is comprised of a variety of experiences, all selected and curated to provide amenity while encouraging the formation of empathy within visitors. At the University of Rochester Library and Public Library, New York, a human library project has been running successfully since 2014. Shauna Marie O’Toole, a ‘human book’ herself, states, “I think the Human Library project is something that breaks down barriers and rips away differences from something that’s strange, unacceptable or bizarre.”

There are also precedents of such direct experiences that stimulate empathy of elderly within individuals by inhibiting an individual’s senses and dexterity. A successful implementation of this concept was developed by German manufacturer Wolfgang Moll, whereby a suit alters the individual’s ability to perceive and relate to their environment through sensory manipulation and obstruction. Speaking on the implementation of the ‘GERontologic Test suit GERT’ Helen Green states that, “what the suit... does is make you empathise with [elderly] and understand what it feels like for someone of old age.”

A dementia specific intervention, titled ‘Dementia Simulator,’ has been developed by industrial designer Di Peng. The project incorporates a bubble-like helmet that distorts and transmutes the surrounding environment, mimicking common symptoms of dementia. Peng states that the “Dementia Stimulator is an open-ended design that welcomes the dialogue of further probing into the ageing population that we have never experienced before.” Through direct physical experiences that attempt to simulate the experience of having dementia, it is possible to build sincere empathy for those who suffer from the disease.

To achieve the goal of creating a more supportive community, and thereby a supportive cityscape, a new architecture of care must provide opportunities for dementia sufferers to provide value, as well as provide environments that provoke empathetic feelings from the wider community for those suffering. The architecture of care should be considered an extension of the existing community, providing amenities to those in the area, whilst facilitating the care of dementia sufferers.

199 Ibid., 202.
204 Ibid.
Figure 31: Hakka communities in China developed the Tulou, a structure housing 80 families, and containing all features of a ‘village’. Functions are housed in the walls of each structure.
http://socks-studio.com/2014/02/01/walls-as-rooms-4-the-hakka-tulou-community-housing-for-equals/

Figure 32: The Klong Toey Lantern project in Bangkok, Thailand, utilises the wall as an inhabitable separation device between two distinct space. The wall has become a meeting point for interaction in the community.

Figure 33: Ross Home in Dunedin, Otago, provides a cafe for residents with dementia that is open to the public.
psorago.org.nz/assets/Uploads/Alans-images/Ross-Home
The amenities should be considered portals, programs that facilitate sufferers of dementia providing value to their local community and serve as a human ‘library,’ as identified by Kznaric. These portals may function as the gateway into more secure areas. In this case, staff would have dual functions; one as administrator of an amenity, the other as caregiver for dementia sufferers. Additionally, the inclusion of an empathy museum may provide an opportunity to inform the public and promote communal empathy for those suffering from dementia. Alternatively, the entire care architecture could be considered an empathy museum, a collection of interrelated programs that provide an empathy provoking experience as a whole.

It is currently thought that hard boundaries, such as fences, locked doors and walls, provoke fight or flight reactions in sufferers. Accepted best practice is to redirect the focus of the person with dementia. However, in some instances there is a necessity for physical boundaries. It is envisaged that, by creating a supportive community through the creation of programmatic ‘gateways’ where sufferers and non-sufferers have controlled interactions, the typically hard edge of a dementia facility can be softened and gradated. If the external community within these gateways is a supportive and respectful one, there is likely to be a passive observance. These programs would facilitate dementia sufferers providing the surrounding community value, as well as the wider community, with empathy inducing contact. It could be expected that sufferers would be less agitated, they would have more genuine interactions and engagements, and the inherent ageist anxieties of the surrounding community would diminish.

Creating a more inclusive community is beneficial to the community itself, not just the sufferers of dementia. An inclusive community ensures that anyone who falls ill is supported and respected, and those individuals can still expect to enjoy as fulfilling a life as possible within the circumstances of their ailment. Nobody suspects that they will be the one to get dementia. The creation of a more supportive community ensures that if an individual is diagnosed with dementia, they do not think of it as the end of their life as they know it and that they are bound to be abandoned in an institution to exist till their eventual passing.
Matsudo, Japan has implemented an education scheme for the public on dementia, in an effort to provide a better lifestyle for those who suffer from the disease.

With the onset of dementia, symptoms arise that make it hard to communicate and interact with the individual in a normal manner. It can be expected that people who have never come into contact with an individual who has dementia will feel unsure about how to interact with the person. It can be unsettling and disconcerting, as well as frustrating and confusing. To inform the public about how to interact with dementia sufferers, an education program should be implemented into the design of a care environment. This education program will be responsible for teaching society the skills required for meaningful interaction with people who have dementia. This education should be both direct, and indirect;

1. Direct – Classes and education programs on how to recognise the disease, and how to interact with individuals who have dementia.
2. Indirect – Provide forums where people can observe trained professionals and staff members interacting in a meaningful way with people who have dementia. This passive observance serves as a guide to how society should interact with dementia sufferers.

An example of direct education about dementia can be seen in Matsudo, Japan. The city provides a one hour dementia awareness program to businesses and local organisations. The course teaches people how to recognise the signs of dementia and how to gently approach these people to ensure they are okay. The course advises best courses of action if the dementia sufferer is lost or not okay, such as calling the police. Tadashi Watanabe states that the implementation of this program was driven by the goal of “[supporting] those with dementia, as well as their families, and [making] this a town where it’s more comfortable for them to live.”

Neighbourhood Return are an English based non-profit organisation, who organise volunteers to help locate people with dementia who have wandered off. When a call reporting somebody as missing is placed, Neighbourhood Return electronically communicate with a large number of residents within that individual’s local community, providing a description of the lost individual and a suggestion of how best to approach them. Through passive observance, and active searching, the individual is located and their carer, or police, contacted to get them home safely. The project has grown rapidly, as it utilises ‘The Third Sector,’ community organisations and volunteers, as opposed to burdening search and rescue as well as the local police.

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Figure 35: Sketches demonstrating meeting between community and care
Architectural Summary

Meeting Points – Integrate programs into the care environment that facilitate the meeting of community and care residents. The programs selected will facilitate people with dementia providing value to their community. The meeting points will provide opportunities to establish empathy within the community for people with dementia, thereby creating a more caring and supportive community.
Precedent Studies
De Hogeweyk

The brief for the creation of Hogeweyk was to create a self-contained environment for sufferers of Alzheimer's disease that provides a high level of normalcy. The design of this village centres around the notion of communities. 23 houses make up the complex, divided into several ‘lifestyles’, examples being upper class, Christian, artisan and homey. 152 dementia sufferers are split into these categories, which are then further broken down to create groups of residents that support one another. The perimeter of the site is primarily administrative functions on the ground floor. The goal is to provide for a level of self-sufficiency amongst the residents. The village has a cinema, restaurant, gym and other shared facilities, aiming at establishing communities and micro communities within the village. The website for the complex states; “A normal house in a normal village in a [secure] environment gives the residents of Hogeweyk freedom in safety.”

