Fantasy and Reality: Design for Dementia

Ana Suznjevic

An explanatory document submitted in partial fulfillment of the requirements for the degree of Master of Architecture (Professional).

Unitec Institute of Technology, 2013.
The subject of this thesis is the medical condition of dementia in its relation to the architecture of care facilities. The world’s population is increasing and with this comes an increase in the proportion of elderly people, and in age-related degenerative diseases. The question of how to accommodate the elderly and frail has become increasingly important in all societies. This project examines the nature of the disease and the way in which occupational therapy and treatment theory has influenced the design of dementia facilities. The process of exploration considers ways in which elements of theory can be integrated into design to create an environment that mitigates disorientations in time and place, and that reduces the personal impacts of dementia.

The selection of a suitable site has been influenced by the ideas of a type of therapy known as Reality Orientation (RO), and by the importance in current theory of maintaining a relationship between dementia sufferers and their social context. Consequently the architectural focus of the thesis question has been developed to engage with a design programme that proposes the integration of a care facility for dementia patients in an urban location.
Acknowledgments

This project would have not come to be without the guidance and support of a lot of people. Firstly, I’d like to thank my supervisor, David Turner for all his advice and guidance throughout the year. Secondly, I’d like to thank David Chaplin and other academic staff for the many discussions and critiques. Also, I’d like to thank Brendan Smith for all his help over the years. To my peers, I’d like to thank them for their support, encouragement and compassion. Lastly I would like to thank my parents for their unconditional support and encouragement throughout my years of studying.
1.0 Introduction

1.1 Research Question 1
1.2 Background Information 1
1.3 The Nature of Dementia 3

2.0 Therapy and Design 7

2.1 Cognitive Therapy 7
2.2 Reminiscence Therapy 8
2.3 Controlled Multi-Sensory Environment 9
2.4 Sensory Gardens 9

3.0 Environmental Psychology for the Elderly and Demented 10

3.1 The Environmental Docility Hypothesis 10
3.2 “The Home” 11
3.3 Territorial Behaviour 12
3.4 Familiarity 14
3.5 Orientation 14
3.6 Integration versus Disintegration 16
   3.6.1 The Boundary 19

4.0 Precedents 21

4.1 De Hogeweyk 21
4.2 Alzheimer’s Respite Centre 25
4.3 Sir Montefire Home 38
4.4 Edmund Hillary Dementia Unit 29
5.0 Site Analysis

5.1 Selection Process
5.2 Location
5.3 Site Characteristics
5.4 Selection Criteria
5.5 Site Conclusion

6.0 Design Process

6.1 Design Brief
6.2 Spatial Requirements
6.3 Design Response
   6.3.1 Public and Private Space
   6.3.2 Intimacy Gradient and Fragmentation
   6.3.3 Boundary Exploration
   6.3.4 Courtyard
   6.3.5 Slotting In
   6.3.6 Moving Residents
   6.3.7 Domion Road Facade

7.0 Critical Appraisal of Final Design

8.0 Conclusion

9.0 Bibliography

10.0 List of Figures

11.0 Appendix
1.0 Introduction

1.1 Research Question

Can architecture mitigate disorientations characteristic of dementia while allowing the residents to be integrated into the community?

1.2 Background Information

Those suffering from Dementia are the aging population and the population of New Zealand, like other developed nations, is ageing. In 2011, 48,182 New Zealanders had dementia with an 18% increase over three years. Alzheimers New Zealand reported in 2012 that “(w)hile dementia can occur at any age, it is rare below the age of 60 years. Because of demographic ageing, in the future there will be relatively more people in the age groups at most risk for dementia. In the absence of effective prevention or treatment, the increase in the numbers of people with dementia will come about as a consequence of an increase in the size of the population most at risk i.e. those in the older age groups.”

In this context, Rosalie Hudson observed that:

“Dementia … as ‘the disease of our time’ (is) one of the greatest challenges for medicine, nursing, and society in the twenty first century.”

The design of care settings for people with dementia is a recent development. In the first half of the 20th century people with dementia would have been cared for in state mental hospitals or asylums. There were few efforts to create settings specifically for individuals with dementia until the 1980s. The looming population of aging baby boomers means that there is a greater need to consider how society will accommodate those that do not remain ‘forever young and fit.’

---


4 History of Creating Settings for People with Dementia,
Victor Regnier (2002) expanded on the significance of the issue when he suggested that:

“… the value and meaning of civilization can be documented from the record it leaves in the form of architecture, and that the true measure of compassion and civility of a society lies in how well it treats frail older people” in his book *Design for Assisted Living.*

Facilities for the frail and elderly have largely been provided in residential retirement homes. They are usually located in residential areas and provide all the necessary functions (hairdresser, cafeteria, activities, gardens etc) within them so there is no need to venture outside the perimeter walls. An alternative solution to this would be to locate the elderly within urban centres that already include necessary amenities. This would eliminate the feeling of separation and isolation for the elderly and it would allow interaction between different age groups. The integration of people with dementia in a wider community presents problems of security and safety, which tends to minimise the level of interaction between the public and residents.

---

1.3 The Nature of Dementia

The word *dementia* comes from the Latin *de* (out of) and *mentia* (mind). Literally, it is the condition of being “out of one’s mind.” Dementia is the name for a number of brain diseases that lead to the progressive loss of mental activity, the most common of which is Alzheimer’s disease. Dementia is different from normal age-related forgetfulness. David Jolley summarises the condition as characterised by:

“… people (who) cannot comprehend words and cannot find the words to communicate their thoughts and wishes (receptive and expressive dysphasia). They may not understand what new activity they are being encouraged to perform, not recognising objects, sounds, colours, even components of their own body (agnosia) or may be unable to initiate action despite their wish to cooperate (apraxia).”

One of the most widely used staging devices is the Global Deterioration Scale (GDS) which divides Alzheimer’s disease into seven distinguishable stages. The criteria are based on patient history, language, gait, memory problems, self-care and a mini mental state exam. It is not a sensitive measure of short term change, as movement between stages may take several years.

The only thing that can be said with certainty is that the overall progression of dementia is one from reality into fantasy, in which elements of fantasy become more and more prevalent as the mental connections to reality break with the shutting down of neurotransmitters. This progression means a removal from the real world into an egocentric and introverted world.

---

Figure 1.1 is a graph of the downward curve of the progression of Alzheimer's Dementia over a 9 year period, but is only indicative of dementias because each is unpredictable and unique. The 9 year period is an average period for the disease to progress from early to severe dementia and is a long enough time to warrant a specialized facility.
Tessa Perrin and Hazel May describe the egocentricity of dementia as a progressively narrowing environmental field. As shown in Figure 3, the person first loses sight of A, his wider environment; this might be the wider environs of the town where he lives, or perhaps distant friends or relatives that he sees only from time to time, or possible peripheral projects that are not particularly meaningful. As his dementia advances, there will come a point where he fails to perceive B as well as A; this could be the layout of his son’s house, his new-born granddaughter, or the model railway he was building in the spare room. Later he will be unable to appreciate A, B and C; he will get lost in his own house, fail to recognise his Bowls Club friends, be unable to attempt the daily paper crossword; and so the decline goes on. Perrin and May do not perceive this increasing egocentricity as purely a turning-in on oneself; rather, that the external world for the dementing person is changing, and is in a very real sense shrinking. This shrinking world is less in contact with reality and more and more a type of individual fantasy.

