III-Seasons:
A Holistic Example of how Dementia Care Design can better Represent the Immediate Site through Intervention in Program, Layout, and Landscape Appeal

by

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Abstract

The medical realm of Geriatrics is the fastest growing trend in medical populations worldwide, today. Canada and the United States are no exception when it comes to healthcare needs for the ageing. This project focuses on dementia and Alzheimer's specific groups within the general geriatric population. Case-studies representing several facilities from both the east and west coasts have been chosen to help illustrate the spectrum of care, experience, and quality of life within such environments. This information includes but is not limited to: facility siting, relationships or patterns within the landscape, ultimate design outcome, architectural style and cost, and general programming needs.

Individual case study and post-occupancy examination ratings have been compiled to show typological and other significant categorical outcomes of several study centres. General site selection and project criteria will demonstrate constraints and opportunities the site poses for the design outcome while informing it of potential overlaps in future program and current use.

The design agenda includes revisiting the past for medical, historical and cultural cues as they relate to treatment or lifestyle adjustment throughout the three-phased illness. A specific set of design criteria has been established for the categories of patient, family, and caregiver in terms of socio-physical environments. By establishing the social needs of these diverging groups the design can look to the landscape for ways in which onsite experience can be a deeper, more sensory and informative one.

Design for the ageing consists of physical, social, emotional and biophilic realms-all of equal importance but rarely honored as such throughout today's compacted design process. With dementia as the major cause in one's loss of thinking, feeling, and reasoning it is no wonder residents seldom find comfort or joy in the monotony of plastic-container gardens associated with current facilities. This design will draw upon such experiences and examines the proposed site's qualitative opportunities as well as nearby viewsheds to better represent the target population in lifestyle, programming, and codependency.

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A few key family members who are probably taking this thesis-topic a bit too close to heart...
"And no mom, just because you can't recall where you put the grocery list doesn't mean your age-associated memory impairment *will* lead to Alzheimer's disease. *But,* if you want to play it safe you may want to start designing that house on the hill a few years earlier than expected and begin to truly put my proposed design criterion to the test." (After all, I am forever indebted to you for your continual support-with it's many facets and forms.)

And also to my grandmother, who continually remarks, "would you look at those clouds", or "aren't those leaves just lovely" as if the time, the place, the weather, the news, the background noise doesn't matter

...because in that moment "it" is the loveliest of things she has ever, *ever* seen.

Chapter I: Introduction and Scope of the Project Problem

1.1 Statement of Intent
The III-Seasons project proposes to bridge the gap between site specificity or landscape appeal and extended care units specializing in dementia-afflicted residential care. Efficiency, convenience, or narrow planning goals too often overlook the potential for diverse programming both on and off-site in extended care facilities. Placement within the landscape or the role of siting becomes masked while the other objectives-economy, ecology, and equity guide the majority of the design process. Likened to a sailboat without wind the extended-care facility cannot fully represent the needs of patient, caregiver, and visitor without the help of the surrounding space, greater landscape, and involved natural systems.

Project Goal
To develop a holistic facility whereby building and landscape are seen as seamless entities under which strong programming, flexibility of use, and mobile components strengthen site capability and widen overall interaction for resident, caregiver, staff, and visitor populations.

Project Objectives

1. To determine a cohesive set of guidelines based upon research results which appropriately matches program criteria and site.

2. To choose a site which evokes creativity, sociability, and positivism between the following connections: human to human, human to landscape, and human to universe/cosmos

3. To develop a residence which stabilizes/re-stabilizes both the landscape's ecological health and human socio-emotional health

4. To introduce an intra-species aspect to the healthcare model for improved biophilic contact.

1.3. Process
The process of the III-Seasons project is based upon three methods. The first represents a modified case-study method whereby several dementia-specific facilities are assessed based upon how well they meet the needs of caregiver, patient, and visitor. The second represents a historical precedent approach whereby specific styles and architectural constructs from history are researched and incorporated to be represented in either concept or form. The third part of the process involves a design approach informed purely by onsite stimuli and environmental conditions.
Together these three methodologies inform the creation of an environment specifically designed to support the unique needs of dementia patients.

The case-study method is one being used by many landscape architects today. By looking at a finished project one determines positive and negative attributes associated with the design and can then use it to improve their future design propositions. This method seemed appropriate to the III-Seasons project as visitation within assisted care facilities was relatively easy and the results produced immediate feedback which could inform both the written and design components of the project.

The San Francisco bay area was chosen as the study site due to its diversity in assisted care facilities. With a climate very similar to that of the Sunshine Coast the San Francisco bay facilities have great leeway in landscape programming and onsite activities.

Upon visiting the sites and interviewing staff general notes were compiled as well as digital voice recordings of tours and visits with in-house patients. These recordings would later add to overall site impressions and become translated into a quantitative, numerical score whereby each case study site was assessed in accordance to onsite program goals for the III-Seasons project.

The rating system established a numerical score to individual spatial components of the separate dementia facilities. These spatial components included: siting within the overall landscape or urban realm, relationships or patterns exposed within adjacent outdoor realms (i.e. does the facility architecture represent a cultural standard or is it informed solely upon the concept of Utility-which is observed in one case study facility), ultimate design outcome, architectural style and cost, and general programming needs.

In comparing these facilities to the goals and program outline for the III-Seasons project several consistent approaches in programming were found. Several inconsistencies were observed during the overall scoring process since many of the buildings had outdated or uninteresting design features defined by low, if any, use. (See Appendix 2)

Examples of these scores are available in appendix _. The overall goal in using this form of site visit evaluation was to determine which aspects of the facilities were contextually, physically, socially, and emotionally healthy from an outsider's point of view. This approach met qualitative demands, observed through site observation and interview that then translated into a numerical score.

This contextual information serves several functions throughout the design-based research process. By interviewing staff one is able to learn where their interests exist both inside and outside of work-this applies directly to the caregiving realm of the III-Seasons project.

Secondly, by touring the facilities an intuitive sense of what patients or residents are actually doing, versus what a literary author chooses to notice and report about within a publication, emerges-thus allowing one to learn more about the working components of an specialized care unit.

The case study information also serves as an exemplar in distinguishing the necessary or primary versus the secondary components of such a facility. Chapter seven further illustrates this distinction by enlisting only primary design components of the facility.

1.4 Deliverables

The III-Seasons Project includes a drawing set of master plans at several scales, horizontal sections (as needed), an immediate site grading plan, several working details, two models, and a planting plan specific to native species and edible species (catered to the dementia population).

Other drawings include color and materials palettes; these urge viewers to revisit original site geomorphology, groundcover, form, and color.
Site character, as displayed in figure 2, illustrates onsite examples in color, materials, and planting palettes that will ultimately define the facility character and greater site.

Figure 2. Red cedar and large boulder outcroppings define the surrounding site's primary character.

Chapter II: History and Philosophy of the Disease; Medical Treatment

2.1 Etymology and Changing Brain Physiology

Dementia \De*men"ti*a\, noun. [Latin expression, from demens]. *(Webster's Dictionary 1913).*[1] Originally the term "de mens" meaning of the mind informed the term "dementia" which was first enlisted under Webster's Dictionary in 1913.

With its etymological roots buried in old Europe, the umbrella term "dementia" covered several neurological illnesses -century. Often described as a degenerative memory disorder, affecting the human brain in physiological ways and the body in undeniable physical, social, and emotional ways, dementia has become a major focal point in western medicine.

The cost of dementia care is high because of its lengthy duration and diversity of caregiving needs: One author writes, dementia is "common among elderly people and costly to society"[2]. While many people suffering from various forms of dementia are relocated to facilities specializing in their care, dementia and Alzheimer's patients can sometimes live alongside a life partner in their own home through much of the illness.

Oftentimes diabetes, stroke, cigarette smoking, atrophy, hypertension and Alzheimer's disease affect one's chances of acquiring dementia. As a person ages several key changes occur within the human brain-some of which include the shrinking of neurons affecting learning and memory, tangle and plaque development within neurons and surrounding areas[3], as well as damage by free radicals which increase adverse reactions between various kinds of brain molecules. Computer imaging has allowed scientists to watch Positron Emission Tomography (PET) scans as an indicator of where blood and glucose are flowing through the brain. These indicators display elevated, color-coded activity nodes within the associated regions. When viewing a dementia patient's PET scan the amount of activity is drastically reduced in scope and variability.

Like humans, neurons in the brain can become specialists within the realms of thinking, learning, or memory. The two main functions associated with these neuron communities are referred to as reciprocal or stimulatory. In order for the human brain to function on a communicative, social level both types of these pairings must be fully operative, one-hundred percent of the time.

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[1] http://www.websters-online-dictionary.org/definition/english/De/Dementia.html
[2] MacKnight, Chris and Kenneth Rockwood, p. 9.
[3] U.S. Department of Health and Human Services-National Institutes of Health, p.15.

Dementia and Alzheimer's disease never offer a positive ending to the host patient. This is an important distinction compared to an illness such as cancer -which can go into submission or be fully-diagnosed and cured. Average lifespan under the diagnosis of Alzheimer's varies. The illness could last 'as little as 3 years if that patient is over 80 when diagnosed, as long as 10 or more years if the patient is younger.'[4] The subgroups of mild, moderate, and and severed define Alzheimer's disease according to modern medicine. These groups have different environmental and social needs-thus illustrating the need for a facility that directly caters to all.

Diagnostic signs in the early stage of the illness range from loss of spontaneity or sense of initiation to increased anxiety and confusion about familiar places. Major areas within the brain affected by Alzheimer's in the initial phase include the cortex-which shrinks in size, the hippocampus-also decreasing in size, and central interior ventricles-which moderately increase in size.

Moderate Alzheimer sufferers undergo vast changes in behavior whereby constant wandering, walking, or agitation define the majority of the person's time spent during daylight hours. Emotionally, this stage of the disease can cause extremes in anxiety, rage, solitude, and even paranoia. Often, anger or agitation responses are masked reactions for an underlying level of confusion or anxiety. However, timid patients can have an equal amount of confusion or anxiety but mask it by staying to themselves. To a person who cannot remember the past or anticipate the future, the world around her can be strange and frightening.[5]

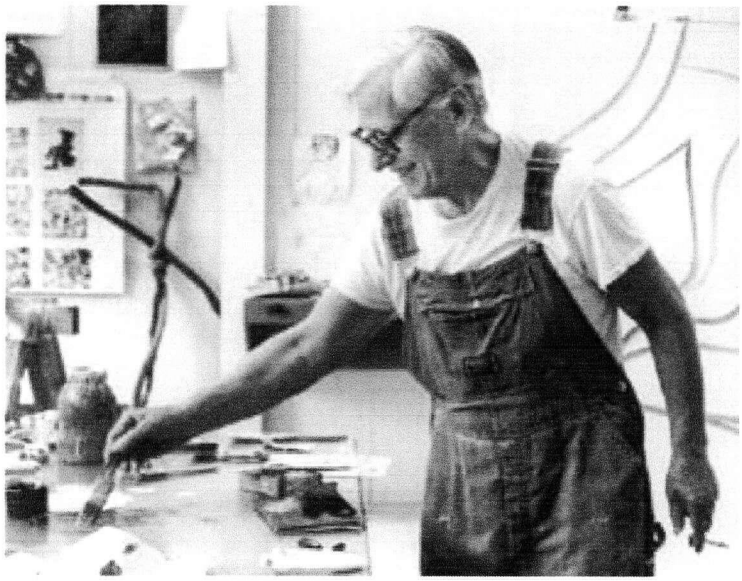

Figure 3. Willem de Kooning painted through the illness

[4] Ibid, p. 24.
[5] Ibid, p. 27.

During the last stage of the illness patients become completely dependent upon others for care and maintenance. Physiological changes defining this stage of the disease include irreversible enlargement of the interior ventricles and shrinkage of both the cerebral cortex and hippocampus-areas implicated in short-term memory and learning.

Eventually, with significant deterioration among these brain regions, the body has no choice but to slowly, shut-down internal systems supporting air, food, and water. Thus, the last stage is the fastest of the three and most critical in terms of where a patient resides during the last weeks or months of the illness.