The care environment is not integrated into the surrounding community. There are no guestrooms provided for family, but due to its urban location there is likely to be accommodation nearby.

Figure 36: Massing study of De Hogeweyk dementia village

Figure 37: Large courtyard scale broken by walkway
hogeweyk.dementiavillage.com/
Figure 38: Central shopping area
hagewyk.dementiavillage.com/
Large spatial arrangements consistent with those of surrounding locality.

Courtyards provide one large wandering path, with no dead ends, and with endless possibilities of interaction.

Repeated housing form, with variation in the shape of the adjoining external spaces.

Administration and staff facilities located close to entrance.

Figure 39: Diagrammatic study of De Hogeweyk plan
Use of circulation path effectively breaks down scale of external spaces.

Residential completeness fairly successful. Kitchen and laundry are provided. Shared bathroom between three rooms is undesirable. No living space within residents rooms.

Privacy gradient:
- Room
- Hall
- Living
- Courtyard / Public Space

Entry to individual preferable

Incorporate private outdoor environment
Alzheimer’s Respite Centre

Niall McLaughlin Architects were engaged by the Alzheimer’s Society of Ireland to provide a new approach to the traditional nursing home. The requirement was to provide respite beds for 11 people with a day care capacity of 25, as well as incorporating the offices for the Alzheimer’s Society of Ireland.

The Alzheimer’s Respite Centre (ARC) is a low lying building, nestled between a collection of gardens, sheltered by the historic stone perimeter wall. The patients’ living and dining areas are to the east of the building, while the bedrooms border the western edge of the structure. The offices for the ARC sit to the north of the building, a protective layer between the site entry and the residents’ quarters, with offices also being incorporated between the private and social residents’ areas.

The planning focus for this development was on community and contact. The design is centred around creating a calming and pleasant place for the Alzheimer’s patients to reside, but also on establishing a caring community between not only patients, but also staff, carers and relatives alike. This is centred around the Alzheimer’s Society of Ireland’s values of caring and community, which is successfully represented in the design.

Circulation combined with public spaces creates a multi-sensory environment and provides opportunities for residents to interact. There are few variances in scale of the social spaces, however, due to the small number of residents, this is likely not an issue.

Multi-storey town houses reminiscent of common housing models in Weesp.

Smaller scale offices, residences and ancillary spaces nestled in between taller, larger scale circulation and social spaces. Architecture denotes public and private spaces through verticality.

Figure 41: Massing study of The Alzheimer’s Respite Centre
Figure 42: Lantern sitting above brick wall

www.niallmclaughlin.com/projects/alzheimers-respite-centre-dublin/
Figure 43: Central Foyer

www.niallmclaughlin.com/projects/alzheimers-respite-centre-dublin/
Lounge and living space for residents. Easy access to gardens and outside living spaces

Enclosure of site provided by historic walls. Rejecting surrounding community.

Offices of National Alzheimer’s Association placed near entrance

Day care for residents of surrounding community with Alzheimer’s disease.

Extensive gardens allow variety of wandering paths within multi-sensory environment

Figure 44: Diagrammatic study of The Alzheimer’s Respite Centre plan
Doors allow free access to secure outdoor environment. Consideration of garden as another room of the care environment.

Hallway ends in bench seat, with access to external living spaces.

Small semi-public space could be added to extend privacy gradient.

Privacy Gradient:
Room
Entry
Hallway
Public Space

Figure 45: Diagrammatic study of The Alzheimer’s Respite Centre residence
Home B

‘Home B’ is a case study from the text, *Put Yourself in My Place*, by Cantley and Wilson.⁴⁰⁹

A large charity organisation within the U.S. opened Home B in response to a study which pointed towards a nationwide need for more dementia care settings. The home houses 36 residents, in three groups of 12. These groups of 12 are located on three of the four wings within the complex, with six units either side of the corridors. The fourth wing of the building is comprised of administration and services. Each wing connects to the centrally located foyer.

The objective for the facility was to provide comfortable living conditions for residents, and prioritise easy access to gardens and outdoor space. Access to external living spaces is provided at the end of each corridor.

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**Clustering of residences into groups of three dwellings. Effective stepping to denote cluster. Could be architecturalised better to create small communities.**

**Circulation could be better executed as prevents residents seeing down hallway, inhibiting wayfinding. Adjoins a central foyer. Access to gardens is provided from this foyer, or at the end of each wing.**

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Figure 46: Massing study of Home B

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209 Cantley and Wilson, *Put Yourself in My Place*, 56.
Elbow in corridor inhibits spatial daisy chain. No visual interest to lead people with dementia down corridor.

Figure 47: Diagrammatic study of Home B plan
Clusters of residences lack personal identity, feel like hotel rooms coming of a corridor. By breaking up forms and facades, a sense of individuality can be brought to the residences.

Residential completeness is inadequate.

Small semi-public space could be added to extend privacy gradient. Could also facilitate social engagement within cluster.

Figure 48: Diagrammatic study of Home B residence
Home C

‘Home C’ is a case study from the text, *Put Yourself in My Place*, by Cantley and Wilson.\(^\text{210}\)

Home C is run by a not-for-profit organisation that took over responsibility of council managed care homes within a city in the U.S.A. The home’s location is unspecified. In this facility, people with dementia are cared for in the same environment as people without dementia. This has been seen as beneficial to both parties, with staff commenting that there “is a positive effect from ‘mixing’ residents with dementia and others.”\(^\text{211}\)

15 people with dementia are dispersed throughout the facility, mixing with those who do not suffer from the disease. The total resident population is set at 60, which was specified for costing purposes.\(^\text{212}\) However, all residents with dementia are located on the first floor, as opposed to the ground, making garden access difficult for most. Formally, the plan is arranged in a symmetrical pincer-like layout, with residences spread along each arm of the plan. A lounge and dining area is located on the elbow of each arm.

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Ibid., 62.
Ibid., 64.
Ibid.
Internal central foyer, poor spatial planning, relatively unuseable space.

Figure 50: Diagrammatic study of Home C plan
Poor layout of social space, no access to external spaces. Hard to view into this space to ascertain functionality.

Residential appearance is poor, with no architectural denotation of individual residence.

Residential completeness is inadequate. No living space or kitchenette.

Privacy Gradient
Room
Hallway
Public Space

Add an entry way to the residence.

Small semi-public space could be added to extend privacy gradient.

Ending of hallway as seating is better than dead end. Preferable to provide access to outside area to facilitate wandering.

Figure 51: Diagrammatic study of Home C residence
Whare Aroha
Whare Aroha is a dementia care environment currently under construction in Rotorua, New Zealand. It is modeled on De Hogeweyk, demonstrating a similar clustering model determined by lifestyles typical to Rotorua.