---

Figure 1.2 The developing egocentricity of dementia
Figure 2.1: “The Persistence of Memory”
Salvador Dalí, (1931)
2.0 Therapy and Design

As dementia research increases therapy that is considered effective has influenced the functional and aesthetic environments of care facilities.

2.1 Cognitive Therapy

Prior to the 1990's, Reality Orientation (RO) therapy was the zeitgeist of cognitive therapies for dementia. This therapy is based on the importance of emphasising the awareness of the here and now. 11 Stephen Curran and John Wattis state: “a 24-hour RO involves changes to the environment involving such things as the use of notices and clear signposting of key locations around the ward and staff in interaction with patients”;12 these authors also stress information relating to orientation. There are also special RO sessions in which small groups of residents meet with staff members on a regular basis for about 40 minutes at a time. Originally, these involved emphasising information relating to orientation, for instance, by going round each member of the group by name, discussing things going on at the time of year (e.g. the presence of spring flowers) and so on. In some manifestations of RO, these activities have been extended to include a wider range of things (e.g. what is happening in the outside world).”13

11 John Killick and Kate Allan, Communication and the Care of People with Dementia (Buckingham Open University, 2001), 103-04.
13 Ibid.
2.2 Reminiscence Therapy

Emotion-oriented interventions such as reminiscence therapy and validation therapy came from the notion that older people tend to reminisce and past memories are more engrained than newer memories. Reminiscence (or validation) therapy came from the observation by Naomi Feil, an American social worker that RO and similar methods were too confrontational and led to the person withdrawing and possibly becoming hostile.14 “… (this) therapy stresses the validation of feelings in whatever time or place appears to be real to the individual, regardless of whether this corresponds to what staff members regard as the ‘here and now.’”15

An example of an everyday reminiscence therapy is the De Hogeweyk in The Netherlands. De Hogeweyk is dubbed the “Truman Show” for dementia patients. It looks like a real village but is a nursing home. The staff who care for the patients also work incognito as a supermarket cashier, the restaurant manager, etc, and dress in normal clothing rather than uniforms. The Centre is presented as a fantasy, but it is accommodating the residents desire to live a normal life by the representation of its accommodation as a conventional village.

De Hogeweyk is not the first village-inspired nursing home, but it is considered the most elaborate. Facilities in the US have had these villages since the mid–1980s; however a clinical nurse quoted in an article by Katie Moissee comments that the use of nurses as cashiers is quite unlikely (in the United States). 16 The scheme has been so successful that there is a waiting list of up to 2 years for places.17 An exhibition is organised twice a year and about 1000 visitors come to learn about how De Hogeweyk works and how this concept took shape.18

15 Ibid.
2.3 Controlled Multi-Sensory Environment

Based on multisensory stimulation, snoezelen was first introduced in the Netherlands in 1970s for people with learning disabilities.19 “The purpose is an opportunity to promote a general feeling of restoration and refreshment, which one obtains from engaging in pleasurable and stimulating activities that do not produce any pressure and can be enjoyed in full.”20 It is useful to RO to have various forms of sensory stimulation such as: light projectors, gentle vibrations, bubble machines, music, tactile sensations, and aromatherapy. As Rosenzweig comments: “Snoezelen rooms are felt to be calming and soothing for people with Alzheimer’s disease, especially those with late-stage dementia who wander, experience sun downing, and are (likely to be) agitated.”

2.4 Sensory Gardens

Much like snoezelen rooms, sensory gardens aim to awaken the senses through stimulation. The principal UK alzheimers research groups advocate this form of therapy with advice such as: “The senses are stimulated by getting out in the fresh air and sunshine, seeing colours and smelling scents, hearing birds sing and leaves blow in the breeze, and touching plants and soil. It also may help to keep the patient more in touch with the real world and with the present as well as the past. Talking about growth, and the cycle of life, keeping those with Alzheimer’s involved in the world around them, and making links with what has happened in the past. In the earlier stages, the patient can participate in gardening as well as enjoying the environment. In the later stages, simply enjoying the garden may be enough.”22


22 Dementia Sensory Gardens, “Gardening activities can be therapy for Alzheimer’s patients”, http://www.dementiasensorygardens.co.uk/2013/05/28/gardening-activities-can-be-therapy-for-alzheimers-patients/ (accessed October 2, 2013).
3.0 Environmental Psychology for the Elderly and Demented

3.1 The Environmental Docility Hypothesis

In ‘Ecology and the Aging Process’ Lawton and Simon (1969) express the *environmental docility hypothesis* which suggests that as an individual changes with aging or competence the greater the impact of the environment on them: in other words, behaviour is far more controlled by the environment as the disease advances. In order for the aging or impaired to not be handicapped by their disability there needs to be no barriers imposed by the environment.

A model by Lawton and Nahemow (1973) shows that human behaviour is adaptive to “environmental press,” or forces in the environment that are benign until the “press” exceeds their competence level, at which stage it becomes a negative influence. But major decreases in environmental press can also have negative outcomes or under-stimulation which results in boredom and sensory deprivation.

The nature of dementia is to live in the immediate moment with immediate stimulation without analysis: the balance between under stimulation and over stimulation can be very subtle. Over-stimulation can be alarming and confusing, but under stimulation can be unmemorable and monotonous.

Figure 3.1: Graphic representation of an ecological theory of adaptation and aging
A common philosophy of institutions is to create the feeling of “home.” The concept of home and whether it can be applied authentically in aged care facilities is discussed in a paper by Roger Fay and Ceridwen Owen titled “Home’ in the aged care institution: authentic or ersatz.” The misconstrued definition of home and the tendency towards a romantic meaning of it has led to an association of the home with space and physical form that only lead to an imitative but fraudulent representation of it. Fay and Owen write that the most important design intention in creating a home for the aged care is privacy and autonomy. The ‘home-like’ décor of the Alzheimer’s respite centre in Dublin appears to be no more than decoration on an institutional backdrop. This is a recurring theme in the literature, reflected in Altman’s analysis of territorial behavior.