Support during the last stage of Alzheimer's disease usually arrives in the form of a caregiver-someone assigned to an individual Alzheimer's patient. Table 1 shows regressive abilities of the Alzheimer's patient as they pass through the stages of the disease. Transfer of demented individuals to an emergency room or hospital exposes them to serious risks . . . even cognitively intact hospitalized elderly individuals develop depressed psycho-physiological functioning that includes confusion, falling, not eating, and incontinence.[6]

It should be noted that a strong correlation exists between a child's growing responsibility as an individual within society (as they age) and the elderly person's shrinking cognitive ability under the diagnosis of dementia. Since the inception of this scale, in nineteen-eighty one, scientists have been working more closely with nursing staff to improve programming and lessen stress in common, everyday tasks for the Alzheimer's patient.

[6] Gillick MR, Serrell NA, Gillick LS. p. 1033-1038.

Table 1 Reisberg's Global Deterioration Scale

Reisberg's scale describes how Alzheimer's disease's pattern parallels in reverse that of child development—and tells doctors and relatives what to expect next of Alzheimer's victims.

Approx. Age	Abilities Acquired	Alzheimer's Stage	Abilities Lost
12+ years	Hold a job	Borderline	Hold a job
7–12 years	Handle simple finances	Early	Handle simple finances
5–7 years	Select proper clothes	Moderate	Select proper clothes
5 years	Put on clothes	Severe	Put on clothes
4 years	Shower unaided		Shower unaided
4 years	Go to toilet unaided		Go to toilet unaided
3–4½ years	Control urine		Control urine
2–3 years	Control bowels		Control bowels
15 months	Speak five or six words	Late	Speak five or six words
1 year	Speak one word		Speak one word
1 year	Walk		Walk
6–9 months	Sit up		Sit up
2–3 months	Smile		Smile

Source: M. Roach, "Reflection in a Fatal Mirror," in *Aging*, E. C. Goldstein, ed. Vol. 2, Art. 83 (Boca Raton FL: Social Issues Resource Series, 1981).

Table 1. Illustrates a direct, reverse correlation between a regressive, aging patient and a progressive, growing child.

2.2 Historical Beginnings from Europe

On November 25, 1901, a fifty-one-year-old woman with no personal or family history of mental illness was admitted to a psychiatric hospital in Frankfurt, Germany, by her husband, who could no longer ignore or hide quirks and lapses that had overtaken her in recent months. The attending doctor, senior physician Alois Alzheimer, began the new file with these notes in the old German Sütterlin script.

She sits on the bed with a helpless expression.

"What is your name?"
Auguste.
"Last name?"
Auguste.
"What is your husband's name?"
Auguste, I think.
"How long have you been here?"
(She seems to be trying to remember.)
Three weeks.

> It was her second day in the hospital. Dr. Alzheimer, a thirty-seven-year-old neuropathologist and clinician from the small Bavarian village of Markbreit-am-Main, observed in his new patient a remarkable cluster of symptoms: severe disorientation, reduced comprehension, aphasia (language impairment), paranoia, hallucinations, and a short-term memory so incapacitated that when he spoke her full-name, Frau Auguste D---, and asked her to write it down, the patient got only as far as "Frau" before needing the doctor to repeat the rest.
>
> He spoke her name again. She wrote "Augu" and again stopped.
>
> When Alzheimer prompted her a third time, she was able to write her entire first name and the initial "D" before finally giving up, telling the doctor, "I have lost myself." [7]

Dementia, like other current-day afflictions, has been given the honor of a singular scientific and common name; however, 'the sharp unraveling of memory and mind that had, for more than five thousand years, been accepted by doctors and philosophers as a routine consequence of aging'[8] was in the limelight of medical science as explored by Alois Alzheimer, in 1901.

With such obvious and puzzling characteristics Alzheimer's patient, August D., forced medical science to examine the remainder of her cognitive abilities which would eventually connect the disease to various other personalities throughout history known for their declining memory. Such personalities include: Ralph Waldo Emerson, Homer, Aristotle, Maimonides, Chaucer, Thackeray, Boswell, Pope, Ronald Reagan, and Jonathan Swift.[9]

2.3 Those Affected

Alzheimer's patients are not so different from the emerging adolescents found today. Both groups tend to have an eagerness about them, expending lots of energy in going from one project to the next. Alzheimer's patients are consumed by active curiosity and often times outwardly display these characteristics through walking, pacing, or carrying on conversations among one another.

Although the overall percentage hasn't been so clearly estimated the affects display themselves in much the same manner resulting in four-hundred and thirty thousand new cases every single year.[12] Research is being conducted throughout many universities and hospitals worldwide to help determine factors that negatively affect one's chance of being afflicted by either illness. Although Alzheimer's disease is the most common (and progressive) form of

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[7] Shenk, David.
[8] Ibid, Chapter 1.
[9] See 'The Forgetting' by David Shenk for context.
[12] Hebert et al.

dementia and the two are similar, the two illnesses are not interchangeable- nor are they synonymous in diagnosis, treatment, or medication.

From a medical standpoint, Alzheimer's disease affects one's ability to communicate through seeing, speaking, hearing, and internalizing information. The presence of plaque and tangles in the aging brain affects one's ability to pay attention to external cues for an extended amount of time, learn new information, and retain knowledge or memories.

Although the first two stages of the Alzheimer's disease are quite jarring, the final stage of Alzheimer's disease is considered the most "severe". At this point plaques and tangles have become widespread within the physical composition of the brain and the brain's outermost layer has sizably decreased and no longer offers the protection and comfort needed to protect the internal organ.

Afflicted patients, at this stage, often refer to family members or friends as complete strangers; Any connection or communication which once bridged the pair vanishes as the symptoms habitually increase. Weight loss, increased amounts of sleep, bladder loss and bowel control all attribute to the bedridden stage whereby the patient's descent occurs rather quickly (one to two years as compared to the previous stages which can sometimes amount to ten or twelve). The death is not caused by the dementia itself but by inter-current diseases, most commonly pneumonia; therefore, management of medical issues is an important part of general care for individuals with advanced dementia.[13]

Those affected by Alzheimer's and Dementia, without consciously realizing their role, ask a lot of those around them; Caregivers and nursing staff consistently display emotional distress, fatigue, poor physical health, social isolation, and increased family conflict levels. With such symptoms driving a rapid turnover of nursing staff creative solutions toward a more uplifting, positive social support network are beginning to emerge in many parts of the world. Facility residents, such as those living in the seven case-study models, ask nothing short of dignified, unified, creative spaces in which to live, act, play, and enjoy the remainder of their life. With the addition of positive surroundings comes the addition of an increased sense of purpose or meaning in life, fulfillment of a lifelong commitment to the patient population, closer ties with people through new relationships or stronger existing relationships and an opportunity to give back to society. Lastly, extended and assisted-care models should be planned, designed, and maintained in order to attract quality care professionals and management for long-term careers and advancement within the facility.

[13] Volicer, Ladislav, MD, PHD.. pp. 29-34.

2.4 The Healthcare Model

Prior to the late twentieth-century dementia patients were assigned little to no responsibility due to their wavering cognitive abilities. Spending an entire day in one room or in one particular chair, concerned neither caregiver nor resident. However, the patient's listless behavior has echoed out to current generations whereby group homes specify programs applicable to withstanding physical, mental, and social abilities. Although most nursing facilities take very good physical care of residents with terminal dementia, the resident's quality *of life*, their "personhood," that aspect of life that transcends the physical, has been ignored. . . that is not and should not be acceptable.[14]

Recently, informative models stemming from northern Europe have affected our approach as North Americans curious to agree upon a model combining dementia care and the nursing home lifestyle. Concepts such as 'design for dementia' or 'design for the declining' apply only to a handful of extended care facilities today-the majority of which are found in an unmodified, urban context with little access to outdoor, shaded garden space.

Several key issues loom over design for dementia specialists and can be applied to the III-Seasons design approach as well. These include cost, regulations, cultural appropriateness, and the patient population's length of stay within their particular unit.

One might infer the reasoning behind such blatant homogeneity of today's healthcare settings is in part due to the reasons listed above (courtesy of the Journal of Dementia Care). However, I surmise that designers, architects, engineers, and artisans involved with the creation of such facilities bear the weight of the failing-relationships between the indoor and outdoor realms.

Designers Clare Cooper Marcus and Marni Barnes have done extensive research examining ways in which indoor/outdoor relationships within healing environments can be improved. A controlled study in Canada, for example, found that patients hospitalized for severe depression had shorter hospital stays if they were assigned to a sunny rather than a "dull" room—additionally, an important health effect of outdoor gardens is implied by the fact that sunlight plays a key role in enabling humans to benefit from intake of vitamin D.[15]

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[14] Simard, Joyce, p.14.

[15] Marcus, Clare Cooper and Marni Barnes. (1999) Healing Gardens: Therapeutic Benefits and Design Recommendations. New York: John Wiley and Sons, 65.

2.5 Environmental Psychology and the Philosophy of Specialized Care Models

In her book, *Design For Dementia: Planning Environments for the Elderly and the Confused*, Margaret Calkins illustrates the importance of architectural features which positively enhance one's self-esteem. She states,

> One Canadian study found that environmental factors accounted for 57% of the variation in self-esteem in deinstitutionalized developmentally disabled persons. The most important environmental factors cited in that study were opportunities for freedom and initiative and lack of unnecessary rules—i.e., control over events in one's own life.[16]

Flynn Lodge of Australia-located in a remote setting along a major river is a fine example of an assisted living facility catering to the divergent needs of residential control and empowerment. The facility boasts direct access between indoor residential rooms and outdoor, secure garden space. Heavy emphasis is placed upon independence within their 'Philosophy of Care' Module[17].

Self-sufficiency and codependency are two main concepts that align with the theoretical framework of the III-Seasons project. Because residents undergo moments of presence or alertness they need the understanding that their role within the facility family is needed and that it represents something important to others. The building must accommodate the needs of those physically and mentally capable as well as those bed-ridden, only able to see the world outside from a horizontal viewpoint. Combined, this spectrum of residential activity informs the type of public space available to residents and to visitors looking for creative and uplifting opportunities while they stay.

Diverging from the opportunities needed by many residents for daily stimulation or output, there also exist constraints when designing for the average dementia patient. Some patients have incurable interests during the moderate (or middle) stage. These interests evolve through oral, verbal, or physical fixations and must be discouraged or redirected by the caregiver. A resident's heightened reaction to visual, oral, or audible cues is often referred to as a "catastrophic reaction" and "can happen at any time".[18] The reaction is oftentimes the result of an "apparent increased activity level"[19] while undergoing this specific stage of the disease. Social dynamics, such as these, affect both patient and caregiver illustrating a dynamic spectrum of activity level present within a care facility.

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[16] Calkins, Margaret P. p.16.

[17] For more information contact: Flynn Lodge, Old Timers-Stuart Highway, Alice Springs NT 0871 Australia

[18] Calkins, p.7.

[19] Ibid, p.7.

2.6 Stimulation and Environmental Cueing

Specialized Care Units specialize in caring for the needs of residents ranging from passive to passionate. Involving the patients within an environment through diverging cues, methods, practices, or hobbies is a holistic-type approach that the III-Seasons project fully supports.