Seven lifestyles will be represented, in 13 residences, with a total of 72 residents. This will be accompanied by a small township that provides daily living amenities for residents. Residences will contain six single bedrooms, a kitchen, laundry and living space. This will open out onto a small outdoor living space adjoining the primary external circulation of the facility. The lifestyle of each residence will be differentiated through cladding and surfaces, as well as soft furnishings, however there will be little to no change in plan or building form. The planning focus of Whare Aroha is on creating a village for people with dementia, where they can live a relatively ‘normal’ life within the confines of the site.

Whare Aroha is located on the edge of Lake Rotorua, situated away from the major township; therefore integration is not possible in this location. Family spaces will not be provided within the care environment.

Fenced boundary may provoke exit-seeking. May not be an issue as not located near township. However, providing opportunities for meaningful engagement at site boundary beneficial, as demonstrated in De Hogeweyk.

Large central square for residents. Unnecessarily large, could be cut down in size to establish smaller scale arrangements of space. However, scale effectively denotes more public space.

House form similar to typical New Zealand housing stock. Form and plan repeated throughout care environment.

Figure 52: Massing study of Whare Aroha dementia village
Figure 53: Proposed township of Whare Aroha
www.wharearoha.org.nz/
Figure 54: Proposed aerial perspective of Whare Aroha dementia village
www.wharearoha.org.nz/
Scale of circulation path more appropriate in scale to the New Zealand condition. The wandering path is relatively successful, however not much space to stop and engage in activities. Path does not engage with many social spaces.

Some units have very small external living spaces. Ideally would be larger.

Administration and other ancillary programs located around public square.

Figure 55: Diagrammatic study of Whare Aroha plan
Residential completeness good. Residences provide space for living, kitchen and laundry. Private living space for each resident is not provided.

Outdoor living spaces direct face one another across circulation path.

Figure 56: Diagrammatic study of Whare Aroha residence
Results of Precedent Studies

Integration - None of the care environment precedents demonstrated effective strategies for integrating within a community.

Guest Rooms – Both Home B and Home C provided guest rooms for visitors and family, but found that they were underused spaces. To avoid this, the rooms may have alternative functions, or may be provided in the form of a hotel or bed and breakfast that also caters to the public.

Circulation and Wandering - Circulation spaces should be considered as physically and mentally stimulating environments. Whare Aroha and De Hogeweyk demonstrate an effective combination of circulation and outdoor living space. Multiple wandering paths should be provided, with dead ends being avoided where possible.

Outdoor Living Spaces - Courtyards provide good small scale social interactions. Larger, more public environments should be provided for larger gatherings. These larger spaces would likely be located near main dining and living areas. No private outdoor living spaces were provided.

Privacy Gradient - When investigating the layout of both Home B and Home C, both facilities demonstrate a short and abrupt privacy gradient between bedroom and public space. De Hogeweyk demonstrates a longer privacy gradient, and this is likely appropriate in a more dense European city such as Weesp, Netherlands. Whare Aroha demonstrates the most appropriate length of privacy gradient, extending this through the use of a small deck area. This could be further extended with the consideration of a more private outdoor space for residents.

Residential Completeness - To create effective residential completeness, houses should have a small kitchenette and small indoor and outdoor living spaces. A laundry should be provided nearby, so that residents can participate in familiar activities.

Boundaries - Site boundaries and walls should be engaging, as demonstrated in De Hogeweyk, as opposed to the fenced boundary of Whare Aroha. Engaging boundaries would likely result in less exit-seeking behaviour being demonstrated by residents.

Clustering - Group housing was used extensively in the more progressive care environments of Whare Aroha and De Hogeweyk. Although better than single small rooms, it is preferable to provide residents with accommodation resembling a small flat, and clustered together with other residences.
Notes from Precedent Studies

Lifestyle Grouping
Grouping individuals by lifestyle is successful in locations where there is consistency in the community. However, due to Auckland being an incredibly diverse city, it is not particularly feasible to apply this method.

Single or Multi Level Care Environment
Single level care environments are preferable as it allows unencumbered access to all amenities within that care environment and allows more autonomous navigation of the environment. Home C housed people with dementia on a raised level, which both disconnected these individuals, but facilitated the ability to control their experience if handled in a more sensitive manner.

Housing Unit Repetition
The precedent studies demonstrate that the repetition of household forms and floor plans is necessary for financial feasibility. However, controlled use of specific elements and materials can aid in creating the appearance of unique units and houses.

Dementia Village Model
Contemporary care environments such as De Hogeweyk and Whare Aroha provide a dementia village, where residents are provided typical amenities such as a pub, restaurant and supermarket within a facility. The extra programs included within the site are run by trained nursing staff. This model of care was first demonstrated in De Hogeweyk, Netherlands, and has seen great success.

The advantages of this model of care over a nursing home like environment are:

1. This type of environment allows the residents to engage in behaviours and routines they are familiar with, living a life as if they did not have dementia, in a safe and secure environment.
2. Allows people with dementia to live a more independent and autonomous life, retaining the ability to make day-to-day choices.

There are two primary issues with this care approach:

1. People must be experiencing moderate to severe stage dementia. If they are cognitively aware for long periods of time, the experience would likely be disorienting and frightening.
2. This method of care does not help disestablish societal views on dementia. A ‘dream world’ is created behind walls, allowing society to ignore the issue of how these people are viewed and treated prior to their admission into the care environment.
Clusters

Small Scale Social Interactions

Courtyards

Personalisation

Variation of Building Elements

Privacy Gradient

Multi-Use Family Spaces

Guest Accommodation

Integrate with Community

Meaningful Work

Multi-Sensory Environments

Stimulating Materiality

Complete Residences

Private Indoor Environments

Private Outdoor Environments
Design Process
Figure 57: Locating the site
Site Selection

Site selection was driven by the premise that people should not have to relocate to age with dementia. Discussion throughout this text has highlighted the importance of people with dementia retaining a connection to spaces and people that are familiar to them, in order to live as fulfilling life as possible. The key determinant for selecting a site was the proximity of natural elements, preferably dense native bush, in an urban location. This juxtaposition of conditions provides the opportunity for urban social interaction and the opportunity to engage with a local community. The ability to retreat from this urban condition into nature is essential for people with dementia. Salingaros has demonstrated the ability for natural elements to provide stimulation for the human brain from any distance. During the later stages of dementia the ability to move and communicate is impaired, therefore sensory stimulation that requires no user involvement is increasingly important.