---

26 Roger Fay and Ceridwen Owen, “Home’ in the Aged Care Institution: Authentic or Ersatz,” 27.
27 Ibid.
3.3 Territorial Behaviour

Irwin Altman writes that territorial behaviour as put forth by several writers may be a biological, inherited, or instinctive rather than a response to an environment or an influence of culture. Territorial events he writes can be associated with different motives or need states, such as sleeping or eating, or geographic features, such as size and location, or social conditions, such as individuals, groups or large social systems. He describes three types of territories: primary, secondary, and public. “Primary territories are owned and used exclusively by individuals or groups, are clearly identified as theirs by others, are controlled on a relatively permanent basis, and are central to the day-to-day lives of the occupants.” In a dementia residential unit this would be the resident’s bedroom. Altman writes: “The violation of a primary territory can be a serious affront to a person’s self-identity, especially if intrusion is repeated and if adjustment and readjustment of boundaries is unsuccessful.”

A visit to an Auckland Dementia Unit showed the importance of private space. The image below shows a resident that attached such importance to the area around their bedroom door that they wanted no other person near it. To deal with this perception nurses taped the ground with black strips to indicate private space. They said that this has persuaded other residents to avoid walking over the taped area.

---

30 Ibid.
Clearly defining the public and private space in shared living facilities can ease the feeling of not having ‘a room of one’s own.’ To do this Christopher Alexander suggests placing bedrooms at the far ends of the intimacy gradient, far from the common rooms. 31 Articulation of the entrance can help to define the territorial boundary. A Glasgow housing scheme for people with dementia articulates each unit by separating them by a vertical half portal frame that breaks up the long horizontal building form. The entrance doors are painted in different colours to help distinguish between each unit.

3.4 Familiarity

Familiarity is also an important aspect of creating a comfortable environment for people with dementia. Familiarity is defined by Kaplan and Kaplan as “the relationship between an individual and something that that individual has had considerable experience with.” There are two components of memory: Explicit (declarative) and implicit (habit). Implicit memory is the demonstration of the effects of prior experience without conscious recollection of that experience, whereas explicit memory is “a conscious, directed effort to recollect prior experience and facts.” Similarly, Son, Therrien and Whall (2002) note that “[m]any researchers have found that elders with dementia … have intact implicit memory but impaired explicit memory.”

A further, and important aspect of the design of the dementia centre is in provision of day facilities for those with early dementia to ensure that they experience and create implicit memories of the facility before the disease progresses. So even if the design presents a different environment from their home their experience with the facility prior to loss of explicit memory will assist the process of moving in.

32 Stephen Kaplan and Rachel Kaplan, Cognition and Environment (New York: Praeger, 1982), 92
34 Ibid.
35 Ibid.

3.5 Orientation

“A residents’ ability to orient themselves within the nursing home is a prerequisite for maintaining quality of life.”

An article titled ‘Dementia-Friendly Architecture: Environments That Facilitates Wayfinding in nursing Homes’ by Gesine Marquardt and Peter Schmieg summaries research findings to establish nursing homes that promote way finding. Three major floor plan typologies were analysed for way finding:

1) Straight circulation
2) L- shaped circulation
3) Continuous paths around an inside courtyard

The study used residents who had moderate to severe dementia because those with mild dementia were able to find their way around each of the layouts very well.

They found that the number of residents and the size of the living area contributes most to residents way finding, and as the number of residents per living area increases orientation decreases.

In straight circulation systems, residents were able to find their way better than in layouts that featured a shift in direction (L shaped) and numerous shifts in direction even further interfered with the resident’s way finding. The act of locating the resident’s individual bedrooms is strongly linked to the stage of dementia that they are in.

Marquardt and Schmieg have summarised extensive practical experience and qualitative research to establish criteria for the design of a therapeutic environmental shown in the following table:

<table>
<thead>
<tr>
<th>Legibility</th>
<th>Familiarity</th>
<th>Autonomy</th>
<th>Sensory Stimulation</th>
<th>Social Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logical room setting</td>
<td>Biographical reference</td>
<td>Barrier-free, compensating environment</td>
<td>Encouragement</td>
<td>Privacy</td>
</tr>
<tr>
<td>Furnishing</td>
<td>Homogeneous and small groups</td>
<td>Safety and security</td>
<td>Avoidance of overstimulation</td>
<td>Belonging</td>
</tr>
<tr>
<td>Fixtures and fittings</td>
<td>Noninstitutional character</td>
<td>Orientational cues</td>
<td>Access to the outdoors</td>
<td>Communication</td>
</tr>
</tbody>
</table>

Figure 3.5: Criteria of a therapeutic environment

They argue that structures that promote way finding are small units with many diversely designed places, direct visual access, and the spatial proximity of the kitchen, dining room, common room. Orientation can be related to internal orientation as well as to external orientation. External references can be views of adjacent buildings, trees or streets.

The relocation of patients as the disease progresses has divided researcher’s opinions. On one hand moving the residents to suit their changing needs is likely to cause confusion and disorientation and on the other hand moving them is intended to match the characteristics and needs of the residents in different stages of their illness. Moving the patients from one nursing home to another can have negative consequences on family members who are often emotionally attached to the facility staff. A single type of environment for all stages of dementia has become similar to terminal care settings as most of the residents progress into the later stages of their illness; this becomes a problem for new residents who are not as impaired as the others and need cognitive stimulation.

38 “Special Care Units for People with Alzheimer’s and Other Dementias: Consumer Education, Research, Regulatory, and Reimbursement Issues,” (1992):22-23
3.6 Integration versus Disintegration

The social exclusion of the elderly has been a source of criticism in architectural and planning literature for several decades. Typically, Lewis Mumford (1956) commented that: “Probably at no period and in no culture have the old ever been so completely rejected as in our own country during the last generation.”

The integration of aging facilities in this research project is defined as the physical and social integration of these facilities to decrease the sense of isolation and exclusion. The care of elderly is dependent on culture, context, the individual characteristic of parents and children, family structure and state welfare provisions. Christopher Alexander believes that “where neighbourhoods are formed properly they give the people a cross section of ages and stages of development.” A site that is intensively frequented and within a neighbourhood would provide the most potential for integration.

Alexander also adds that “old people cannot be integrated socially as in traditional cultures unless they are first integrated physically - unless they share the same streets, shops, services, and common land with everyone else. But, at the same time, they obviously need other old people around them; and some old people who are infirm need special services.” Those with dementia are infirm and this brings an extra dimension to the level of integration that is possible. The extent of integration depends on the stage of dementia that people are in.

The location of retirement villages in Auckland is generally in the vicinity of other housing. The majority of people in Auckland live in the suburbs and depend on private vehicles to get around and visit family and friends. Retirement villages are also placed in the suburbs to replicate how ‘we all live’ but for the elderly the problem is that the ability to drive diminishes. A common result is that residents through lack of mobility are bound to their immediate area, reducing their opportunities to see friends or family. A valid position in theory would be that retirement villages should not replicate suburban homes designed for the nuclear family but look at the needs of the aging differently. In order for the aging to feel less isolated one solution would be to locate these villages in urban areas.