The majority of people, today, know how null and depressing conventional, big-box nursing homes can be for both their loved-one and for those at which they curiously peer behind drawn curtains separating one bed from the next. *Nursing homes are designed to protect vulnerable people...this protection can, however, have harmful effects common to other forms of institutionalization. These harmful effects result from the residents' isolation from family and friends, their lack of autonomy and their increased passivity. Significantly, research has shown that activities that take place in outdoor spaces associated with nursing homes can slow, and even reverse, the mental, emotional, and physical deterioration that often accompanies institutionalization.*[20]

Oddly enough the same managerial fear of the nineteen-fifties (disapproving of the patient's ability to access outdoor environments) has guided current-day regulation of the same. Documentation of such facilities is well-known and can date back to research carried out by Roger S. Ulrich or Stephen Kaplan investigating the concepts of natural-world immersion and improved-recovery ratings. Their evidence guides the foundation for III-Seasons in that stabilized immersion approximate to natural world corridors guides the stabilization process of those afflicted by illness. Their theories neither substantiate nor offer to lay claim to immediacy in healing, however, put forth the premise that the source's setting most likely correlates with the source's outcome. There should be compatibility between the environment and one's purposes and inclinations . . . in other words, the setting must fit what one is trying to do and what one would like to do.[21]

Connection to immediate, natural surroundings allows the dementia patient the opportunity to be fully present, moment upon moment. The person with Alzheimer's disease has no other choice than to live in the moment...at times, past and future lose their significance and the here-and-now means everything.[22] Accordingly, the person must be reminded and cued insofar as to re-establish simple patterns of daily life that many fully-cognitive individuals have taken for granted. Therefore, the way most of us live, with a linear chronology of time and distinct compartmentalized segments of past, present, and future, needs to be altered (in order to embrace and appreciate the ways in which the affected population can carry out tasks or complete goals).[23]

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[20] Marcus, Clare Cooper and Marni Barnes, 386.
[21] Kaplan, Stephen, p. 173.
[22] Fazio, Sam, Dorothy Seman, and Jane Stansell. p. 59.
[23] Ibid, p.59.

Chapter III: Design Precedents

3.1 Historical Precedents of Garden and Land

From an evolutionary standpoint humans are expected to have a "good fit" with the natural environment versus the current complexity of a North American city or urban environment. Some environmental psychologists go so far as to claim, that humans have an unlearned predisposition to pay attention and respond positively to natural content (e.g. vegetation, water) and to configurations characteristic of settings that were favorable to survival or ongoing well-being during evolution.[27] Varying slightly from this belief is the notion, that natural content may be processed with relative ease and efficiency because the brain and sensory systems evolved in natural environments.[28]

Once thought of as being strictly utilitarian areas during the middle Ages, cloister gardens were beginning to welcome changes in cultivation, inter-personal intrigue, and symbolic cultural importance. Herbal remedies, mixtures, and gem therapy were often used in treatment, especially during the early middle Ages... (However) this sort of treatment had its limitations laid by the Catholic church to prevent pagan heresy from spreading.[29]

Religious ceremonies were making a transition from church to garden and pagan floral traditions were beginning to lay claim on Christianity once again. The medieval garden (Figure 5) was a *hortus conclusus*-lovingly enclasped and walled in, where the original beauty of creation was restored, and supernal harmony revived.[30]

The cloisters and gardens of monasteries were places of contemplation...the technical term for the enclosed garden or cloister was "paradise".[31] These gardens provided views from inside the dwelling or worship space as well as allow for small group gatherings in which to study or converse.

External views from an overhanging, raised balcony or open window would provide extensive immersion into the sights, smells, sounds offered in the below, enclosed Eden. The virdarium, a larger garden opening, offered the pleasures of touch, sight, and sound as well as the senses of taste and smell with it's diversity of fruit-bearing species and colorful, tasteful flowers.

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[27] Ulrich, Roger S., Robert F. Simons, Barbara D. Losito, Evelyn Fiorito, Mark A. Miles, and Michael Zelson., p. 205.
[28] Ibid, 205.
[29] World wide web-source found at: http://www.intermaggie.com/med/healing.php
[30] Pizzoni, Filipo. p. 20.
[31] Tuan, Yi-Fu, p.138.

Species common to the hortus conclusus and virdarium included the scented herbs-rue, marjoram, sage, basil and mint, and visual flowers such as the rose, lily, or violet.

The outside garden began to represent the indoor realm with niches, allees, and dens separately programmed to match the various needs of the family. Established between the year twelve-hundred ninety nine and thirteen-hundred and five, Pietro de Crescenzi, of Naples, combined the art of agriculture and horticulture to produce what is now known as the Rural Compendium. With twelve books written under its establishment the concept intrigued Europeans universally, regardless of title, class, or sex.

This model served Western Europe until the birth of humanism arrived-philosophically placing man at the centre of all things in design. The garden was an especially popular realm with the Italian nobles whereby celebrations, weddings, and dinner parties sculpted every visible inch of these green Edens. Cultivation of the land became synonymous with cultivation of the soul, and rules governing the composition of the villa and surrounding land reflected the values of beauty and harmony expressed in the classical treatises, and now reformulated in contemporary equivalents.[32]

Where the medieval garden looked inward both physically and religiously the humanist garden looked outward to the horizon with neither structure nor mystic belief delaying the mind's journey. The concept of the spectacle within a landscape began to intrigue designers and artisans of the sixteenth century. Coupling the programmatic needs of garden theater or garden dinner parties proved to be a successful approach for French, German, Italian, and Spanish estate owners. The garden era predating the romantic era is referred to as the Spectacle garden with its flamboyant and colorful statuettes, figurines, and sculptural cues. Sculptural elements carried forth into subsequent eras paving a strong distinction between natural and artificial elements within the landscape.

It was with these elements that the privileged of Europe spent most of their idle time. Referred to as an allegory of life itself the garden represented ornamentation, diversity, and supernatural ability. Not only was the amount of land an asset to the owner but the decoration and scale within the garden detail represented the notion of greatness to the nearby public.

The garden concepts of *grotto*-an underworld interpretation of man's role in nature, *nymphaeum*-a vaulted room with sculptural elements representative of a water scene which paid homage to Greco-roman river gods and nymphs, *fountain*, and *pool* became icons to a steadily-growing, sophisticated European majority.

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[32] Ibid, 26.

By the seventeenth and eighteenth century European design had invested in the concept of inward reflection through the placement of visual icons or eye-catchers within the landscape. Water and mass plantings often illustrated the direct focus toward an object on a hill or a sunken area within a valley-such as the great Neptune basin at Versailles (figure 6).

Large areas of parterre, or heavily-trodden grass patterns, dominated and symbolized specific family and cultural values. Pattern found along the ground plane as well as in idle, geometric plantings, known as bosquettes, traversed the European landscape and made its way toward North American settlements.

Figure 4. Illustrates the cloister garden concept (artist's rendition).

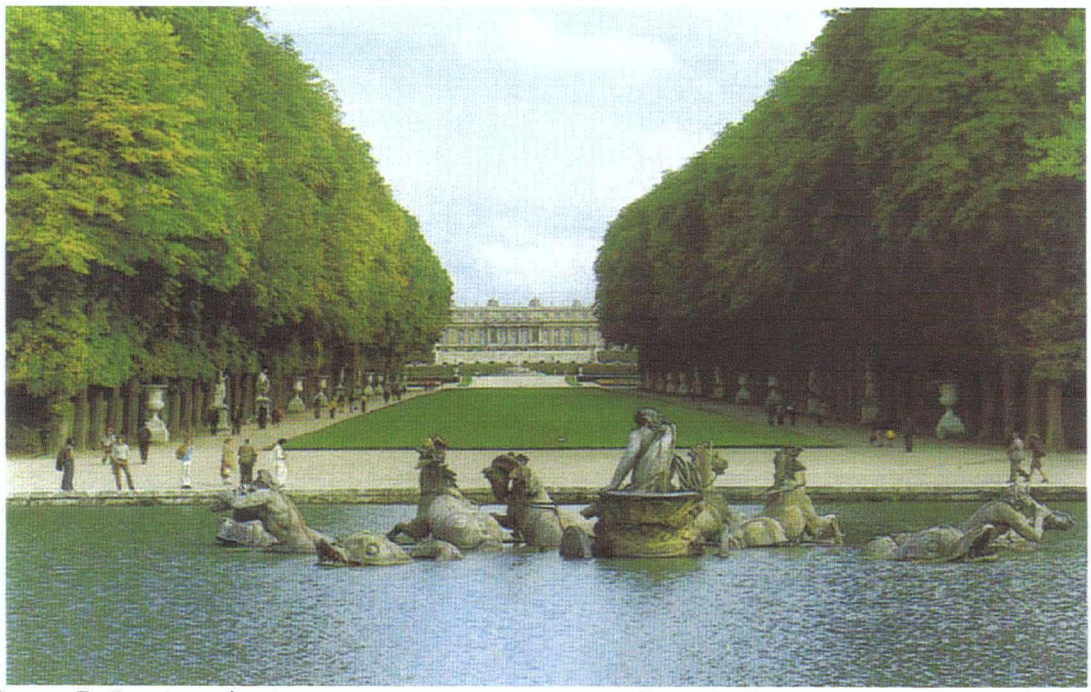

Figure 5. Depicts the Neptune Fountain at Versailles which is flanked by surface paving, a large parterre, and lineal tree bosques.

The debate between formal and informal landscape appeal defines the diverse garden components of the nineteenth, twentieth and twenty-first centuries. Without a deliverable recipe for success the garden associated with dwelling is perceivable as quite different from the garden associated with the public street or alee of marketing vendors.

As illustrated above, divergent styles found within individual gardens draw upon philosophical and spiritual beliefs defining one's individual personality and interests within the world around them. However, several key components define the outdoor landscape approximate to dwelling units like the one represented in the III-Seasons project.

These components representing the outdoor environment also apply to the indoor realm; They have been divided into the following groups:

- the tangible object
- the programmed space
- the dichotomy of the experience under different user groups

These three components will illustrate the different opportunities available to caregiver, resident, and visitor within the overall site layout. By using the terms "object", "space", and "experience" one can begin to draw conclusions between historical, medical, and cultural cues at play within the III-Seasons landscape.

3.2 The Monastic Cloister and the Working Farm model in Communal Living

There are two prominent organizational models reaffirming the ideals of community within a distinct setting. These include the monastery and the working farm. Both examples can be traced back, thousands of centuries-perhaps back to the Euphrates Riverbed source where modern irrigation principles first began.

The working farm concept traveled with settlers to North America to produce lavish tobacco, poultry, and beef results during the nineteenth century, then enduring hardship from world war I onwards-illustrating the need to modify and even disjoin physical components for separate sale which at one point in time were cohesive bodies in farm living. The overall vision for III-Seasons has it's roots firmly planted in these historical models.

There are several reasons explaining this direct linkage to both the monastery and the farm. The monastery is known for its unparalleled self-sufficiency (Figures 6 and 7) whereas much of today's culture relies upon multiple modes of interdependency. Careful attention is paid to placement within the landscape as the supporting land is the physical source of both inspiration and prosperity (Figures 8 and 9).

Figure 6 A Washington State monastery demonstrating self-sufficiency through the sales of onsite coffee and tea harvestings

Figure 7. An aerial photograph of the immediate landscape surrounding this Washington state monastery

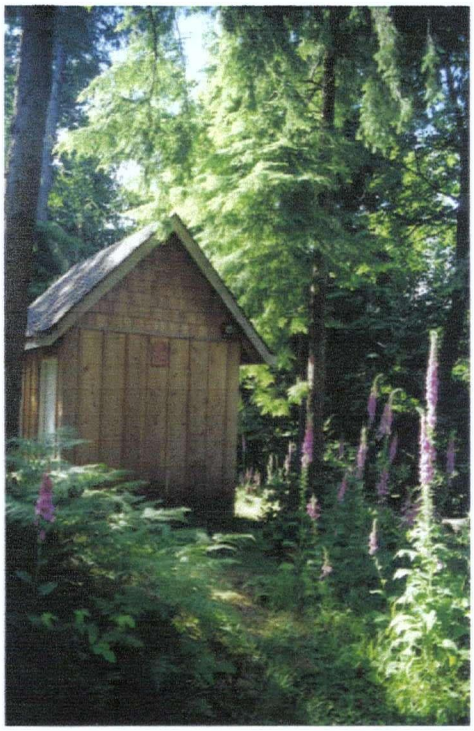

Figure 8 (left) Represents direct interaction with natural world stimuli;
Figure 9 Represents onsite farming techniques which define one aspect of onsite monastery chore

When looking at Sechelt's history as it transitioned from native colony through to settlement of European and eastern cultural groups the values established were most likely a result of previous cultural norms or convention. Self-sufficiency was an integral part of the new farms being established at the close of the late nineteenth-century. These farms relied upon several key components consisting of family labor, amiable growing conditions, and good soil from which crops would one day be harvested and replanted. Edible crops such as strawberries and figs produced enormous profit for early settlers looking for stable income.