Two potential locations were selected: New Lynn and Parnell. Both locations provide opportunities to engage with natural and urban conditions. Ultimately, New Lynn was chosen as it created more challenges for the project, due to the current densification of the area, and the influx of new residents and workers.
New Lynn

Figure 58: Site Selection
Parnell
New Lynn - Chosen Site

Figure 59: New Lynn Urban / Suburban / Natural Engagement Diagram
Figure 60: New Lynn Urban / Suburban / Natural Engagement Diagram
Figure 62: Site Photos
Analysis of Site
Immediate Site Context

The proposed site is located in the heart of New Lynn. Primary access routes in the area are Great North Road, and Rata Street. Delta Avenue runs along the eastern site boundary; however, vehicle traffic is somewhat limited by the one way driving intersection at the southern end, connecting with Great North Road. The small roundabout at the intersection of Delta Avenue and Hugh Brown Drive sees large amounts of traffic, and often backlogs during busy periods. To avoid fast paced traffic, primary access to the proposed care environment should be along Delta Avenue.

The area of the site totals 8400m², with the gradient of the site sloping from east to west at an average gradient of 1:19. The site forms a natural valley in the centre, with steeper gradients down from the northern and southern boundaries.

To the north, the site is bounded by three separate buildings. The first of these is a conjoint learning institute and welfare center, standing next to it is a Pacific learning institute, and following this a law office. To the east, small, independently owned retail and hospitality outlets run along Delta Avenue. The southernmost border is defined by a large office structure rising four storeys, and behind this a small multi-use hall with accompanying carpark. The western boundary is bordered by the Whau River.

Notable elements of the site are the existing underground carpark access to the learning institute/welfare centre. Access to this will either have to be retained, or moved. Additionally, an access road runs along the edge of the western river embankment. This provides secondary access to mixed-use buildings to the south; however, these all retain access from Great North Road, so this road can be deemed non-essential.
Natural and Urban

The proximity between natural and urban conditions was a primary reason for choosing this site. The river running behind the site provides an opportunity for residents to engage with native greenery. Salingaros says that gardens are biologically stimulating, due to the scale of complexity natural material provides,214 and multiple studies have demonstrated the importance of gardens and landscapes for people with dementia. There are several small urban green spaces surrounding the proposed site.

Conversely, the urban condition of New Lynn provides ample opportunities for communal engagement and socialisation. To the south east the site fronts Delta Avenue, with Delta Triangle, a small, raised green space, providing a buffer between Delta Avenue and Great North Road. Across the river to the north west, there is a less dense suburban condition.

The three conditions of natural, urban and suburban provide a range of opportunities for those with dementia, and fulfill conditions of community, natural landscape and gardens, and urban activity.
Figure 65: Existing New Lynn Infrastructure and Amenities Diagram
Existing Infrastructure and Amenities

New Lynn is a developed urban center of Auckland, and is continuing to see growth. The area has a well-established retail and restaurant sector, primarily along Great North Road, Totara Avenue, and within Lynnmall. Two well established restaurants border the proposed site.

The site is well situated for public transit, with a major transport centre providing bus and transport routes being located east of the proposed site.

Dementia is an illness, and some symptoms may require medical attention. A hospital is located in the heart of New Lynn, a short distance away, enabling immediate attention for any situations unable to be treated by staff.

Within New Lynn there are a number of religious institutions, the most prominent of these being the Salvation Army, located to the north of the proposed site. The New Lynn Salvation army is well utilised by the community, with large gatherings occurring throughout the week. The organisation also provides rehabilitation counseling from this location. Creating links to these religious institutions is beneficial for a care environment, as it provides an opportunity for residents to engage with the wider community, but also provides the opportunity for residents to undertake an activity that is meaningful to them.

Additional amenities within a short distance of the proposed site include the New Lynn Community Centre, and the public library. Both provide opportunities for community integration and engagement, if programmed correctly by staff.

Perhaps the greatest amenity for people with dementia is Lynnmall, a short 100m walk from the eastern site boundary. Shopping malls provide a wide variety of activities within an enclosed space and, for those people with dementia who are comfortable within large public spaces, can be an ideal environment. Lynnmall is currently frequented by many elderly throughout the course of the day.
Figure 66: Future plan of New Lynn

Future New Lynn

The *New Lynn Urban Plan 2010 – 2030* provides a masterplan of works to be carried out. In general, the proposal specifies a sizeable population increase within inner New Lynn, 20,000 residents and 14,000 workers.\textsuperscript{215} Currently, the proposed site for this project is identified as the location for a multi-storey carpark, to accommodate expected population growth. In the future, this is then to be converted to medium density housing within parkland. The eastern boundary is marked as dense retail.\textsuperscript{216}

The Delta Triangle, to the east, has been identified in the proposed plan as a place of quiet retreat from the new, dense New Lynn.\textsuperscript{217} The triangle is too small to provide a significant place of quiet retreat, and situated alongside the busiest road in New Lynn. The proposed site may provide an opportunity to connect Delta Triangle to the Whau River through the proposed site in a meaningful way, providing value and amenity to the community of New Lynn.

A connection between the urban centre of New Lynn and the Whau River is proposed along the southernmost border of the site, and is illustrated as a long straight walkway that bridges the river to the suburban community to the west.\textsuperscript{218} This axis of transit should be considered, as it is likely to see heavy pedestrian use, and will heavily affect the treatment of the southern boundary.

The Whau River is currently poorly maintained and, as a result, sees poor use from the local community. The *Plan* proposes a substantial clean-up of the river, as well as a new walk and cycle way along the water’s edge. The *Plan* does not identify which side of the river this will be located on.\textsuperscript{219}

\textsuperscript{216} Ibid.
\textsuperscript{217} Ibid.
\textsuperscript{218} Ibid.
\textsuperscript{219} Ibid.
Program

It is imperative to understand how many people will need to be housed in the new care environment, not just now, but in the future. Site selection was based upon the premise that people get old everywhere, and they should be able to age everywhere too. It is therefore expected that people who get dementia within New Lynn will prefer to live in care within New Lynn.

- Residents - Moderate Dementia - 53
- Residents - Severe Dementia - 18

Appendix article 1 demonstrates the process of extracting an estimated figure of those who will have dementia in New Lynn needing full time care, in the year 2030. The objective of 2030 was chosen to align with the New Lynn Plan.

Staffing numbers were determined through recommendations in the text *Put Yourself in my Place*, a comparative study of existing nursing homes. In this text, it is identified that staffing numbers should ideally be 1:4 staff to resident ratio or better. However, due to the nature of the proposed care environment, with a more person-focused care model, it is reasonable to expect that this will be higher.

- Staff - Ratio 1:4 - 18
- Staff - Ratio 1:3 - 24

*Put yourself in my place*, provides a list of required spaces for a contemporary care environment:

- Administration Office
- Manager's Office
- Staff Facilities
- Dementia Day Space
- Central Meeting Area
- Quiet Room
- Guest Rooms
- Utility Room
- Clean Linen Store
- Cleaning Cupboard

221 Ibid., 82-85.
Additional Program

As identified throughout this text, providing opportunities for residents and the community to meet and interact is essential to helping residents retain their personhood, as well as provide value for their community. These interactions allow the community to learn about dementia, and help establish empathy towards those suffering from the disease through a direct experience. Programs which allow people with dementia to engage in meaningful work will decrease the likelihood of exit-seeking and wandering.