---

‘Streets for Life’ is a new concept for design and development in towns and cities based on research in the Well-Being in Sustainable Environments (WISE) unit at the Oxford Institute for Sustainable Development (OISD), a department of Oxford Brookes University. The ‘Streets of Life’ idea is based on inclusive design within the aging population and the desire to bring disabled people into mainstream society. The design principles of this idea are set out in the WISE publication ‘Inclusive Urban Design – Streets for Life’ by Elizabeth Burton and Lynne Mitchell. In summary, this proposal suggests that we should think about designing new towns or cities with the aging in mind. The recommendation for streets of life contains six design principles under headings: Familiarity, Legibility, Distinctiveness, Accessibility, Comfort and Safety. All urban areas in Auckland are primarily designed with the vehicle in mind so for the elderly to be integrated in the future, in safe and attractive streets, pedestrian-friendly solutions need to be prioritized. These principles could be adopted on a localised basis, where, for instance, a traffic intersection with retail frontages dominating the building uses could be treated as a pedestrian-priority space, with raised surfaces, planting, reduced road widths and traffic-calming devices installed.

A review of care centres with this principle of Streets for Life in mind reveals numerous examples of integrated and non-integrated buildings. The Urban Day Care Center for Alzheimer Patients in Pontevedra, northern Spain is contained in the ground floor of an existing building. It provides a public space at the entrance of the facility premises. The building façade is a mixture of glazing and wood on the outermost skin. The glazing is a combination of translucent and transparent green bands that provide different degrees of permeability. This example conveys a sense that its purpose is public service, and at the same time that it is designed to protect the privacy of its occupants.44

In the conceptually opposite model an example of a building that does not try to integrate into the context but rather tries to express its function is the dramatic Lou Ruvo Center for Brain Health by Frank Gehry, in Las Vegas. The building is a Centre for degenerative brain diseases. The “jumble of swooning stainless-steel arcs” is a public space for event hire, deliberately representing confusion and chaos. The white stacked boxes alongside the “swooning arcs” contain the clinics and research facilities for preserving memory, intended to describe the ordered processes of professional medical study.45


3.6.1 Boundary

The boundary is an important aspect of the design of an urban dementia facility. It is important in terms of integration, privacy and security. The boundary separates the public and the residents of the facility. It can be articulated to blend in to the surroundings, as in the Pontevedra example, or it can stand out. It can reject the outside world or it can provide views outward. Views outward are important to the residents to be able to view the outside world and feel that they are still part of it. Views in by public are less desirable, so the way the openings are designed becomes very important. Privacy can be achieved through privacy screens, tinted glazing, inset windows, landscaping, or a double façade. The boundary is also a protective form of security for the residents. It keeps the residents from wandering off and keeps the public out.
A third example of buildings that define the opposing approaches of integrated or isolated care centres is the Health Centre for Elderly People in Montemurlo, near Prato in Italy, by Ipostudio Architects. In this design the massive curved stone façade gives an impression of history and importance. The façade curves to follow the soil contours and faces towards a valley to maximize views of the Tuscan countryside. The wall is made of a local stone taken from the excavated site and in its detailing is typical of the local masonry tradition. The wall is perforated with random openings, which makes every room separately identifiable, and it is offset by 1.80m from an inner glass-wall skin. The purpose of the building is to merge the new “presence” with the existing through the functional reuse and integration of the existing rural buildings to the new structures.  

4.0 Precedents

The progression of dementia from reality to fantasy and the two associated therapies Reminiscence and Reality orientation therapy encouraged me to explore architectural precedent’s that associated with these. As mentioned earlier De Hogeweyk, a small town 12 kilometres south-east of Amsterdam in the Netherlands, is a 24 hours hour reminiscence therapy village. The Alzheimer’s respite centre in Dublin I will compare to reality orientation therapy.

4.1 De Hogeweyk

De Hogeweyk as seen today went through numerous transitions. The original De Hogeweyk building had been a four story concrete nursing home with surrounding gardens. In 1993, the Vivium Hogeweyk organisation started exploring the lifestyles of its residents prior to their needing full time care. The development of small households was implemented by each of the four floors replicating a street with three living rooms, each with its defined lifestyle. However the building was originally positioned in the middle of the site and the surrounding garden meant that the residents could not go outside unsupervised. As a result the old building was demolished in 2006 and redesigned in the form that it is today.

De Hogeweyk is now a secure “community” occurring within a “memory village” simply by the fact that normal life is integrated into the design and operation of De Hogeweyk. However, the outside walls of the village and the entrance to the village itself are somewhat less than inviting to outside community members. The boundary creates the separation between reality and fantasy. The scheme is built to the edge of the site and inward focused with the building form acting as the boundary wall. However the patient bedrooms are placed on the perimeter walls so they can still view the outside world. The building form creating the boundary is a less obtrusive form of security. It provides containment but also freedom within the inner courtyard spaces.

A report for Alzheimer’s Australia titled ‘Dementia Care and the Built Environment’ recommends that unobtrusive security is provided to balance the feeling of freedom and safety. They recommend the use of technology such as movement detectors and exit monitors, horticulture screens which are less threatening that high fences and the use of fencing disguised by landscape that can be perceived as an acceptable barrier and less likely to be viewed as a challenge to be scaled.

De Hogeweyk is open to anyone, not just residents and their families. The village is situated approximately 1.3km from the town centre in a modern residential zone. The neighbours are welcomed into the village to have dinner in the restaurant or go to a concert in the theatre. Since the residents cannot leave the idea is to have people coming in to provide a variety of social interaction.

The scale of De Hogeweyk looks disproportionate to the surrounding context. High rise modernist housing blocks tower over the scheme. To the residents it may not seem so out of place but to visitors and the neighbours it stands out. The architecture of De Hogeweyk seems to reflect the older central region of Weesp, which may be intentional in order to relate to the idea of reminiscence therapy and the memory of the old city.

The scheme tries to create smaller communities using a few smaller courtyards that are shared by two or four units. This creates a closer relationship between the sharing units. The interior scale of the De Hogeweyk’s is very domestic and tries to create as much of ‘homely’ feel as possible.

49 Design for Aging : International Case Studies of Building and Program. 149.
The scheme is made up of 23 homes; each self-contained household has six, seven or eight bedrooms. The residents are divided into “7 different worlds.” These were established by an opinion research institute based on the most common environments in the Netherlands. The categories are: traditional, city, wealthy, cultural, Christian, Indian and “homely”.

The success of the scheme has influenced the construction of a second “Dementiaville” in Switzerland that is scheduled to be opened in 2017. It will provide care for 150 elderly dementia patients in 23 purpose-built 1950s-style houses. The homes will be deliberately designed to recreate the atmosphere of times past.

---

4.2 Alzheimer’s Respite Centre

Designed by Naill McLaughlin Architects for Alzheimer’s society of Ireland the centre provides respite beds for 11 patients and day care facilities for up to 25. The distinct pin-wheel spatial arrangement of the building based on 4 linear wings contrasts directly with the De Hogeweyk courtyard scheme. The idea behind the pin-wheel arrangement was for the patients to move around the building following the movement of the sun.54 This made me associate this building with the theory behind reality orientation therapy in which the awareness of time was indicated by the movement of the sun through the building.