The working farm example applies to the III-Seasons site for several reasons. The first reason being-the site is currently surrounded by Agricultural Land Reserve (ALR zoned) property comprised of homes and farms with goats, sheep, horses, cows, pigs, chickens, and ducks. Secondly, the concept of the farm is familiar to many dementia-age residents currently living in unrelated, unfamiliar modern buildings which pay little homage to site selection or site context. Physical, social, and environmental interaction, as discussed in previous chapters, is of crucial importance for a declining cognitive group. One example of a suburban dementia model with care given to interactive animal-based programming exists in the waterfront town of Warrane, Tasmania.

With thirty-one residents to assist the philosophy of care must accommodate for normal household tasks as well as rare and enriching onsite programs. The garden area specifically allocates space for an old car whereby male residents can use makeshift tools to "fix" and "tinker" about the stationary automobile (Figure 11). Elements such as headlights and windshield wipers have been extruded and are thereby able to be replaced by makeshift objects such as bird's nests or flower stems. Similarly, another portion of the garden begs for socio-physical involvement. With chicken coops softening the harsh angles of a steep retaining wall edge, patients can walk through raised bed pathways in the garden without being directly involved with the onsite chickens. However, if a patient is so inclined as to walk over to the animal coop there exists more than enough for a small group to stand and watch while someone does the daily feeding.

Figure 10. A Tasmanian dementia facility highlighting several unique programming opportunities for in-house residents

3.3 Current Trends in Suburban, Extended Care Facilities

Figure 11. Illustrates a visiting elementary-school music program geared toward the cultural holiday of Christmas

Figure 12. Demonstrates in-house interaction between staff and caregiver, as the program focuses on domestic chores of folding and sorting

Figure 13 Illustrates an offsite visit to a nearby pond for fishing

Figure 14 Shows in-house diversity of arts and crafts programs; Here a local art teacher, Pat Micciche, has volunteered time for a group collage lesson

Figure 15 Shows Dementia Residents Taking Part in Halloween/
Fall Festival Activities

3.4 Case-Study Examples

The six case study examples used to inform the III-Seasons project were collected from east and west coast facilities. They were chosen based on either programming or design appeal. Memory Garden, an east coast facility in New York, and The Mansion at 1906, a facility located near Santa Cruz, California, were selected because of their diversity in programming and unique setting, respectively. The remaining four facilities located throughout the San Francisco bay area were chosen at random from an Alzheimer's sourcebook.

Appendix _ further illustrates the criteria by which an overall score was allocated for each facility. Some of the design features substantiating these scores include:

- Notable Site Features
- Security Systems in Place
- Encouragement of Family Visitation
- Extent of porch
- Extent of courtyard
- Extent of entryway or entrance
- Extent of family visitation areas
- Architectural Style of building
- Notable preference or division between style and maintenance of staff and patient rooms
- Patient age and demographics
- Funding
- Proximity to cultural core or other off-site activities

[*Following Site Visits written as per site visit notation*]

An early site visit to '**Memory Garden**' of Jamestown, New York revealed heavy emphasis on interior flex-space adjacent to an enclosed (unlocked gate as per New York State safety regulation) garden. Multiple interviews with patients and staff revealed a close relationship between the two social realms. This modern facility, although located close to a five-lane vehicular roadway, offered extensive possibilities in programming and interior activities. This facility also offered the first glimpse of what would eventually inform spatial requirements associated with a mid-size assisted living facility.

Specialized components of Memory Garden include in-house pet residents-a hypoallergenic dog and two cockatiels, along with several transportable "garden carts" housing a diversity of indoor tropical plants and annuals. Residential entrances offer memory boxes (see Figure _) to aid in individual cueing and memory recollection. Residential hallways are categorized by color and theme furthering the concept of environmental cueing.

The Avenue Assisted Living of San Francisco was selected because of it's urban setting and close proximity to city stimuli. Recently opened, the facility hired new and experienced staff which provided for visible differences in care-giving technique. Rooms available included single and double-occupancy with roll-in wheelchair showers and hallway tub-rooms specifically designed for the aged. Exposure to outdoor patios was encouraged through floor plan, however, little attention was given to programming or furnishing of these allocated balconies and decks. Rooms available relied upon natural light. Colors chosen for the interior walls and furnishings corresponded throughout each floor. Despite the mega-presence at street level, the Avenue offered many small-scale, comfortable amenities with room to grow in program and hospitality.

Victorian Manor of San Francisco is located in the historic district of San Francisco. Flanked by abandoned brownfield parcels the building footprint edges the sidewalk. Accessibility and visibility into the facility are discouraged as the interior hallway is dark with wine-colored carpeting and dimmed lights. Fluorescent lights dominate the space as an unused, overgrown courtyard rests idly between residential wings. Residents, mostly in wheelchairs, gather in a semi-circle around an afternoon caregiver reading a daily news column.

Lakeview Lodge of Redwood City, California, represents a utilitarian ideal. Neither exterior nor interior environments are comfortable-with outdated, worn furnishings representing the majority of the facility. Plastic lawn chairs and dining tables have been idly placed upon the asphalt. Residential rooms are small: 12'x12' per double room with separate closet and toilet. Although nearby properties have healthy vegetation the facility offers little shade and even less avian activity for stimulation. Entry to the facility is by way of gated security fence with camera and key code.

The Mansion at 1906 reveals a heavy reliance upon external world stimuli and onsite natural features. Adjacent to the facility lies an orchard with an abundance of grapes growing and horses grazing. The building offers a an extensive covered, wraparound deck with multiple entry points into the building. Onsite vegetation is beautiful, diverse, and healthy with tall coastal redwoods and incense cedars. Residents within the facility are encouraged to bring pets. One woman, 87, has a yellow Labrador retriever. Although gated the facility encourages residents to partake in onsite activities such as walks and flower collecting since the majority of the site is flat or less than 5% slope.

Bay View Gardens of Monterey, California represents a newer facility undergoing changes in management with requests that visibly represent resident needs. Such requests include the addition of a "walking track" in the building's adjacent lot. A cantilevered pedestrian bridge connects the two lots providing changes in spatial identity and opportunity for the resident. Inside the facility each floor has an allocated roll-in shower. Residential rooms have full tubs and more conventional windows representative of the mid-20th century.

In summary, the case study site visits were crucial to the outcome of III-Seasons. By viewing both opportunities and constraints present in each of the centres an inquisitive response challenged that information within this design project response.

Chapter IV: Site Selection, Criteria, Layout, and Rationale

4.1 Site Criterion

Primary Criteria

a. Proximity to Acute Medical Centre (< 5 minute drive)
b. Soil: Good bearing capacity for structures
c. Proximity to healthy, natural corridors
   (Or the ability to restore this relationship)
d. Rich and diverse habitat (plant species and soil health)
e. Positive Natural Drainage/Geomorphology
f. Abundance of sunlight for 'day lighting' and depression concerns
g. Approximate to nearby established tree canopy for shade

Secondary Criteria

a. Protection from harsh winds
b. High degree of natural world "feel"-sensory experience within the area
c. Location centered near, but not bordering, a low-density residential area
d. Protection from significant traffic noise/negative environmental cues
e. Significant view-sheds/corridors leading to unobstructed horizon view

Uncategorized Criteria- See Section 4.5

4.2 Site Selection and Rationale: *Why* it is *Where* it is

> Being outside is necessary for well-being and for the enjoyment of life itself, but until recently Alzheimer's care settings have not focused on the outside environment and the need to encourage older adults to spend time outside in fresh air and sunshine.[33]

An original vision for the III Seasons Facility places heavy emphasis upon connection to natural world corridors, extensive exposure to sunlight, and placement upon an expansive hill whereby a distinctive, comforting view of ground and sky could be clearly accessed through visual perception. Environment is an important consideration when caring for people with dementia because symptoms such as memory loss necessitate providing a prosthetic environment (one that compensates for specific individual deficits) to support physical and psychosocial function.[34]

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[33] Brawley, Elizabeth C. p.154-164
[34] Fazio, Sam, Dorothy Seman, and Jane Stansell. Rethinking Alzheimer's Care. 1999.

In designing for Alzheimer's and Dementia populations there is something to be said for extracting beauty and serenity from natural world objects such as lilac blossoms or fruit-bearing branches and redirecting those elements to encompass the patient's immediate, stimulatory environment. The wonders of nature—mountains, trees, flowers, birds and animals, and other interesting sights—lift our spirits...gardens are wonderfully healing environments that bring sunlight to our faces, joy to our hearts, and healing to the soul.[35] In locating a dementia facility among these natural stimulants patients are able to interact more closely with objects that are, according to Roger Ulrich, programmed into the human psyche on an anthropomorphic level.

Placing the dementia facility within a calm environment whereby the horizon showcases the setting of the sun each and every night of the year, would both intrigue and welcome those directly involved with the facility. Having access to these daily patterns occurring in nature (that other caregivers or residents situated in urban facilities simply would not have) could be considered a major opportunity for hiring long-term caregivers.

Occasionally, an urban dementia unit design will surface whereby due attention was paid to both programming within the built and landscape forms offering the facility extensive ease in movement and flexibility of use. However, seldom does an urban healing environment exist whereby the sounds of nearby traffic or smells of approximate garbage dumpsters stand idle. These elements are what drive a facility to mediocrity with neither the opportunity nor vision to realign its goals as a healthcare centre (evident through certain case-study visits described in the previous chapter).

4.3 Major Aspects of the Care Environment

> Environment is an important consideration when caring for people with dementia because symptoms such as memory loss necessitate providing a prosthetic environment (one that compensates for specific individual deficits) to support physical and psychosocial function.[36]

Diverging from the vision of the facility and moving onto personal needs of the family and caregiver populations which ultimately support it, one is able to see that both of these positions can be stressful while looking after or looking up to someone with failing cognitive ability. By nature children of aging North American parents want to see their relatives in a non-threatening, comfortable, and serene environment. Why then are so many North Americans settling for mediocre extended-care facilities? The answer to this question is illustrated in several terms: Economics or money expended in order to accurately and beneficially care for someone; Proximity of facility to one's self or a close family member; Limited choice, established by government, allocating where an aging in place resident may spend their remaining time.

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[35] Brawley, Elizabeth C. p.154-164.
[36] Fazio, Sam, Dorothy Seman, and Jane Stansell.

Curiously, literature searches reveal time and time again that families of dementia patients are under a great deal of stress since they not only experience the physical death of their parent at the end of the life cycle but also experience a mental or emotional death as they watch the patient lose cognitive ability in choice, preference, or recognition of daily activities, roles, and relationships. With high degrees of variability between parent and child relationships, the role of designated "caregiver" is important if not essential to busy, working, twenty-first century North Americans.

Caregivers, in turn, are employed through funding sources defined by specific facilities (governmental assistance or personal savings; publicly or privately-funded). Thus, caregivers working in either a group-home setting or a hospice-type, one on one care environment have an ethical, professional duty to give care toward those in need of advanced medical treatment-which in this project describes full-scale dementia and Alzheimer's type cases.

Oftentimes, these caregivers and even family members have ways to relieve burden or stress through exercise, reading, or travel. However, documented survey responses[37] from caregivers within *Memory Garden*, a special care unit dedicated to Alzheimer's and Dementia patients, proved that they were ultimately seeking:

- Overall improvements in garden design with the patient at the core of the design-outcome to lessen the caregiver's levels of stress
- Improved availability of gardens and accessible grounds for multidisciplinary use by themselves or with other coworkers
- Improvements in shaded, outdoor areas away from the building by which to sit on breaks or under an extreme amount of work-oriented stress

Similarly, survey results revealed 7/7 respondents stated that exposure to the outdoors environment would benefit the patient's health or outlook; Likewise, 6/7 caregivers agreed with the statement, "Views are important for patients". These survey results reinforce the belief that exposure to natural world elements is highly desirable for both patients and caregivers.

[37] Memory Garden Questionnaire-See Appendices.