The programs listed below could potentially be integrated into the proposed care environment, as they are either logical inclusions, or have been successfully integrated in other care environments.

- Preschool
- Vet
- Extended Pet Care
- Improvisation Comedy
- Venue
- Gym
- Swimming Pool
- Physiotherapist
- Gerontologist
- Restaurant / Café
- Apartments
- Student Housing
- Hairdresser
- Podiatrist
- Community Gardens
- Charity Shop
- Short term recovery care
- Long term recovery care
Site Study: Collage

Dissecting elements of the existing site condition and recomposing these elements into spatial assemblages. This study was conducted in order to investigate what the potential formal qualities of hypothetical spaces within the locality may be.

In total six collages were created, each exploring different site specific applications of material, form and space.

Each image is paired with an accompanying hypothetical plan and section/s, as a way to further investigate the architectural qualities of these collages.
Figure 67: Entry to Residences

Figure 68: Path
Figure 69: Passing balconies and verandahs, moving into a public space

Figure 70: Approaching a public courtyard and adjoining public building
Figure 71: Small semi-public courtyard, enclosed by residences

Figure 72: Following a circulation path down into a moderate scale social space
Site Study: Sections

Sectional drawings of existing residences within the locality of the two sites initially investigated. These drawings analysed the privacy gradient between the door of the residence, and the public footpath. Seven sections were created in total.

Circles radiating out from scale figures were overlayed to establish how these existing architectural environments correspond with an individual’s public, social and personal space. The measurements used were:

- Public: 7.2m radius
- Social: 3.6m radius
- Personal: 0.5m radius

These figures were initially propounded by Edward Hall, a pioneer in the field of proxemic theory.

This study has demonstrated the importance of establishing a clear separation between public and private spaces. This can be achieved through conventional uses of space, or a wall, but also, the utilisation of a porch and verandah establishes clear thresholds between private and public space. It is of essence that the privacy gradient moves through all three stages of private, semi public, and public. It is advantageous to extend this further. Methods of creating appropriate changes in privacy and extending the gradient appear to be level changes, roof coverings, balustrades, material changes, walls and vegetation.
Figure 73: Sectional study diagrams
Figure 74: Sectional study diagrams
Initial Design Investigation

The initial design investigation proposed raising the care environment above the existing ground plane, as it allowed easier control of the interaction between community and residents. Formally, a long structure hugs the southern boundary, pushed and pulled to create a more dynamic southern facade that engages with the potential public square between the two existing structures. This is pinned by two towers, one each at the east and west corners of the southern boundary, that respond to the site responsibilities of providing a strong street frontage. In particular, the eastern tower stands as a strong element the public will engage with as they move across the proposed foot bridge, and it is predicted that this corner of the site would see a lot of activity. At ground level, the southern boundary would house co-located programs, and forms a base for the care environment above.

Along the eastern site boundary, a strong urban presence has been established, with the streetfront being defined by shops and other co-located programs. This structure also stands as a base for a more mild level of care for people with dementia.

Housing for people with more mild and moderate dementia is provided above existing ground level. Due to the gradient of the site, this level almost meets ground level along the eastern boundary. It is conceived that people with dementia who live in this care environment would be able to easily access the central public courtyard space, facilitating wandering throughout the entire site, as opposed to just the care environment.

Care for people suffering from severe dementia is sequestered to the north, a stable internally focused environment has been established. This placement was informed from the concept of protecting these individuals, therefore placing them in a central location, within the sites walls, seems logical.
**Moderate:** Better location for severe care, due to proximity to natural elements. Southwest corner of site is a prominent location, and will receive a lot of foot traffic. Must be considered if placing severe respite in this location.

Plinth housing co-located programs, engaging with large courtyard space within site. Forms a barrier to the public space to the south, the partial enclosure providing a safe wandering space for people with dementia.

**Severe:** Sheltered courtyard housing for people with severe dementia. Solid wall protects the space, and small courtyards form transitional threshold. Closer to the river would cause less issues with disturbance and

Northern ‘wall’ provides opportunity to engage with Salvation Army. Likely to be location of dementia day care.
Raised moderate care. The level change provides improved ability to control interaction. Level conceived as one large garden with residences placed within. Current layout of residences inadequate, no clustering or grouping.

**Moderate:** Raised care environment allows easier control of interaction with community. Specific connections to be made.

Accessways into site monitored by staff, along with electronic monitoring systems.

Tall mixed use form, fulfilling site responsibility of providing strong street front. Houses range of programs, primarily offices and accommodation.

Care environment raised above street. Allows observation of streetscape below.

Form stepped back to create public square along walkway, engaging with existing buildings to the south.

Figure 76: Initial site concept - level two
Moderate Care Development

Following the initial concept, further investigation was made regarding the care environment itself. Focus was placed on the structuring of residences and how they interrelate with one another.

The plan is viewed as a garden, with pavilions of activity and residence, for people with dementia. An endless wandering path is provided through these gardens, with arrangements of spaces coordinated to provide both small and large scales of social interaction.

This development direction is successful, as the environment created has a sense of being a settlement or a village, as opposed to a dementia care ‘facility’.
Figure 77: Diagrams of moderate care environment
Clustering

- Residences clustered together
- Connected by sunken courtyard
- Establishing small scale social interactions
- Extending privacy gradient

Wandering

- Wandering path along primary circulation through stimulating gardens
- No dead ends, provides a continuous journey
- Circulate around primary communal areas

Scales of Social Interaction

- Small and large scale arrangements provided along path
- Small squares that can be programmed by staff or volunteers
- Provide opportunity for serendipitous encounters and engagement
- Stimulating garden-like environment
Figure 78: Developed floor plan of moderate care environment
Form

Represented as grey mass, however is intended to be additional programs providing base for care environment. Overall, building is large and cumbersome. Needs to be broken down to fit into context. Careful consideration of scale at river edge is essential.

Lanterns

Informed by The Alzheimer’s Respite Centre, by Niall McLaughlin Architects. The increase of spatial scale denotes an increase in scale of socialisation. Overlights allow natural non-glaring light into the space, desirable for people with dementia.

Figure 79: Axonometric of moderate care environment
Height
The height of the facade is imposing. Issue with needing a single level for care environment, and building form getting too tall as site slopes toward river. May have to split the care environment level slightly to break down scale.

Covered Courtyards
Covered courtyards with central garden provide pleasant semi-public space for cluster residents to gather.