---

Under conservation and planning laws the building had to be designed within the remains of an 18th-century wall that was once part of a convent building. In addition, planning guidance required the building to be clad in brick to match the existing garden walls. The continuous solid wall around the entire perimeter brings with it a strong sense of reality – and of being in a secure closed-off environment. The height of the perimeter wall varies between 2.5 and 2.8 meters, which is too high to see over from either side. There is only one small glazed panel in the whole wall that allows viewing of the outside world.

The height of the interior spaces is too tall to have a domestic feel: the building therefore has a strong and monotonous institutional character in many of the common rooms, and in its long high corridors, particularly in the wing housing the bedrooms.

---

4.3 Sir Montefiore Home


This facility was designed for the large Jewish community in the eastern suburbs of Sydney. It is a five story scheme for 276 residents with varying degrees of care needed. The ground floor has the main entrance and an assisted living dementia unit. The third floor has a dementia specific high care unit and aged assisted living. The fourth floor and fifth floor are for the frail, aged and assisted care. Each floor houses 15 residents with the idea of creating a small “neighbourhood.” The common rooms are located at the ends of the buildings to capture sunlight. The form of the building is inward focused with central gardens. The façade of the building is a patchwork of materials with the aim of reducing the façade scale and to contrast the repetitive interior layout and reduce the institutional look of the whole building.

There is a five meter high steel wall that separates the assisted living gardens from the skilled nursing dementia unit gardens. This gives the staff access to the garden at the expense of the residents of the assisted living unit who are confined by the large wall. They have attempted to visually soften the appearance of the wall with planting but the height of the wall and the four levels of building compromise the sense of freedom.

Figure 4.11: Sir Montefiore Home façade

56 Anderzhon et al., Design for Aging : International Case Studies of Building and Program. 5.
57 Design for Aging : International Case Studies of Building and Program. 6.
58 Design for Aging : International Case Studies of Building and Program. 11.
4.4 Edmund Hillary Dementia Unit

Designed by in house architects of Ryman healthcare located in central Auckland as part of a new retirement village. It provides beds for 21 dementia residents. The form is arranged around a central courtyard. Access to the courtyard is available from some of the bedrooms and communal lounges. Communal areas are accessed straight from the hallway. Each of the rooms has an en-suite bathroom. Bedrooms on the outer perimeter have views of the other retirement facility buildings. It is a good example of how the building acts to create a secure outdoor environment.

Figure 4.12: Edmund Hillary Dementia Unit floor plan
5.0 Site Analysis

5.1 Selection Process

The site selected at the beginning of the design process was an isolated green site on the Chelsea Estate in Birkenhead. The idea was to integrate a building into nature for its healing properties. The location of the site meant that the residents could only view the changing natural landscape within the site. After further research into the aging as well as the elderly the conclusion was that institutionalisation was often exacerbated by the separation from people and the real world. The exploration of how architecture could represent the nature of the progression of dementia led to the conclusion that this site did not allow for that contrast between reality and fantasy. The reality of nature and its changing form through seasons is much slower paced than reality. The isolated nature of the Chelsea estate means there are few opportunities to interact with people and the real world. There are only distant views to city. To give a strong awareness of time the site needed to be in a place where time moved faster. A very central site could also be argued to be too fast paced. People in the central city walk too fast, there is too much noise and the scale of buildings is much too large. So a site that was an in-between a central city site and site like the Chelsea estate was selected.

Figure 5.1: Chelsea estate site
5.2 Location

The site selected is located on the Mt Eden Valley section of Dominion Road. Dominion Road is an arterial road that links a number of Auckland suburbs to the CBD. The road is one of Auckland most historic and iconic roads. It is less than 5km from the bottom of Queen Street and a main route for cars and buses. It has been approved to be upgraded by the Auckland Transport board to create separate bus and bike lanes to deal with the large number of travellers during peak hours. Along with this the three villages along Dominion Road (Balmoral, Mt Roskill and Mt Eden Valley) will be regenerated and partly pedestrianised.⁵⁹ The Eden valley area has 135 businesses operating that bring a lot of people in from all areas of Auckland. The area does need regenerating to provide for increasing visitor numbers, but it also needs to manage these visitors and improve the architectural backdrop. The popularity of Dominion Road allows the architectural project to bring awareness of dementia to the public. The local diversity of people and events can give those with dementia the opportunity to view and participate in them.

Figure 5.2: Site in greater Auckland context

Figure 5.3: Site zoning
Previous Page: Figure 5.4: Site outline
Top: Figure 5.5: Dominion Road elevation
Bottom: Figure 5.6: Valley Road elevation
Top Left Figure 5.7: South-west site perimeter
Top Middle Figure 5.8: Pedestrian site access
Top Right Figure 5.9: Dominion Road vehicle access
Bottom Left Figure 5.10: Back of the Dominion Road frontage
Bottom Right Figure 5.11: The Dominion Road building in the background
Top Figure 5.12: Carrick Place elevation view
Bottom Figure 5.13: Panorama within site
5.3 Site Characteristics

The chosen site in the Mt Eden valley area is an infill section bound by Valley Road, Dominion Road and Carrick Place. Much like the pin-wheel form of the Respite Centre in Dublin the site connects in four directions. The multidirectional nature provides a variation of views, sounds and smells. The south elevation looks upon the supermarket parking that provides constant arrivals and departures with the sound of rattling supermarket trolleys and cars engines. The eastern boundary interfaces with the residential zone where sounds are diffused by the trees lining the fence boundary. The north boundary is open to a cul-de-sac road and a small one story retirement village (Carrick Groove retirement village). The western boundary’s connections fill slots between existing buildings onto Dominion Road. It provides a variety of sensory stimulation. Pedestrians walking past, café smells and conversations, car and bus sounds all contribute to an active urban environment.

Figure 5.14: Site sketch with radial views
5.4 Selection Criteria:

This site has been chosen for the following reasons:

- It is close to central city.
- It allows variation in privacy.
- It provides a variety of views and connections to reality.
- The site slots into both the residential and urban zone, which suits the dual function of the building as housing for permanent residents and a drop-in center for the public.
- It lets north sun into site.
- The buildings that are to be demolished now have no significant character.
- The site has close up views rather than long distance views.
- The scale of the surrounding building is below 3 stories. A maximum of three stories is needed to provide visual connection from above to passers-by.
- The site must allow the building to integrate into the context and not feel overshadowed. A smaller scale context limits the scale of the designed building so that there is less chance of it looking institutional.
Figure 5.15: Contour model (500mm)
5.5 Site Conclusion:

- The total area of the site including access routes from Dominion Road and Valley road is 6100m².
- The majority of the site is open to the north with a one storey retirement village on the north boundary.
- The site has street frontages to all three roads.
- A large section of the site is bound by buildings on Dominion road.
- The site drops 3.5 meters from Carrick place down to Valley Road.
- The alleyways from Dominion road provide multiple site links to the site. These will be an important aspect of trying to bring people into the site.
- North of site is a one storey retirement village (Carrick Grove retirement village) opened in 1989 – This allows sunlight into the site but future development of the village means that a large setback would still bring north light into my site.
- There is an existing staircase between the retirement village and the factory building on Carrick Place. This access is not used by the public and can be utilized to connect to Dominion road.
6.0 Design Process

6.1 Design Brief

The programme proposed is a housing facility for people with varying degrees of dementia. The program encompasses a Dementia centre that includes a memory assessment clinic, a day care space for respite care and full time residential care.