The site chosen for III-Seasons offers the potential for each of these beliefs to be fulfilled while also allowing creative adoption in programming such as the addition of:

- A petting zoo or barn for small animals available to patients, family, and staff
- Goat and sheep grazing courtyard-visibly accessible from indoor patient wings
- Space for sheep shearing
- An unrestricted puppy play node
- A pond with fish or turtles visible from patient rooms
- A meditation garden representative of eastern cultural value systems

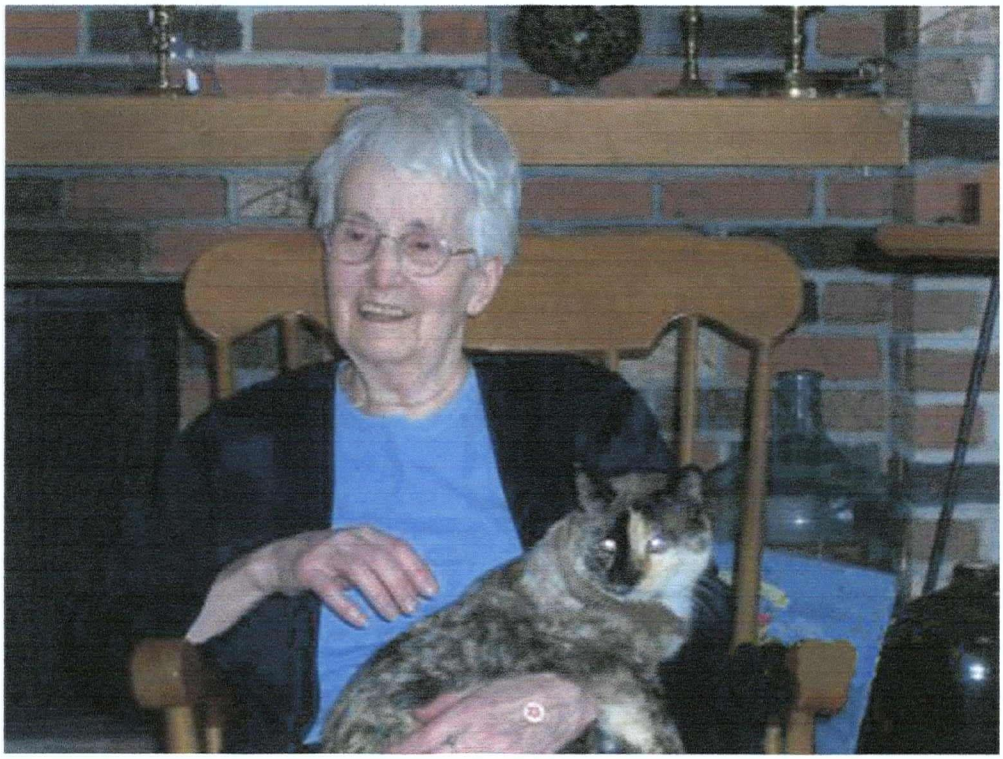

Figure 16 Illustrates a positive interspecies relationship between mid-stage resident and family pet

4.4 Group Structure and Site Language: Sechelt, British Columbia

Before the dominant Caucasian settlements entered the shores of the Sunshine Coast native families and tribes lived by the spiritual and ecological realms associated with the area. The band understood the relationship between earth, wind, water, and sky and situated themselves equidistance between the flowing ocean and serene inlet.

This project draws upon the same naturally occurring themes within Sechelt Inlet-an area chosen for its ethereal qualities which welcome eagles in nesting and young cedar, hemlock, and arbutus in succession. The environmental context used for III-Seasons is not only the basis in site program but also in site language. By looking at the site through the eyes of a unique dialect, the realm combining smell, touch, taste, sight, and sound can become more unified, more engaging for resident, caregiver, and visitor.

Similar to Tuan's idea, '*the monastery garden of medieval Europe is designed to be a model of paradise*'[38], the model for III-Seasons strives to represent a communal structure with social programs such as meals and activities taking place within specific, allocated family-wings of the facility. The host site offers a chance to unify indoor residential nodes with adjacent outdoor patios and gardens for each patient.

[38] Tuan, Yi-Fu, 145.

4.5 Environmental Appeal

> We take pleasure in distinctive events, as in distinctive places. Important hours should be perceptually remarkable, and then we can find our way in time. Places and events can be designed to enlarge our sense of the present, either by their own vivid characteristics or as they heighten our perception of the contained activity (within).[39]

We, as humans, cannot surmount the setting of the sun, the lapping of oceanic tides, or the re-blooming of bulbous flowers. These are distinctive objects and events to us which only grow fonder with time. Elements of sunlight, water, and fresh air stimulate the senses in an anthropomorphic and emotional way. In fact the sea or lakeshore probably offered the first of mankind's environments-giving him environmental affordances such as food, water for drinking or washing, and mode for transport. The sea, in particular the tidal shore, presented the best opportunity to eat, settle, increase, and learn...it have the congenial ecologic niche in which animal ethology could become human culture.[40]

The hill and valley provided early man with the prospect-refuge theory (the ability to view or see outward without allowing larger prey to see, in return). According to Tuan, the valley provides a diversified ecological niche promising an easy livelihood within.[41] In combining archetypes such as these a proposed facility can environmentally draw from sources stable to both-such as physical material available for structure or shelter, space available for celebration, or spiritual support which relies upon extensive views or inclusive objects of beauty within the landscape.

After establishing primary and secondary criteria for the III-Seasons facility several other criteria, inclusive of medical and philosophical realms, came to mind. These include:

- Distant views
- Area providing plenty of space for a diversity of activities
- Area with substantial, dense tree canopy for glare reduction
- Area supportive of avian and small-mammal diversity
- Placement within the landscape reinforcing space, time, Seasonal change, sun patterns

[39] Lynch, Kevin, p.83.
[40] Tuan, 115.
[41] For further context see Tuan, 117.

Chapter V: Site Information

5.1 Physical Context

The III-Seasons site was chosen according to the criterion listed above as well as for it's diversity of on-site species, ecological health, and ability to recover from forestry cutting-as evident on site visits. The site is located along Sechelt Inlet Road, just north of town about 3 kilometers, on Allen Road.

Surrounding the immediate site is dense forest cover with great diversity in age and species. The soil is composed mainly of Sechelt soil-which receives its name because of the large amount of glacial till left over from the regression of the Sechelt inlet water body-which is 110 meters below the level of the proposed building site.

Sechelt, located along the Sunshine Coast, is known for it's mild climate during winter and comfortable sunny periods during summer months. Neither heavy rain nor major snowfall are major concerns of the site, however, nearby higher elevations leading up toward Squamish receive a notable amount of snowfall each year. Neither tree-topping nor wind-fall were visible on site species since the majority of wind patterns occur within the straight of Georgia, located between the Sunshine Coast and Vancouver Island. The III-Seasons site, although rising in elevation, has a substantial amount of evergreen cover which allows wind to filter through without gathering and creating pockets of density.

Physical Opportunities and Constraints

The site presents several constraints which for the most part relate to it's dynamic nature. The slope supporting forest habitat ranges somewhere between ten and seventy-percent with a broad range in boulder size and tree root depth responsible for it's long-term sustainability.
Access to the site can be seen as a constraint with only one major thoroughfare accessible on the southwest portion of the site.

Opportunities are numerous; They include extensive views down slope, out to Sechelt Inlet, across to the Strait of Georgia and beyond. Onsite vegetation, as explained below, is healthy and diverse with many successive species emerging and young cedar sprouting from numerous rocky outcroppings upslope. Immersion within such dynamic landscapes is being explored in facilities, abroad.

5.2 Ecological and Biological Health or Diversity

The site provides many opportunities for improvement including site soil remediation and planting and slope re-stabilization and structuring. With the municipal garbage dump a mere 2 kilometers upslope the site plays host to nesting eagles, other falcons and birds. The site dictates a natural boundary between elevation zero/inlet and upslope conifer forest with dense, seral-stage meadows and steep rocky outcroppings. Several cedar, dating close to nine-hundred years, remain onsite and play host to nesting falcons or perching eagles. Because the slope faces west it receives many plant species tolerant of full to partial-sun conditions.

Natural niche succession has occurred since earlier days of forest cutting for salvageable lumber. Natural successions of Red alder, Western hemlock, Lodgepole pine, Canadian spruce, Douglas fir, and Red cedar have been identified onsite. Young alder, Huckleberry, Nootka rose, Deer- and Sworn-fern, as well as Salal and Twinberry currently grow onsite as under-story species. However, several introduced non-native species such as Scotch Broom have been positively identified onsite and are negatively impacting the young, under-story species enlisted above (see Table 2).

The III-Seasons site is host to dry, shallow mineral soil known as Porpoise Soil. Onsite nutrient content is organic within the forested slope sections, however, is very dry and nutrient lacking along the other, disturbed sections of the slope.

Topographically, Porpoise soils are moderately rolling to hilly or very steeply sloping with slopes varying from 10 to 50 percent. Most areas of Porpoise soils have been logged and now support second-growth stands of mostly coast Douglas-fir with lesser amounts of western hemlock, western red cedar, red alder and vine maple. Rooting is generally unrestricted to about 100 cm, then is somewhat impeded by the compact subsoil.[42]

The specific bedrock category in which Sechelt Inlet area falls is the Bedrock and Fragmented Rock Form group known as GSM3 and GSM4. Ground surface material three (GSM3) and ground surface material four (GSM4) represent bedrock and fragmented rock formation categories within the Langley-Vancouver area map.

Also illustrated is the presence of Moriainal and Fluvioglacial surficial deposits. These surface soils are categorized by deposits in front of or in contact with glacier ice[43] and are composed from materials transported within the glacier.

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[42] Ministry of Environment Assessment and Planning Division, p.154.
[43] Ibid, Figure 2.

III Seasons project site: Allen Road onsite species-November 2004

Biogeoclimatic Units	Common Name	Type and/or Abundance V-A: Very abundant A: Abundant
Abies lasiocarpa	Sub-alpine fir	V-A
Acer macrophyllum (wood used to make paddles)	Bigleaf Maple	V-A
Alnus rubra	Red Alder	V-A
Arbutus menziesii (considered sacred to the Salish people)	Pacific adrone/Arbutus	A
Arctostaphylos Columbiana	Hairy Manzanita	A
Arctostaphylos uva-ursi	Kinnikinnick	A
Chamaecyparis nootktensis (Sechelt tribes used only wood from young trees to build boats)	Yellow-cedar	V-A
Cytisus scoparius (characteristic of disturbed sites-mineral soil, strongly drained, water-shedding sites)	Scotch Broom	V-A
Gaultheria shallon	Salal	A
Mahonia nervosa	Dull Oregon-Grape	A
Picea engelmannii (associated with lodgepole pine, Pacific silver fir and white spruce)	Engelmann Spruce	A
Pseudotsuga menziesii	Douglas fir	V-A
Sisyrinchium douglasii	Satin-flower	A
Thuja plicata	Western red cedar	V-A
Tsuga heerophylla	Western Hemlock	V-A
Tsuga mertensiana	Mountain Hemlock	V-A

Table 2. Illustrating on-site species present in November 2004

The site is also host to deer, coyote, rabbit, and field mouse populations. Representing an ideal, semi-secluded habitat above the main highway realm, the site has high biodiversity and healthy succession. Avian species dominate the site with multitudes of nests spread throughout the horizontal site axis.

5.3 Area, Slope, Views, and Circulation

Nearly eighty-meters above the Sechelt Inlet Road traffic, circulation onto the site presents itself by means of trestle-bridge and dirt road crossing. Mature evergreens flank north and south sides of the road upon entry with a newly-established tree farm and nursery adjacent to the trestle bridge access point. A country inn or bed and breakfast is located just south of the site with Irgens creek splashing nearby. Both lush and cool the creek ravine provides an opportunity for future programming in a raised-creek walk supporting development on the lower-portion of the site.

Separately, the site provides for extensive views to the west and south from the upper elevations and forest openings. Much of the site receives direct sunlight from mid-morning through early evening with summer boasting even more opportunity for evening twilight hours. Current site circulation on this brownfield site makes use of switchbacks or curvilinear gravel roads.

Future programming for the site includes remediation of unused switchback roads, replanting of brownfield areas, and slope stabilization through the use of anchor bolts, onsite recycled trestles, and large boulders unearthed from the building site. Project focus has been given to site orientation, grading, drainage, slope stability, and site diversity. See Figures 17, 18, and 19 for details.