Public access into central courtyard
Large access stair into central space within site. Access from care environment exiting at street level, this is an issue as it encourages too much movement into the community, and onto Great North Road. Entry and exit should be deeper within the site.

Urban Frontage
Large footprint reserved for inclusion of mixed use tower. This is responding to the site ‘responsibility’ of providing a strong urban street frontage for New Lynn.

Proposed Council Walkway
Proposed building form pushed in to form public square with adjacent buildings. Regraded council walkway to provide disabled access. Potential accessway into site.
Developed Site Concept

This development retains several key characteristics of the previous concept. Raising the care environment one level above ground provides opportunities to house businesses that will support the care environment above. This also allows the ground floor to be inhabited by the public, and to establish a strong connection through the site to the Whau River below, without causing issues for those people with dementia being cared above. However, the increase in height creates issues of disconnection. This is answered by the implementation of ‘meeting points’, programs which facilitate the coming together of people from the community and people with dementia. These meeting points allow people without dementia to interact with people who do have dementia, in a safe and secure environment, and provokes empathy for those suffering the disease. The meeting points will formulate the entry and exit to the care environment above for residents and visitors alike.

Residents will be able to move through the ground plane of the site. Transition from the upper level will be made through a meeting point, and out into the courtyards that terrace the site. It is conceived that the ground plane will extend Delta Triangle, through the site, and towards the river. The courtyards will be internally focused, calm yet stimulating environments. Meeting points will be located throughout the site to facilitate easy navigation between care environment and ground plane for those with dementia. To better enable this transition, placemarking and wayfinding techniques will have to be considered as the project develops.

Care for those suffering severe dementia is typically only required for the final three months of life. The previous concept housed this care environment in the centre of the site. As the concept has developed, it was found that providing care along the rivers edge for those suffering severe dementia would be more appropriate. The proposed location provides natural biological stimulation for residents, and is sheltered from the uncontrolled activity of the courtyards. The residences focus out towards the trees, dug back into the land. The building form will be that of a courtyard model, focusing on a central natural element. Private access for residents and family will be provided, either through the proposed moderate care environment, or from the northern service lane.

The proposed design designates the three primary corners of the site accommodate larger structures, structures that support private business, or other such programs. This is in response to the site requirements, whereby this site must fit into the larger urban plan of New Lynn. These three corners will see a large amount of foot traffic, and are a critical engagement point with the community for this site.

The moderate care environment sits one level above ground floor, a series of single level platforms adjoined by wide bridges, allowing sunlight to the courtyards below. The design for this area is based on the moderate care environment developed earlier - a wandering garden with clusters of residences.
Create a connection between Delta Triangle and the Whau River through the site.

A series of public squares through the site create a connection between Delta Triangle and the Whau River. Spaces are co-ordinated to allow spatial daisy chains. Ground plane facilitates wandering through activated public squares. People with dementia passively monitored by community.

Strong outer boundary surrounding the site, with key punctures to allow influx of public, and monitor outflow of residents. Co-programs are housed within this boundary.

Regrade proposed public walkway to make accessible.

Respite for Severe Care
Respite care for those suffering severe dementia provided at rivers edge. Provides a small scale private courtyard architecture, away from all uncontrolled interactions, to provide best method of care. Multi-sensory environment of natural landscape provides biological stimulation.

Meeting points will be established in several locations on the ground plane. Provide access, meaningful work, and facilitate direct contact between community and people with dementia.
Bridges between platforms, holes cut to light courtyards at ground level.
Clusters of residences in courtyard arrangements establish small scale interactions between residents. The courtyards help to extend the privacy gradient, and in some cases, begin to establish defensible space. Varied residence appearance better enables people with dementia to find their own residence. Architectural elements of clusters are co-ordinated to facilitate placemarking.

Wandering facilitated by retaining single level raised care environment. This is advantageous, as interaction is easily controlled with the ground plane below. Spatially, this environment will be modelled of the earlier detailed design of the moderate care environment, with clusters and pavilions within a gardened landscape.

Family spaces and guest facilities provided in tall structures at corner of sites, facilitating engagement with external community.

Tower on eastern boundary to accommodate mixed use businesses. May also integrate programs identified earlier as accompaniments to the care environment.

Regrade proposed public walkway to make accessible.
Figure 82: View from cover
http://63.media.tumblr.com

Figure 83: Low lying structure, embedded into ground, closer to natural condition and environment around.
pinterest.com

Figure 84: Urban street running between buildings.
pinterest.com

Figure 85: Alleyway provoking positive wandering. Buildings demonstrating unique architectural appearance.
christinasummersday.tumblr.com/
Figure 86: A garden and street co-existing, creating a biologically stimulating urban environment.

farm8.staticflickr.com

Figure 88: Personalised outdoor living space. Biologically stimulating through appropriate scales of complexity. Good use of unique architecture and personalised soft furnishing.

forum.bonnegueule.fr

Figure 87: View into shared courtyard

https://lh3.googleusercontent.com/...DSC4242.jpg
Conclusion
**Conclusion**

The architectural question for this project has been “How can architecture enable people with dementia to live a fulfilling life in care?” The intent of this research project was to design an architectural environment for people with dementia that allows those individuals to live a fulfilling life in care, and attempts to break down preconceptions of ageing and disability.

The care environment this research project has proposed is in stark contrast to the typical idea of a care facility or nursing home. Current care environments are dehumanizing, locking people with dementia away from the community, and allowing that community to abdicate responsibility for the people who need their help most. The proposed care environment demonstrates an architecture that provides a stimulating and humanizing place of care for people with dementia, and attempts to provoke the creation of a more caring community surrounding these individuals by integrating the architecture into the robust and expanding urban environment of New Lynn. A more caring community for people with dementia is a more caring community for everyone. It is a better community.

The raised care environment is designed around the key principles of progressive and ideal care for people with dementia, providing an urban garden where individuals can exist in relative peace and comfort. The activation of the ground plane, where other programs are tucked beneath the care environment, serves to physically, socially, and financially support the care environment above. The courtyards throughout the site provide respite from New Lynn, and serve to connect the proposed relaxation space that is Delta Triangle with the to-be-regenerated Whau River. The value of spaces such as these will only grow as New Lynn increases in density.

Ultimately, this project does not demonstrate the perfect care environment for individuals with dementia. The best care environment for people with dementia is their own home, and it is due to society’s failure that these people are relocated, grouped and placed behind the walls of a facility. Communities have abdicated the responsibility of caring for those within the community, and governments have abdicated the responsibility of caring for these people in a humane and dignified manner. Significant change in the way society views people with dementia must occur. Only then will legislation and regulations change to protect these individuals from the dehumanization that they currently endure. If these obstacles are overcome, it is feasible that society can begin to establish a supportive cityscape not only for people with dementia, but anyone with a disability. This architectural research project attempts to begin this process.
Architecture alone cannot achieve this, however. As Alex O’Neil states, “you cannot separate out good design, effective management and user involvement for people with dementia… It’s only when you take the three together that you demonstrate that you’re serious about making a difference.”