6.2 Spatial Requirements

Dementia Centre:
- Reception
- Meeting room
- Classroom
- Examination room
- Day care
- Public café to draw people into the courtyard space
- Parking

Resident Housing:
- Reception and Offices
- Housing for 50-60 residents
- Café/communal dining
- Hairdresser
- Theatre
- Garden
- Mini supermarket
- Examination Rooms
- Therapy Room
- Parking for visitors, family and staff
6.3 Design Response

6.3.1 Public and Private

The initial design response was to highlight the public and private areas of the site. (See figure 6.1) The social or public zones create a boundary between the back of the buildings on Dominion Road so that there is more privacy for the residents. An intimacy "gradient" is applied vertically to further increase privacy. (See figure 6.3) The ground floor is public zone, with a courtyard, café, memory clinic, day care and staffroom. Staff cafeteria on the ground floor is to allow the staff to have time away from the main centre floor. Dominion Road has the main entrance to the Centre, where people can drop in, get assessed, get informed and interact with other people who also experience memory loss in the day care centre. The 1st floor is the main floor for the residents. The residents cannot access the ground floor freely but there are visual connections to it. The first floor has social space on the boundary creating an intimacy gradient away from the perimeter.
6.3.2 Intimacy Gradient and Fragmentation

Fragmenting the form into smaller groups of residents minimizes the institutional ‘feel’ and allows intimacy variation. Orientation as mentioned before is improved when there are smaller groups of residents. Fragmentation also represents the fragmented mind of those with Alzheimer’s and the physical links provide connections to social spaces positioned close to public spaces. The design proposes fragmented bedrooms units, living rooms and communal spaces in small groups that are linked by circulation spaces or ‘links to reality.’
The pink in the 3d model shows the location of bedrooms at the most private end of the intimacy gradient. They are protected by the lounge unit courtyard. The progression from lounge to the associated outdoor space to bedroom preserves the privacy of the bedrooms. The bedrooms provide the greatest opportunity for autonomy with private belongings and the freedom to decorate rooms as the patients wish. Decorating the unit lounge is decided by all the house residents.
The narrow link to the dementia centre does not read as a graduated connection; a more gentle transition is required for this connection. The sketch below looks at the Carrick Place entrance and a stepped offset opens onto the courtyard space. The change in height of interlocking spaces also varies from 3.2m for entrance to 2.6m for bedrooms.

Figure 6.12: Level 1 disconnected Dominion Road mass

Figure 6.13: Exploring intimacy gradient through gradual disconnection to open space
Figure 6.14: Exploring intimacy gradient at the Carrick Place entrance

The Carrick Place entrance form is created using a variation of square boxes fragmented and varied in height to provide a gradient of intimacy.
Figure 6.15: Ground floor model view
Figure 6.16: Level 1 model view
Figure 6.17: Level 2 Floor model view
6.3.3 Boundary Exploration

The boundary between public and private, fantasy and reality, communal and private bedrooms, courtyard and the level below are impacted by the articulation of the boundary. The boundary is an important part of the design and the satisfactory integration of the building. A common aspect of dementia design is to introduce or import elements of history such as old photographs and memorabilia: the building should, if possible, convey a sense of history. The 18th century stone wall of the Dublin respite center is an element that had to be retained as part of conservation requirements, but it could have also been a mode of creating a sense of history for the patients. The health center in Prato tries to reference the history of the site with the stone excavated on the site and used on the outer skin and as a secondary wall offsetting the stone wall referencing the new structure. These examples have influenced my decision to use a very solid material for the boundary between the existing buildings on Dominion Road and the dementia facility. A brick material references the structure of the existing buildings on Dominion Road. It tries to look like an extension of the back of the buildings.

Figure 6.18: Brick structure
Figure 6.19: Valley Road adjacent building
Figure 6.20: Valley Road massing sketch
The image above is an early façade proposal. The circular form was to encourage movement behind the buildings into the courtyard, however after discussion the space behind the buildings will be dedicated to the existing buildings and public access to the site will be from Dominion Road and Carrick Place. The round façade gives an impression of a public space above which it is not. The south façade is the façade that acts as a protective boundary so a double skin is used to further separate the outside world and the inner world. It enhances privacy and visually represents the merging of the public and private realms. Views into the building need to be minimized and views out need to be normal as possible. So a secondary wall allows an inset window add extra offset from public and private views.
The ground floor is not part of the dementia facility. The valley road public access into the courtyard was thought to be too unwelcoming be a public access way but can be used for service parking and access to the back of the existing buildings. The ground floor of Valley Road provides space for the drycleaning business that was on the site before, linked vertically to serve the dementia facility also.
6.3.4 Courtyard

A central courtyard separates the communal areas of the 1st floor from the private units. It allows planting to grow up into the 1st floor as well as giving visual connectivity to the residents contained to the first floor down to the ground floor. The articulation of the courtyard boundary is important, allowing north light onto the 1st floor but also giving privacy to the residents. A deep planter box balustrade acts as a double skin by setting back the views from above and providing privacy and security for the residents above.

Figure 6.27 is an exploration of the depth of the courtyard boundary varying the level of accessibility to the edge with lookout points and bench seats penetrating the otherwise long straight boundary.
6.3.5 Slotting In

The section in figure is showing how the 1st level can be slotted into the dementia center. This provides a visual connection between the dementia residents and the public and day patients while still restraining access to the ground floor. The connections between the resident level and the public floors need to gradually dissipate so it does not feel like a barrier for the residents. The points of connection need to be interesting enough not to feel like ‘dead ends.’
6.3.6 Moving Residents

In order for the design to fully incorporate the intimacy gradient into the function of the building it needs to separate the more severely disabled dementia patients further. So the levels as mentioned earlier are; ground floor is to be a public domain shared with early dementia whose condition will benefit from exposure to reality. The 1st floor is lifted off the ground by columns that represent the disconnection from the ground and reality. The most severely disabled patients are at the most intimate and private zone on the 2nd level, at the far eastern side of the site.