Figure 17. Illustrates a Figure Ground Relationship between Buildings, Adjacent Lots, Views, and Access Points

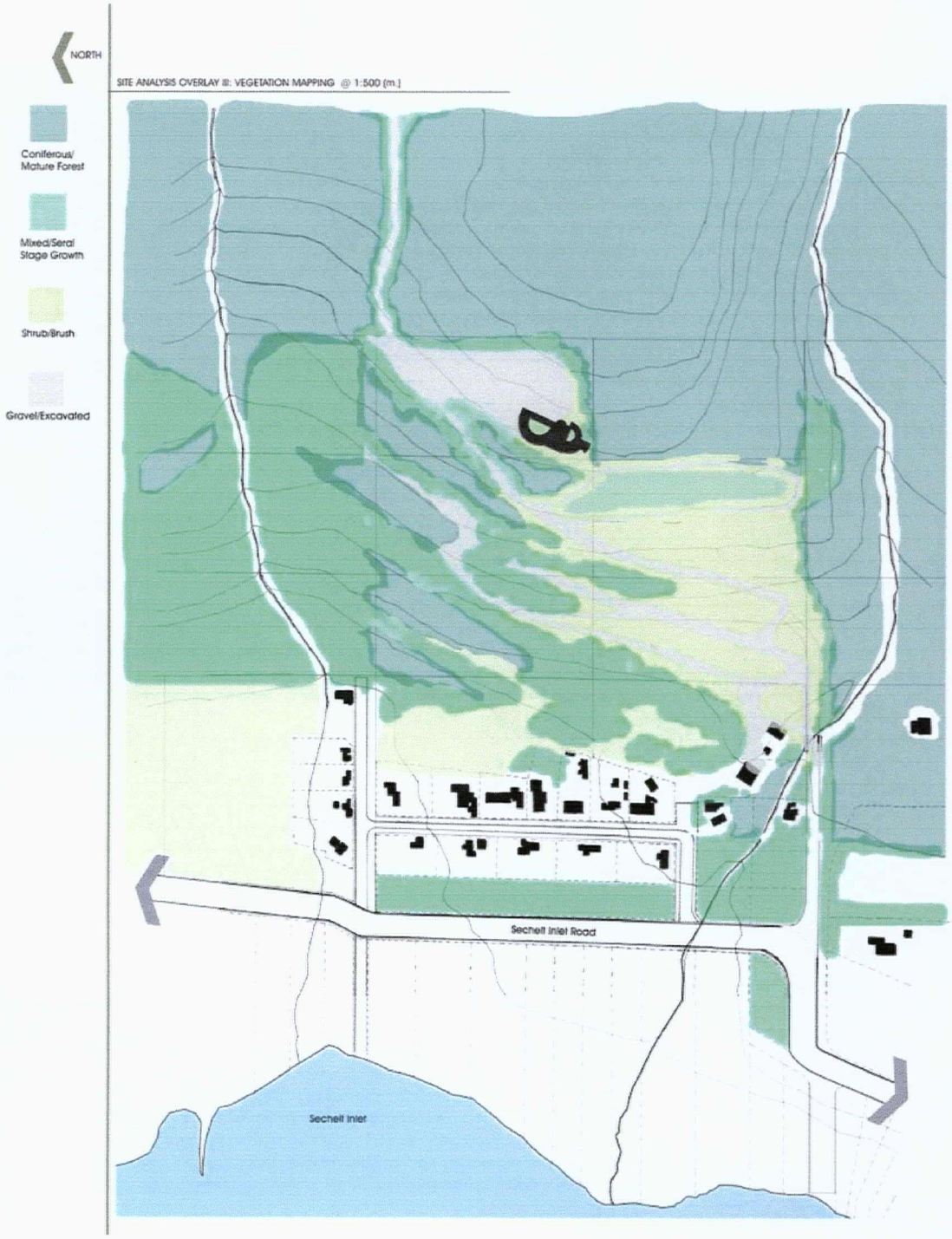

Figure 18. Illustrates Site and Adjacent Lot Vegetation Patterns

Figure 19. Illustrates Onsite Topography and Stream Setback

5.4 Current Status and Site History

Supporting properties within the Sechelt Inlet Road vicinity include Agricultural Land Reserve, Residential, and Light Industrial zoning. With timber and gravel mining major sources of income for the local economy it is intrinsic these practices coexist with new development. With such a rich cultural history the inlet provides for major sources of transportation and recreation while also supporting niches of marine and estuary populations.

While settlement did not occur along Sechelt inlet until the late nineteenth-century interest in hunting, fishing, and timber harvesting was avidly practiced by the native bands. Currently, those hobbies and practices are supported by the area as well as playing host to several provincial parks and fishery-protected spawning areas.

The site provides for opportunities in Assisted Care Living, Site Remediation and Open Space, Walking Trails, Working Gardens, and nearby single-family dwelling units.

Chapter VI: Facility Programming

6.1 Criterion

Facility Needs According to Designated Role and Physical Environment

A. Population Needs of the following groups:
   1. Family
   2. Caregiver
   3. Patient

B. Guidelines Specific to the Patient

C. Universal Guidelines for Facility Design

A1. <u>Family Needs</u>

- Need a relaxing atmosphere for visitation
- Areas in which to walk with patients
- Surroundings that reflect nature or natural world icons
- Comfortable places to sit both with the patient and away from the patient
- Need semi-private gathering spaces
- Dining room for meals together
- Can benefit from a daybed or window-seat within the patient's room
- Need parking
- Need easy access

A2. Caregiver Needs

- Quiet place where they can get away from work
- Stress-free place to go on longer breaks
- Help in accessing support systems regarding caregiver burnout
- Need to feel valued
- Can feel isolated from family and friends
- Change of scenery/locale
- Regular exercise
- Dancing or exercise room
- Safe place for medications
- Fences with security locks
- Comfortable, stationary furniture
- Places for Programmed Activities
- Security Gate
- Private Garden for Staff
- Central activity nodes and workspaces

A3. Patient Needs

- Places which assist with balance
- Easy wayfinding and orientation
- Level surfaces
- Wide pathways, defined edges and borders
- Space in which to wander and walk-either liner or circular pattern
- Clustered, bed-oriented activities for late-stage patients or those disabled
- Bedrooms on the main floor
- Gardens directly attached to the residence
- An abundance of restrooms throughout the facility
- Areas which aid in loss of movement (late-stage patients)
- Surroundings-simple and elegant
- Provide views from a horizontal standpoint
- Design for touch
- Offer choice in type of outdoor space
- Provide items which stimulate memory or conversation
- Design should avoid extremes in temperature, light, or wind
- Wheelchair and walker friendly
- Shade
- Personalize patient room entryways
- View of the ground and sky to stabilize circadian rhythms
- Toilets should be visible from the bed
- Kitchen should be accessible 24/7
- Handrails on stairs and in bathrooms
- Historical cues offered within the facility

B. Design Guidelines Specific to the Resident Population

- Color should be devoid of black or grey
- Orient the building with gentle entry and exit
- Buffer the perimeter to discourage climbing
- Limit building symmetry
- Reduce number of corridors to decrease orientation issues
- Provide panoramic views as often as possible
- Plantings must provide through-views for visibility
- Garden levels should be patient levels
- Improved scenic layout of room for bedridden patients
- Bathrooms should creatively answer difficulties in bathing
- Spaces should exhibit order and hierarchy
- Clearly defined adjacencies
- Visually, physically, and socially accessible
- Design for companionship

C. Overarching Guidelines for the Facility as they relate to all groups

- Privacy Spaces
- Social, public spaces
- Safe and Secure Spaces
- Spiritually uplifting surroundings
- Place which supports independence
- Provides for healing opportunities in program
- Large windows which fill the facility with natural light
- Wellness corridor-accommodate diversity

6.2 Adoption of "Me" into "We": When an Individual Joins the Group

The community of Edenton is an assisted living facility which offers heightened patient interaction within the care environment. Illustrated below are figures highlighting allocated space for residents at three divergent stages of Alzheimer's disease. The spaces differ in both layout and access to external world stimuli and rely heavily upon the programmatic opportunities within each unit.

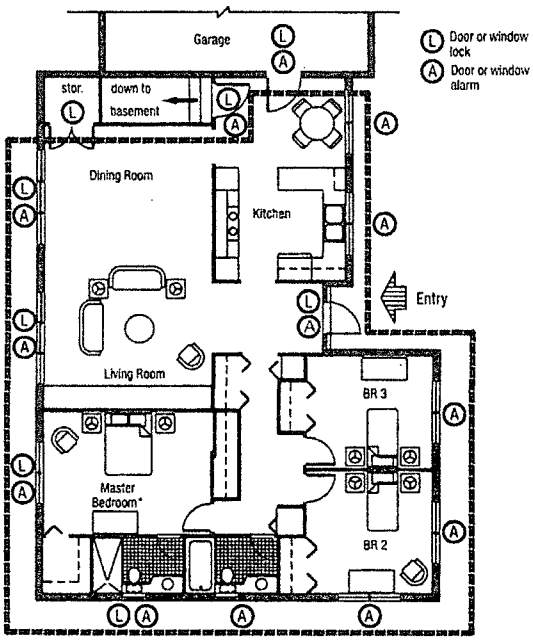

Figure 20. Shows a stage one space within one's home environment.

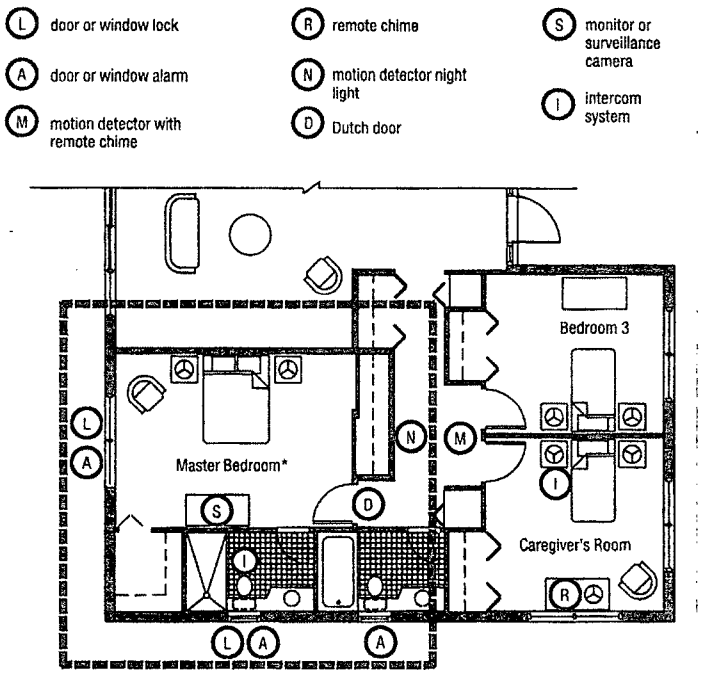

Figure 21. Illustrates the relationship a mid-stage patient might have between the indoor and outdoor realms of a residential facility with increased emphasis placed upon safety and simplified mobility.

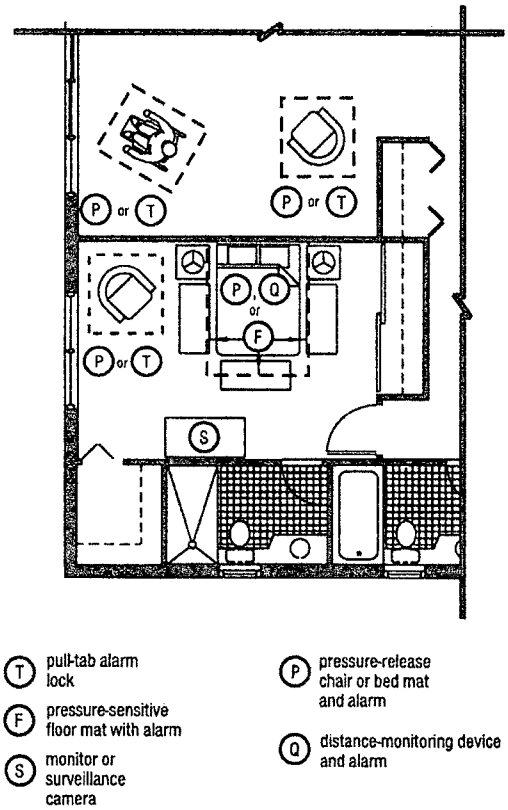

Figure 22. Illustrates a limited and secure space for late-stage patients undergoing more serious illness-related symptoms such as hallucinations or insomnia.