This project has developed an architecture in relation to its environment, and the professional opinions of experts in the field of dementia. However, without appropriate staff and management, it is impossible to achieve what this architecture aims to achieve.

The methodology utilised during this research project has been a combination of literature review, precedent review, and research through design. Research into precedent studies of existing care environments was used considerably less than expected, due to a lack of progressive care environments to study. As such, the methodology utilised was primarily a combination of literature review and designing in accordance with findings.

Further research should investigate architecture’s ability to enable people with dementia to live and age at home for longer. Consideration should be given to the nature of public funding within New Zealand for people with dementia, as this currently inhibits progressive ageing in place strategies. Additional study should be conducted on how a dementia care environment can provide value and integrate with the surrounding community, as well as how architecture can provoke the establishment of a more caring and supportive community. Finally, a document illustrating straightforward architectural techniques for making an environment more dementia-friendly would likely prove to be very beneficial in the effort to establish supportive cityscapes.
Referencing
List of Figures

1. Corridor in Alzheimer's Respite Centre, by Niall McLaughlin Architects
   alzheimers-nk_s_18-2/
   36
2. Diagramatic analysis of Alzheimer's Respite Centre corridor
   36
3. Patients being cared for in a public park. Paris, France
   article
   38
4. Photographs demonstrating complexity of scale
   38
5. The Humble Administrator's Garden. Suzhou, China.
   A meandering pathway moves through a stimulating garden environment, and engaging with a series
   of pavilions of activity.
   http://www.china-tour.cn/images/Suzhou/Humble-Administrator-Garden.jpg
   42
6. Plan drawing of the Humble Administrator's Garden. Suzhou, China. The pathway is a composition of
   short segments that facilitate movement through the garden, broken, but still retaining a clear direction of
   travel. Space opens up around pavilions of activity.http://aaa.uoregon.edu/sites/aaa1.uoregon.edu/
   files/images/news/2013/humbleadministrator_sm.jpg
   42
7. The verandah at the front of the traditional villa housing model serves as a transitional space between
   the privacy of the home, and the publicity of the street. This space extends the privacy gradient, easing
   the transition from zone to zone.
   48
8. The verandah provides a space to meet individuals attempting to enter the home. A series of steps and
   landings provides the homeowner, 'the defender' with a position to look down from.
   48
9. Establishing control of one's private, personal space creates defensible space.
   https://nellyali.files.wordpress.com/2012/07/personal-space.jpg
   48
10. Lack of defensible space being established. The room, as a result, is uncomfortable, and provokes
    feelings of vulnerability.
    50
11. Defensible space being established through providing an entryway, extending the privacy gradient, and
    removing direct site from door to bed.
    50
12. De Hogeweyk, a care village in Weesp, Netherlands, provides a environment complete with shops and
    cafes for it's residents.
    http://hogeweyk.dementia village.com/
    58
13. Successful integrations of stand up and improvisation comedy have been demonstrated in a wide variety
    of care environments. People with dementia, despite their disease, have successfully interacted and
    engaged with this method of performance.
    J. Stevens, "Stand up for Dementia: Performance, Improvisation and Stand Up Comedy as Therapy for
    People with Dementia; a Qualitative Study," Dementia 11, no. 1 (2011).
    58
14. The Barbican Centre in London integrates a theatre, a department store, a daycare centre, and other
    such programs for it's residents. The projects objective was to provide an 'all-inclusive' environment for
    those living in the integrated apartments.
    joasphotographer.deviantart.com/
    58
15. Defensible space being established through providing an entryway, extending the privacy gradient, and
    removing direct site from door to bed.
    www.citylab.com/housing/2015/10/the-nursing-home-thats-also-a-dorm/408424/
    58
16. Sketches illustrating potential methods of handling a care environment boundary
    60
17. Wintringham Specialised Aged Care by Allan Kong Architects, in Australia, provides residents with
    individual housing units reminiscent of typical housing models throughout Australia. All buildings are of a
    residential scale, and have a distinctly residential appearance.
    www.wintringham.org.au/
    76
18. Sketches demonstrating variation in form and shape of residences.

19. Sketch testing the application of varying verandahs as a method of differentiating between residences.

20. Wintringham Specialised Care provides units for residents, with a verandah attached to the front of each residence. This facilitates a smaller scale social environment for residents, encouraging small engagements between individuals. www.wintringham.org.au/


22. The Serpentine Pavilion by Peter Zumthor creates an internal courtyard garden. The focus is not on the outside world, but on the garden, the natural element in the centre. The courtyard facilitates a special connection between human and nature. It is a meeting point, of sorts. This demonstrates a courtyards power to focus attention inward. In addition, the courtyard establishes a smaller scale social environment, dislocated from space outside the courtyard. http://www.archdaily.com/146392/serpentine-gallery-pavilion-2011-peter-zumthor

23. In Montreuil, France, farmers established a method for protecting their peach trees by building protective walls. Structures were built within the confines of the "Murs à pêches", focused inward, rejecting the environment external to the walls. These become clusters, small communities united by proximity. http://socks-studio.com/2014/02/24/artificial-microclimates-nature-within-walls-in-montreuil-and-pantelleria/


25. Wintringham Specialised Care provides units for residents, with a verandah attached to the front of each residence. The variation of this element changes the appearance of each residence, and provides an environment for residents to soft furnish to express personality. www.wintringham.org.au/

26. The terrace is a common spatial element of Italian architecture. Often, the terrace 'borrows' the background of the landscape, and hides the middle ground, in an attempt to create an intimate environment with a view. This hiding of the landscape is achieved by creating a low wall, or raising the terrace above the ground below. appassionataitaly.files.wordpress.com/2014/06/casa-giacomo-terrace.jpg


31. Hakka communities in China developed the Tulou, a structure housing 80 families, and containing all features of a 'village'. Functions are housed in the walls of each structure. http://socks-studio.com/2014/02/01/walls-as-rooms-4-the-hakka-tulou-community-housing-for-equals/
32. The Klong Toey Lantern project in Bangkok, Thailand, utilises the wall as an inhabitable separation device between two distinct space. The wall has become a meeting point for interaction in the community. http://www.dezeen.com/2012/03/18/klong-toey-community-lantern-by-tein-tegnestue

33. Ross Home in Dunedin, Otago, provides a cafe for residents with dementia that is open to the public. psotago.org.nz/assets/Uploads/Alans-images/Ross-Home

34. Matsudo, Japan has implemented an education scheme for the public on dementia, in an effort to provide a better lifestyle for those who suffer from the disease. www.npr.org/japan-offers-dementia-awareness-courses-to-city-workers