The distinction between the private spaces varies between the three levels. On the ground floor the day patients have less private space. On the 1st floor the residents have bedrooms with shared bathroom and living space shared with 6-8 other residents. This floor is for those with moderate dementia, where there is still some potential to socialize through sharing facilities. The 2nd floor is dedicated to those who value privacy more. The east end of the 2nd level is for those with severe dementia. The design of their bedrooms reflects their more introverted world. There is a greater need for all essential amenities to be close at hand. These bedrooms all have en suite and sitting areas for visitors. As the disease progress there is a greater possibility of being confined to the bedroom so having bathrooms near and a place for visitors is more important. The bedrooms have windows that look away from the central courtyard unlike 1st floor units that look inward, as these patients are able and willing to socialize.

Figure 29: Level 2 Severe dementia unit location
Figure 6.30: Level 2 Severe dementia unit
Figures 31 and 32 explore the double wall concept. This section of the site is more private and closed off like the southern section on Valley Road.
The majority of the bedrooms except those in the severe section are like De Hogeweyk with only space for a bed and closet. Sharing bathrooms in one household is less institutional than each room having their own bathroom. The rooms that open onto the courtyard all have their own entrance to give those in each room the privacy to go into their room without having to go through the unit lounge.
6.3.7 Dominion Road Facade

The Dominion Road façade is the most public part of the site. The site slots in between a bank building and mixed use building. Unlike the Valley road boundary this elevation is open to the public. To contrast the solid brick the wall is glazed and visually porous, providing a link to the hidden courtyard but with a transparent façade that brings awareness of the space. A public square in front of the entrance provides a space for the public to sit and gather. The building opens up to the north to allow light into the open public space. Stairs connect the entrance square and the courtyard behind. They run along the building providing glimpses of the center inside. Trees line the side of the bank building and the path.

Figure 6.36: Dominion Road elevation concept 1

Figure 6.37: Dominion Road elevation photo
The elevation perspectives of Dominion Road sought out to explore the transition from a solid brick wall to a glazed transparent wall to replicate the progressive nature of the disease. This also provides some level of privacy within the space.
This section explores a different function on the ground floor of the Dominion Road three storey section. Instead of a day care on the ground floor where the public walks past to get to the courtyard, an art gallery is proposed. The day care and workshop is placed across the courtyard where it’s quieter and more private. Work produced at the workshop is exhibited at the gallery to bring awareness through a mutual medium.
The purpose of this project has been to investigate how the degeneration of a person with dementia can be accommodated by design: how a building might reflect changing needs and varying levels of integration. This is achieved through in-depth research into the nature of dementia, theoretical research and recent built examples of dementia units.

The first step was a decision to locate the building on an urban infill site so that the facility is physically integrated into a community context. The design has then followed existing site grid lines to generate its form. The second step was to apply a gradient of intimacy to the internal circulation pattern, to correspond spatially to the gradual fragmentation of the patient's mind as the disease progresses and the patient travels from a social state to one removed from reality. A big initial move was to separate the ground floor and the residential floor by lifting it off the ground. The levels became associated with the three stages of dementia. Corresponding to the connection to reality was the connection to the ground: the more removed from reality the resident was the further from the ground they were accommodated. The next step was to break up or fragment the building into smaller clusters of housing to minimise the institutional feel and to create little communities within, much like the De Hogeweyk building. Standard urban house-planning was used to make the clusters feel as normal as possible, with the addition of entrances to the bedrooms accessed from shared courtyards to ensure a clear sense of private space. The importance of security, privacy and connectivity led to the researching and exploration of the phenomenon of “boundary-containment”. The boundary was compared to the idea of reality and fantasy and how the boundary can represent both of these conditions.

Analysis of the site context led to the use of a solid brick material to relate to the historical use of the material on most of the buildings in the area. An aged (recycled) brick material brought a sense of history and fantasy. The changing mental condition of the patients from fantasy to reality led to the use of a juxtaposing glass material in the public areas of the building. The exploration of a double wall...
was used to represent the two different worlds and also to express functional differences between opposing sides of the facility. The double wall was placed on the south and eastern boundaries where there was need for a more enclosed and private space within, and with inset windows to form a setback for viewing in or out while also creating more privacy for the residents. The last step was to treat the public Dominion Road elevation to represent the changing nature of the disease through permeability in access points and in material variations.

Future research into this topic would focus on the auditory properties of the boundary: this would affect the integration of the facility in its context. The decision to integrate was based on the two contrasting occupational therapies - “reality orientation therapy”, and “reminiscence therapy” - and on the importance of integrating the elderly in the active community. However whether integration is better or worse for those with dementia is unknown. Integration generates an awareness of the dementia condition and its treatment in society is warranted, at least on this basis. Research suggests that the way people live their lives today affects how they will age tomorrow: it may be alarming, for some, to see those suffering with dementia but it can also have a positive influence. Early diagnosis and treatment slows the progression of dementia down. New therapies are improvements on previous ones. Many specialists in the dementia field consider that an informed public is better placed to deal with the disease than a public shielded from it by the isolation of its facilities.
8.0 Conclusion

This research project has demonstrated that integration can be accomplished through careful analysis of site and through an understanding of the nature of the disease. The aim has been to mitigate the problems of disorientation caused by dementia. An urban infill site provided opportunity to utilize the theory of reality orientation therapy into the design to enable orientation. Fragmentation of the building into smaller clusters responds to research that has advocated a built form in which smaller groups are created. The ground floor public zone has regenerated the once barren and underutilized space behind the busy Dominion Road frontage of commercial buildings, and it has provided a separate secluded transitional space at the point of entry – at the boundary between two conditions.

Architecture that considers the psychological needs of an individual becomes more than a built environment, it becomes a form of therapy that can assist wellbeing, and it can be enabling for those that are fragile, and increasingly helpless.
9.0 Bibliography


Dementia Sensory Gardens, “Gardening activities can be therapy for Alzheimer’s patients”, http://www.dementiasensorygardens.co.uk/2013/05/28/gardening-activities-can-be-therapy-for-alzheimers-patients/ (accessed October 2, 2013).


Killick, John, and Kate Allan. *Communication and the Care of People with Dementia* Buckingham Open University, 2001.