6.3 Funding

> The economists, with a few exceptions, are the merchants' minions and together they ask with the most bare-faced effrontery that we accommodate our value system into theirs. Neither love nor compassion, health nor beauty, dignity nor freedom, grace nor delight are important unless they can be priced.[44]

Now, more than ever, demand for universally accessible garden or green space is on the rise. As evident through recent case-study visit, the general intention of facilities is geared toward the inward environment—spaces that are static with the exception of light and air movement. The outdoor environment, however, is guided by change. Dementia patients revel in the intricacies present in real world stimuli.

[44] McHarg, Ian, p, 25.

Present day assisted living facility owners and managers need to become further educated in onsite benefits of gardens and green space. Recently, designers such as Topher Delaney and Clare Cooper Marcus have embraced the opportunity to educate both public and private-sector medical facility owners in positive benefits which stem from short visits within garden space. Their designs place the individual or resident at the forefront of such outside immersion with benefits to social atmosphere, emotional state, and facility aesthetic.

By illustrating a garden's positive effects on residential and caregiver health management can visualize the economic benefits of a consistent staff with direct access to onsite green space.

III-Seasons is privately funded like many specialized care units in North America. With funding from 44 patients at $4,000./month the facility would annually generate $2,112,000. in Canadian dollars. With sixteen full-time employees being paid at $40,000./annually the cost of caregiving wages would total $640,000. Typical costs such as taxes, ongoing site maintenance, facility repair, landscape and master gardening contracts would be charged from remaining facility funds.

6.4 Management and Operation

III-Seasons is based on the concept of community. With diverging tiers of human capability and service the project draws upon the site for programming opportunities and general vision. Operating under the concept of the whole this community illustrates a dynamic spectrum of interests from individual resident to cluster-style "family" needs and onto employee and management sectors. The facility reinforces the individual and their remaining cognitive functions while welcoming changes in onsite animal or livestock populations and plant communities.

The facility honors direct connection with natural corridors while operating under local jurisdiction and bylaws (see appendix). With close proximity to single family dwelling units human and small pets are encouraged to visit as the design welcomes these dynamics in size and species.

Onsite managers occupy rooms on the ground floor of the facility-directly adjacent to resident rooms for immediate nighttime support. The three suites operate under a rotating schedule whereby caregivers are specifically hired for night duty and assigned an in-house schedule several months in advance. Acting as both caregiver and night manager this group fully understands medical protocol associated with sundowning in affected patients; The group is responsible for night duties associated with residential floors and is fully capable of handling family or crisis situations which may arise after hours.

Chapter VII: Facility Design

7.1 New Directions for Success

III-Seasons enhances the traditional concept of assisted-living in that it allows the resident to fully embrace their remaining cognitive abilities. The structural and landscape spaces serve as mutable platforms in which touch, taste, smell, sight, and sound are interlaced. Motivation for proposing this radical shift in onsite capability and program began after visiting a California facility whose outdoor dining sets were comfortably set upon vehicular asphalt—a safety issue and prime example of poor site programming on behalf of management (figure 23).

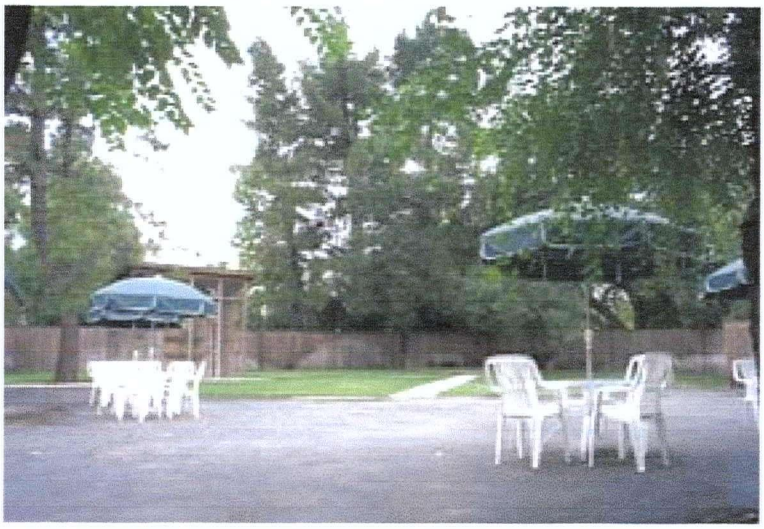

Figure 23. Illustrates poor site programming and lacks overall vision of what residents are capable of doing in the given space.

With such dynamic case study cues the III-Seasons design addresses fundamental issues such as safety, readability, separation of vehicular and pedestrian realms, and creative use of indoor and outdoor space as the basis for layout and form. Spatially the building and landscape assume specific uses identifiable with program. These spaces are described, below, according to residential use.

7.2 Spatial Identity Specific to the Design Outcome

1. ENCLOSED COURTYARD FLANKED BY RESIDENTIAL CORRIDORS
   The courtyards are spaces in which residents and staff have daily visual access. The larger courtyard is divided by perimeter fence for the keeping of livestock. The livestock is inclusive to sheep and goats thus dictating consistency in the maintenance of courtyard plant species.

   Residents have visual access down into the courtyard from the above second storey; Caregivers also have visual access into the courtyard from the third storey and elevator shaft. Physical access to the garden can be achieved through entry and exit points illustrated on the master plan and section drawings.

   Large French doors open onto the courtyards for physical access while self-cleaning, floor to ceiling glazed glass panels dictate the perimeter of the walking-loop hallways. A reflective metal roof reduces heat buildup during warm summer months while the building's heavy reliance upon sunlight allows for solar gain. The design also maximizes use of the micro-climates present within each given courtyard realm.

   Materials capitalize on natural presence of light and air while providing visual access for patients sitting indoors and looking onto activities in the courtyard space. A high degree of customization is needed to reinforce the sense of place or belonging to inhouse residents. Visual elements such as the stained glass catwalk railing (See Drawing Section-Elevation 3), which meanders through the conifer grove to the south, reinforces site specificity, time, and s pace.

2. STEPPED BUILDING AND CURVILINEAR FOOTPRINT
   In order to capitalize on external viewsheds to Sechelt Inlet and the Strait of Georgia the building shape has taken on the form of two crescent shape wings connected with a rectangular solid in which many of the public activities and programs are oriented. This reliance upon the external environment allows residents and caregivers greater flexibility in outside use adjacent to the horizontally-oriented building.

   The building footprint wraps around existing conifer outcrops while resting upon the (brownfield) site. Survival of these nearby species is intrinsic to the facility vision of operating among natural world corridors.

The steep site provides a unique opportunity in allocating three floors of residential use and a fourth floor designed for professional or managerial use. By examining the needs of both patient and caregiver preference was given to residential access between outside garden space and inside residential space. This reliance upon residential autonomy is a major component adding to the success of courtyard and working garden interaction. Access to at-grade storage, located on the south-end of the building, encourages residential connection to adjacent working garden and exterior landscape realms.

3. AUTONOMY WITHIN THE COMMUNITY

Autonomy is a guiding principal within the III-Seasons vision. Both an individual and a component of a larger community the residential needs guide the success and use of the facility. Specific design components reinforcing this concept include additions of personalized raised-planters and floor-to-ceiling shadowboxes built into the entryway of residential rooms.

To better orient the resident within the community realm specific patterns and colors represent architectural components of the hallway in which their family is located. Textures on the wall and ceiling, within each resident's room, reinforce the external world stimuli present at the window. Resident pets such as dogs are encouraged in residential realms while community pets, such as sheep, are encouraged to graze in the large, outdoor courtyard, and sleep in a structurally-separate, ground-floor shelter.

4. AMONG TREES, AMONG FRIENDS

Trees are the world's largest living body. To further enhance one's appreciation for onsite seasonal change other natural world components such as water features and runoff swales have been structured around the residential spaces. To capitalize on existing plant communities, selective species can be harvested from one portion of the site and brought closer to the building footprint.

Because slope, soil, and plant communities primarily define the immediate site, caregivers are encouraged to use the site-thus illustrating it's appeal to residents and visitors. The Upland Garden space is a semi-cultivated area planted with half-native species and half-introduced species. This space communicates a strong tie to the land because of it's dependency upon vegetation and rocky outcroppings. By taking one on one residential walks up to the garden, both caregiver and resident activate the space by physically and emotionally connecting within it.

5. LANDSCAPE—HOW CAN THEE COMFORT ME

Working within a healing, peaceful environment allows the caregiver to establish new memories, day by day, while holding onto special ones supported deep within their emotive psyche. By establishing a holistic design with specially-allocated grieving and contemplation points the caregiver, visitor, or resident can spend time within that environment located near the facility. Unique honorary opportunities include onsite planting of memorial bosques with flowering, fruit-bearing trees or majestic red cedar saplings found onsite.

> ...We are all putting our memorials in place day by day. It is the way we live our lives and the way we care for others that ultimately determines the memories we leave behind and the human qualities for which we are remembered. In the words of Dag Hammarskjokd: "Do not seek death. Death will find you. But seek the road which makes death a fulfillment." [50]

7.3 Landscape Appeal

The land affords the facility endless possibilities for inspiration and cultivation. Residents within the facility have limited time to embrace it and have relatives who like to see their family member leave a legacy for others to experience. The Sechelt Inlet experiences dynamic shifts in weather and seasonal change-as illustrated by dense mountain fog clouds, rich woodland habitat.

With it's semi-rural location the facility can expand upon existing site processes. Harvesting young seedlings, from nearby Douglas fir and Red Cedar, is a practice that will be expanded upon and explored for site re-establishment and planting. Resident rooms will have raised bedside planters with seasonal plants as interest. Located adjacent to residential decks will be individual planters in which young seedlings from site harvesting can be maintained by the residents.

[50] Reoch, Richard, p.176.

7.4 Line, Space, and Form

The residence and surrounding gardens are site specific. They draw upon the simple horizontal axis offered by both Sechelt Inlet and the Strait of Georgia. Specific vertical elements within the landscape and residence pay homage to surrounding wooded lots. These elements include the use of vertical catwalk posts which support the meandering deck above, exposed timber I-beams which support main, second, and third stories, as well as retaining wall timber buttressed by large cobble and heavy-gauge wire.

Stone represents the horizontal plane-taking cues from onsite rocky outcrops in which the face of the rock has become smooth to the touch. Dry-laid cobble retaining walls flank the east-facing vehicular turn-about and also compose the working garden retaining wall to the west.

By representing vertical and horizontal planes through these two materials their presence within the landscape formulates a holistic vision supportive of natural site processes at work on the land. Space is further characterized by mass plantings, changes in elevation, and surface treatment or materiality.

7.5 Planting Recommendations

'We are programmed into seeking conventional images of beauty from a garden rather than trusting our own responses. A garden does not have to be tightly controlled to be beautiful.' –Montagu Don

Plants must carefully selected for such a facility due to their potential allergens released through leaf, stem, stalk, flower, or pollen spore. Residential plant types differ from caregiver allowances in that the spatial layout of the building provides for opportunities in both. A recommended plant list follows in Appendix I-illustrated on the planting plan.

Within the garden specific exercises, such as Guided Imagery-whereby resident and caregiver sit in a comfortable location and the caregiver symbolically walks the patient through past recollections of onsite smell, touch, taste, sound, and sight. An activity such as this is highly-dependent upon external stimuli or cueing in that the patient draws from sensory clues within the landscape to further access internal, long-term memories otherwise irretrievable.