35. Sketches demonstrating meeting between community and care

36. Massing study of De Hogeweyk dementia village

37. Large courtyard scale broken by walkway hogeweyk.dementiavillage.com/

38. Central shopping area hogeweyk.dementiavillage.com/

39. Diagrammatic study of De Hogeweyk plan

40. Diagrammatic study of De Hogeweyk residence

41. Massing study of The Alzheimer's Respite Centre

42. Lantern sitting above brick wall www.niallmclaughlin.com/projects/alzheimers-respite-centre-dublin/


44. Diagrammatic study of The Alzheimer's Respite Centre plan

45. Diagrammatic study of The Alzheimer's Respite Centre residence

46. Massing study of Home B

47. Diagrammatic study of Home B plan

48. Diagrammatic study of Home B residence

49. Massing study of Home C

50. Diagrammatic study of Home C plan

51. Diagrammatic study of Home C residence

52. Massing study of Whare Aroha dementia village


54. Proposed aerial perspective of Whare Aroha dementia village www.wharearoha.org.nz/

55. Diagrammatic study of Whare Aroha plan

56. Diagrammatic study of Whare Aroha residence

57. Locating the site

58. Site Selection

59. New Lynn Urban / Suburban / Natural Engagement Diagram

60. New Lynn Urban / Suburban / Natural Engagement Diagram
61. Aerial site photo
   142
62. Site Photos
   144
63. Immediate Site Context Diagram
   146
64. Natural and Urban Site Diagram
   148
65. Existing New Lynn Infrastructure and Amenities Diagram
   150
66. Future plan of New Lynn
   152
67. Entry to Residences
   159
68. Path
   159
69. Passing balconies and verandahs, moving into a public space
   161
70. Approaching a public courtyard and adjoing public building
   161
71. Small semi-public courtyard, enclosed by residences
   163
72. Following a circulation path down into a moderate scale social space
   163
73. Sectional study diagrams
   167
74. Sectional study diagrams
   169
75. Initial site concept - level one
   172
76. Initial site concept - level two
   173
77. Diagrams of moderate care environment
   176
78. Developed floor plan of moderate care environment
   179
79. Axonometric of moderate care environment
   180
80. Developed zoning plan on site - level one
   187
81. Developed zoning plan on site - level two
   189
82. View from cover
   http://65.media.tumblr.com
   190
83. Low lying structure, embedded into ground, closer to natural condition and environment around.
pinterest.com
   190
84. Urban street running between buildings.
pinterest.com
   190
christinasummersday.tumblr.com/
   190
86. A garden and street co-existing, creating a biologically stimulating urban environment.
farm8 stati c flickr.com
   191
87. Personalised outdoor living space. Biologically stimulating through appropriate scales of complexity.
Good use of unique architecture and personalised soft furnishing.
forum.bonnegueule.fr
   191
88. View into shared courtyard
   https://lh3.googleusercontent.com/_ DSC4242.jpg
   191

All figures by author unless otherwise stated
Bibliography


Hill, Jenny. "Neighbourhood Return Scheme Finds Lost Dementia Patients."


Tilly, Jane. Responding to the Wandering and Exit-seeking Behaviors of People with Dementia PDF [Washington, DC]: Office of Supportive and Caregiver Services, 2015.


Appendix
Final Drawings
Contact Point
Entry + Exit
Classroom
Elevator Space
Secure Outdoor Play Space
Entry
Contact Point Two
Class Space
Hinged Ceiling Panel
Entry
Contact Point Two
Class Space

1 DAYCARE

Axonometric Drawing
875mm x 900mm
Axonometric Drawing
875mm x 900mm
Axonometric Drawing
875mm x 900mm
4 LIBRARY

Axonometric Drawing

1100mm x 1100mm
Massing Model of Care Environment
1200mm x 1000mm
Calculating Program Requirements
Finding the number of people with dementia in New Lynn who will need care

Expected Elderly Population in New Lynn

<table>
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<th>Year</th>
<th>Total</th>
<th>Over 65</th>
<th>%</th>
<th>% Diff.</th>
<th>Year Diff.</th>
<th>% Δ per Year</th>
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Dementia Prevalence within New Zealand

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<th>Prevalence</th>
<th>Year Diff</th>
<th>% Δ</th>
<th>% Δ per Year</th>
<th>% Dem. Prev. in 2013</th>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>0.1</td>
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Expected Dementia Prevalence in New Lynn Population

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<th>Year</th>
<th>Total</th>
<th>Over 65</th>
<th>Exp. Dem. Prev. %</th>
<th>Exp.Pop. with Dem.</th>
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Expected Community/Care Split within New Lynn

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<tbody>
<tr>
<td>Care</td>
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<td>35%</td>
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<tr>
<td>Community</td>
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<td>71%</td>
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Evidenced Devon Dementia Prevalence by Severity

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<th>Population</th>
<th>Mod+Severe Pop.</th>
<th>New %</th>
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<td>Mild</td>
<td>55%</td>
<td>7206</td>
<td>-</td>
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<tr>
<td>Moderate</td>
<td>32%</td>
<td>4247</td>
<td>74%</td>
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<tr>
<td>Severe</td>
<td>13%</td>
<td>1485</td>
<td>26%</td>
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Expected People with Dementia in New Lynn by Severity

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<th>%</th>
<th>Ppl w Dem New Lynn</th>
<th>Residents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>74%</td>
<td>53</td>
</tr>
<tr>
<td>Severe</td>
<td>26%</td>
<td>18</td>
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Number of Staff Required for High Quality Care

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<th>Ratio</th>
<th>Residents</th>
<th>Staff</th>
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</thead>
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<tr>
<td>1:4</td>
<td>25%</td>
<td>18</td>
</tr>
<tr>
<td>1:3</td>
<td>33%</td>
<td>24</td>
</tr>
</tbody>
</table>

Residents: 71
Staff: 24
Initial Concept Plan
Declaration

Name of candidate: J ACK O'NEILL

This Thesis/Dissertation/Research Project entitled: I'M NOT GONE: A NEW CARE ENVIRONMENT FOR PEOPLE WITH DEMENTIA is submitted in partial fulfillment for the requirements for the Unitec degree of MARCM (PROF).

Principal Supervisor: KERRY FRANCIS

Associate Supervisor/s: KEYSTINA KAZA

CANDIDATE’S DECLARATION

I confirm that:

- This Thesis/Dissertation/Research Project represents my own work;
- The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
- Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: ..................................................

Candidate Signature: .................................................. Date: 30/07/2016

Student number: 1364160
Full name of author: Jack O'Neill

Full title of thesis/dissertation/research project ('the work'):
I'm Not Done: A New Care Environment for People with Dementia.

Practice Pathway: Architecture
Degree: MARCU (Prof)
Year of presentation: 2016

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Signature of author: [Signature]
Date: 30/09/2016