10.0 List of Figures

Figure 1.1 The progression of Alzheimer’s. - http://www.epgonline.org/images/axura/prog_graph.gif

Figure 1.2 The developing egocentricity of dementia - Perrin, Tessa, and Hazel May. *Wellbeing in Dementia: An Occupational Approach for Therapists and Carers* Edinburgh Churchill Livingstone, 2000. p 51 Fig. 4.4

Figure 2.1: “The Persistence of Memory” Salvador Dalí, (1931) http://www.tufts.edu/programs/mma/fah188/clifford/TPOM.html

Figure 2.2: Snoezelen Room - http://www.hollandbloorview.ca/programsandservices/communityprograms/snoezelen/what_is_snoezelen.php

Figure 3.1: Graphic representation of an ecological theory of adaptation and aging - in Toward an Ecological Theory of Adaptation and Aging by Lucille Nahemow and M. Powell Lawton p. 27

Figure 3.2: Interior photo of Respite Centre Dublin. - http://www.architizer.com/projects/alzheimers-respite-centre/media/115883/

Figure 3.3: Photo of a room entrance Cornwall Park Hospital - taken on 15/03/2013

Figure 3.4: Photo of unit entrances of Supported Housing for People with Dementia in Glasgow - http://www.glasgowarchitecture.co.uk/springboigh.htm

Figure 3.5: “Criteria of a Therapeutic Environment Figure in “Dementia-Friendly Architecture: Environment That Facilitate Wayfinding in Nursing Homes.” by Marquardt, Gesine, and Peter Schmieg. American *Journal of Alzheimer’s Disease & Other Dementia* 24, no. 4 (2009). p334

Figure 3.6: Urban Day Care Center for Alzheimer Patients, Spain - http://www.archdaily.com/295469/urban-day-care-center-for-alzheimer-patients-cid-santos/50aa8c5bb3fc4b0b54000024_urban-day-care-center-for-alzheimer-patients-cid-santos_sm_alz_36_45814-jpg/

Figure 3.7: Lou Ruvo Center for Brain Health, Frank Gehry - http://www.dezeen.com/2010/06/17/lou-ruvo-center-for-brain-health-by-frank-gehry/

Figure 3.8: Inset window. - http://3.bp.blogspot.com/_L59QPdbEbzA/StSzi5kJJIPI/AAAAAAAAAtI/tZEyc3FLaZc/s1600-h/european_copper_in_arch_awards_09_03_medium.jpg
Figure 3.9: Green wall. - http://paullincoln.files.wordpress.com/2012/05/20120513-161406.jpg
Figure 3.10: Boundary wall of the Health Centre and Houses for Elderly People. - http://www.archdaily.com/250878/health-centre-and-houses-for-elderly-people-ipostudio-architects/
Figure 3.11: Plan drawing of the Health Centre and Houses for Elderly People. - http://www.archdaily.com/250878/health-centre-and-houses-for-elderly-people-ipostudio-architects/

Figure 4.1: Spatial analysis of De Hogewyk.
Figure 4.2: De Hogeweyk context plan - Google Maps
Figure 4.3: De Hogeweyk boundary - http://www.detail-online.com/architecture/news/dementia-village-de-hogeweyk-in-weesp-019624.html
Figure 4.4: De Hogeweyk scale - http://www.detail-online.com/architecture/news/dementia-village-de-hogeweyk-in-weesp-019624.html
Figure 4.5: De Hogeweyk interiors based on the “different wolds”
Figure 4.6: Spatial analysis of Alzheimer’s Respite Centre.
Figure 4.7: Alzheimer’s Respite Centre context plan - Google Maps
Figure 4.8: Alzheimer’s Respite Centre boundary. - http://www.alzheimer.ie/Alzheimer/media/SiteMedia/UserImages/Orchard/Orchard-2.jpg?width=320&height=240&ext=.jpg
Figure 4.9: Alzheimer’s Respite Centre scale - http://www.architizer.com/projects/alzheimers-respite-centre/
Figure 4.10: Alzheimer’s Respite Centre hallway - http://www.architizer.com/projects/alzheimers-respite-centre/
Figure 4.11: Sir Montefiore Home facade - http://www.calderflower.com.au/architectural-project-gallery/sir-moses-montefiore-randwick
Figure 4.12: Edmund Hillary Dementia Unit floorplan - Ryman Healthcare
Figure 5.1: Chealse Estate site - Google Earth (accessed 10/02/2013)
Figure 5.2: Site in greater Auckland context - Google Maps
Figure 5.3: Site zoning -
Figure 5.4: Site outline
Figure 5.5: Dominion Road elevation
Figure 5.6: Valley Road elevation
Figure 5.7: South-west site perimeter
Figure 5.8: Pedestrian site access
Figure 5.9: Dominion Road vehicle access
Figure 5.10: Back of the Dominion Road frontage
Figure 5.11: The Dominion Road building in the background
Figure 5.12: Carrick Place elevation view
Figure 5.13: Panorama within site
Figure 5.14: Site sketch with radial views
Figure 5.15: Contour model

Figure 6.1: Public and private space
Figure 6.2: Site access and ground floor functions
Figure 6.3: Intimacy gradient section drawing
Figure 6.4: Massing model
Figure 6.5: Massing model with bedrooms at end nodes
Figure 6.6: Ground floor
Figure 6.7: Level 1
Figure 6.8: Level 2
Figure 6.9: 3D view of design
Figure 6.10: Section A-A
Figure 6.11: Section B-B
Figure 6.12: Level 1 disconnected Dominion Road mass
Figure 6.13: Exploring intimacy gradient through gradual disconnection to open space
Figure 6.14: Exploring intimacy gradient on the Carrick Place entrance
Figure 6.15: Ground floor model view
Figure 6.16: Level 1 floor model view
Figure 6.17: Level 2 model view
Figure 6.18: Brick structure
Figure 6.19: Valley Road adjacent building
Figure 6.20: Valley Road massing sketch
Figure 6.21: Valley Road concept perspective 1
Figure 6.22: Double wall
Figure 6.23: Boundary concept with inset windows
Figure 6.24: Valley Road concept perspective 2
Figure 6.25: View of ground floor and level 1
Figure 6.26: Planter box balustrade
Figure 6.27: Exploring boundary depth
Figure 6.28: Slotting-in section
Figure 6.29: Severe dementia unit location
Figure 6.30: Level 2 Severe dementia unit
Figure 6.31: Level 1 Eastern double wall
Figure 6.32: Level 2 Severe unit double wall
Figure 6.33: Bedroom plan Alzheimer's Respite Centre and De Hogeweyk
Figure 6.34: Adjacent bedrooms concept plans
Figure 6.35: Bedroom entrance perspective
Figure 6.36: Dominion Road elevation concept 1
Figure 6.37: Dominion Road elevation photo
Figure 6.38: Dominion Road concept 2
Figure 6.39: Dominion Road concept 3
Figure 6.40: Dominion Road concept 4
Figure 6.41: Concept section through Art Gallery

Figure 11.1: Ground floor plan
Figure 11.2: Level 1 & Level 2
Figure 11.3: Valley Road Elevation
Figure 11.4: Dominion Road Elevation
Figure 11.5: Carrick Place Elevation
Figure 11.6: Cross Section
Figure 11.7: Long Section
Figure 11.8: Permanent Residents Outdoor Space
Figure 11.9: Unit Courtyard
11.0 Appendix

Figure 11.1: Ground floor plan
Figure 11.2: Level 1 & Level 2
Figure 11.3: Valley Road Elevation

Figure 11.4: Dominion Road Elevation
Figure 11.7: Long Section