Looking to the European's use of the kitchen garden, III-Season's working garden mirrors their use of herbs, edible plants such as tomatoes and sweet corn, as well as fruit-bearing trees and even root vegetables. A seasonal planting palette might include the following species considered "prime" by the time the enlisted season arrives:

Winter: ***Last Harvest before the New Year***

- Red Cabbage
- Cardoons
- Ruby Chard
- Celeriac
- Celery
- Potatoes (main crop planted during summer)
- Chicory
- Endive
- Parsnips
- Garlic

Spring: ***Starting Anew***

- Parsley
- Leeks
- Broccoli
- Spinach (late spring)
- Potatoes (first early types)
- Rhubarb
- Arugala

Summer: ***Let's Eat***

- Thyme
- Chives
- Marjoram
- Parsley
- Asparagus
- Spinach
- Orache
- Spring Greens (two types of cabbage)
- Curly endive
- Radicchio
- Zucchini
- Lettuce
- Fava Beans
- Potatoes (new potatoes planted in spring)
- Peas
- Artichokes
- Carrots
- Mint
- Rosemary
- Strawberries

Fall: ***Autumn Crops***

- Beets
- Baby Carrots
- Onions
- Garlic
- Basil
- Fennel
- Sweet Corn

Planting Recommendations differ slightly for the livestock grazing within the main outdoor courtyard. Winter fodder might include Alfalfa, Red Clover, Dandelion, and Chicory. Other plants of interest for the courtyard garden, but not in direct relationship to the sheep run might include: Anise-Hyssop (a species which attracts butterflies), Chamomile, Mint, Ornamental Onions, Chives, Dill, Fennel, Anise, Clary and Red-Top Sage.

Garden Maintenance

By allowing the garden spaces to be seen as focus points representative of the whole facility a loose approach to style is supported (however not to plant type or plant location and regimen). The site offers opportunity for shade and sun-loving plants that can be grown at Working Garden level, Courtyard Level, or Caregiver Level-the third storey of the facility (accessible only to staff).

Even simple meals held outdoors become a pleasurable experience for caregiver and resident. This concept drives the outward-focus of the wraparound deck and ocean overlook sections adjacent to the interior realm. Specific devices such as heat lamps or sun umbrellas can be used to mediate thermal temperature in mid-stage residents dining outdoors with their floor family.

7.6 Micro- and Macro-Environments

Microclimates allow plant species to grow in places otherwise unsupportive of their needs. The same is true with human needs and their environment. The III-Seasons design responds to nature as it changes, grows, appears, and disappears. Dynamics in plant growth, light, and rain best represent the seasonal component of life upon the inlet slope. Residential rooms have an external focus allowing the patient visual access to the surrounding world. Residential wings have an inward focus with panels allowing visual access into courtyards-both across and below.

The hallways buffering the residential realm from the public realm allow for 3 meters of movement from one wall to the next. This offers enough space for the placement of chairs and side tables at which residents can sit and watch activities occurring beyond them in the external courtyard.

If the residential room is seen as an individual 'pea' the family floor becomes the 'pea pod'. Both social and physical realms are in direct correlation to the individual's needs on each floor-with some wings offering more opportunities in interaction than others do. Individual needs, on a micro-level, would be determined at the onset of their arrival to the facility and assessed throughout their stay. Several specialized rooms are located directly across from the main-floor nursing station allowing for direct access to these specialized care units housing the advanced patients.

The concept of the macro-environment or greater world diminishes as the disease progresses. Since the resident needs cueing on where they live within each family floor specific cues such as translucent photo frames, in which residents portraits displayed, are located on each doorway.

The role of family visits is highly encouraged within the facility. Specific design accommodations include use of interior design cues (such as model boats, trains, or toys) as well as comfortable and diverse seating spaces in which an array of seating options is available.

With heavy emphasis on views, the interior environment succeeds only through help of the external features, such as patio and walkway spaces, promoting movement, exercise, and stimulation that otherwise cannot be captured within a static indoor realm-evident in several of the case study models.

7.7 Concluding Remarks

The III-Seasons project emerges from the concept that life within an urban realm is overly challenging for those suffering from an onset of dementia. Despite advances in interior design and building technology there is little evidence which upholds the urban realm as being an ideal space for healing. While activities often meet residential needs in social, emotional, and physical realms, dementia-specific facilities should be looking toward external world stimuli for immediate programming opportunities and an expanding concept of what it is to reside within a particular "place".

By realizing the site's character the designer can then present options which cater to the needs of onsite residents. In III-Seasons the site character illustrated a need to replant and stabilize the slope and slope species while embracing the dynamics of view, light, and vegetation. Caregivers in facilities that misunderstand, or who do not take the time to try and understand, their resident's needs make the mistake in also misunderstanding what could improve the public spatial component available to both populations.

A reasonable set of criteria for a facility hoping to better accommodate resident and caregiver or staff might include: an increase in outdoor programming, increased reliance upon natural light and seasonality, improved dynamics between onsite micro- and macro-environment, as well as the integration of animal species associated with farms or agriculture- a practice many aging residents can easily recall.

While caregivers, visitors and residents have divergent preferences within a residence, they have consistent needs of emotional, physical, social, and environmental, or biophilic, contact. According to the design outcome, a place denying an individual's immersive opportunities within any of the four realms is considered a secondary environment for anyone's relative or loved one.

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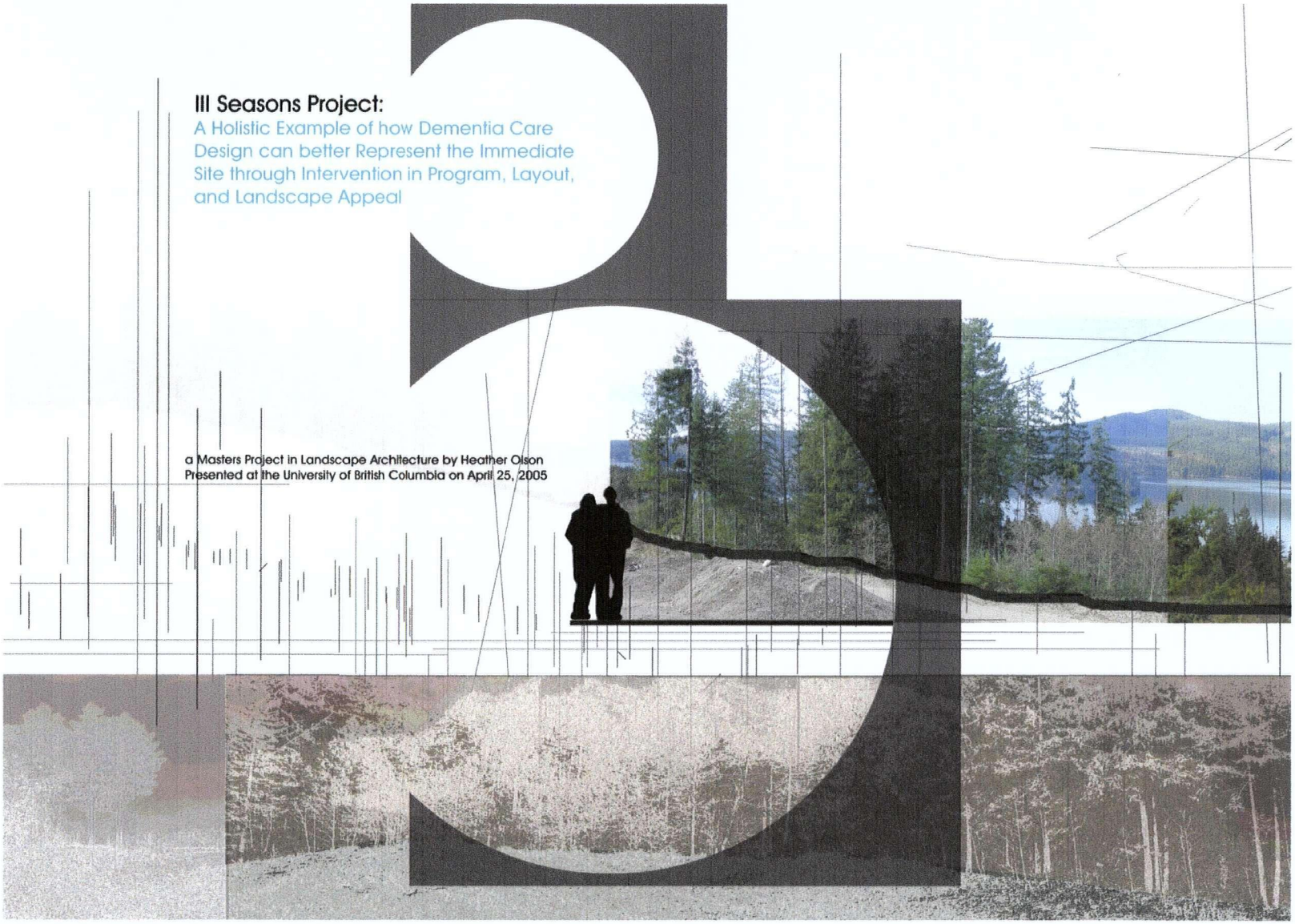
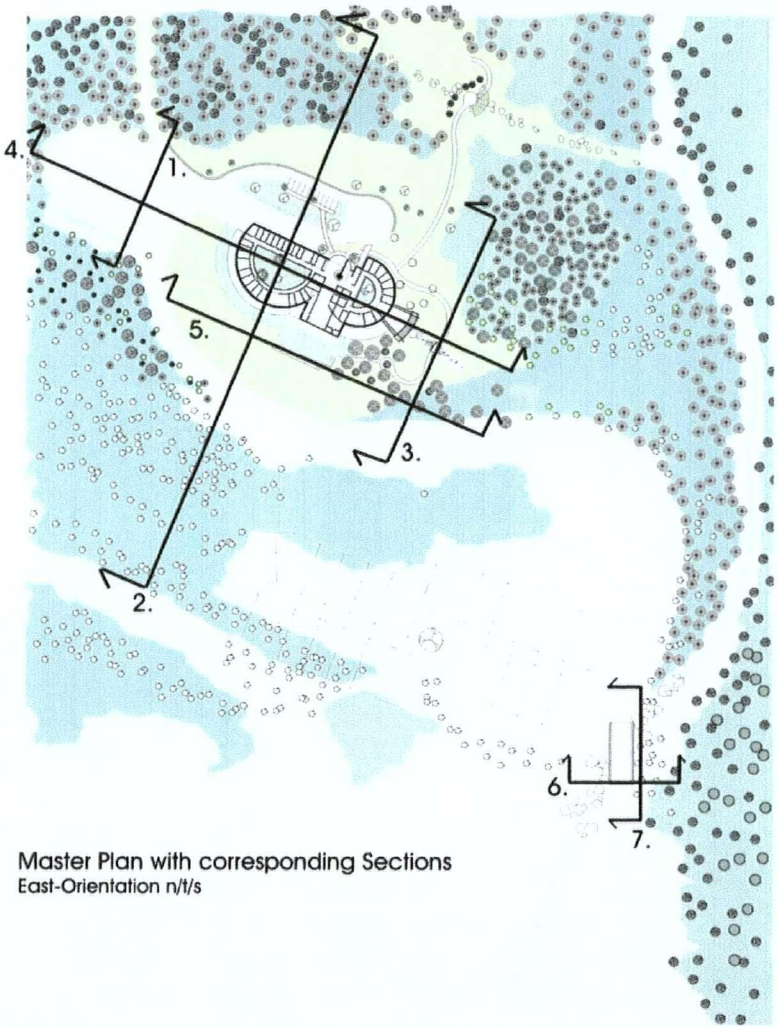
Appendix I. Master's Thesis Design Response



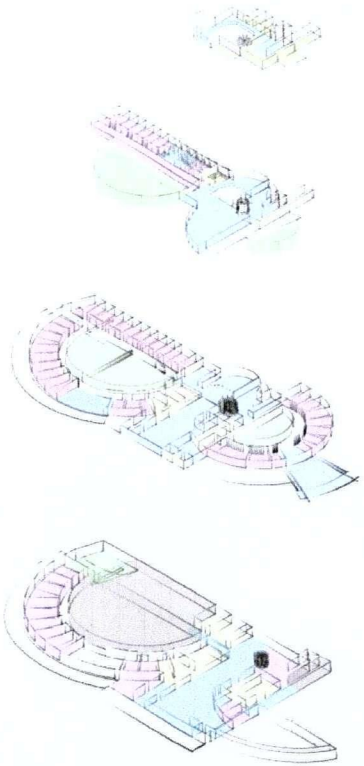


Master Plan with corresponding Sections
East-Orientation n/t/s

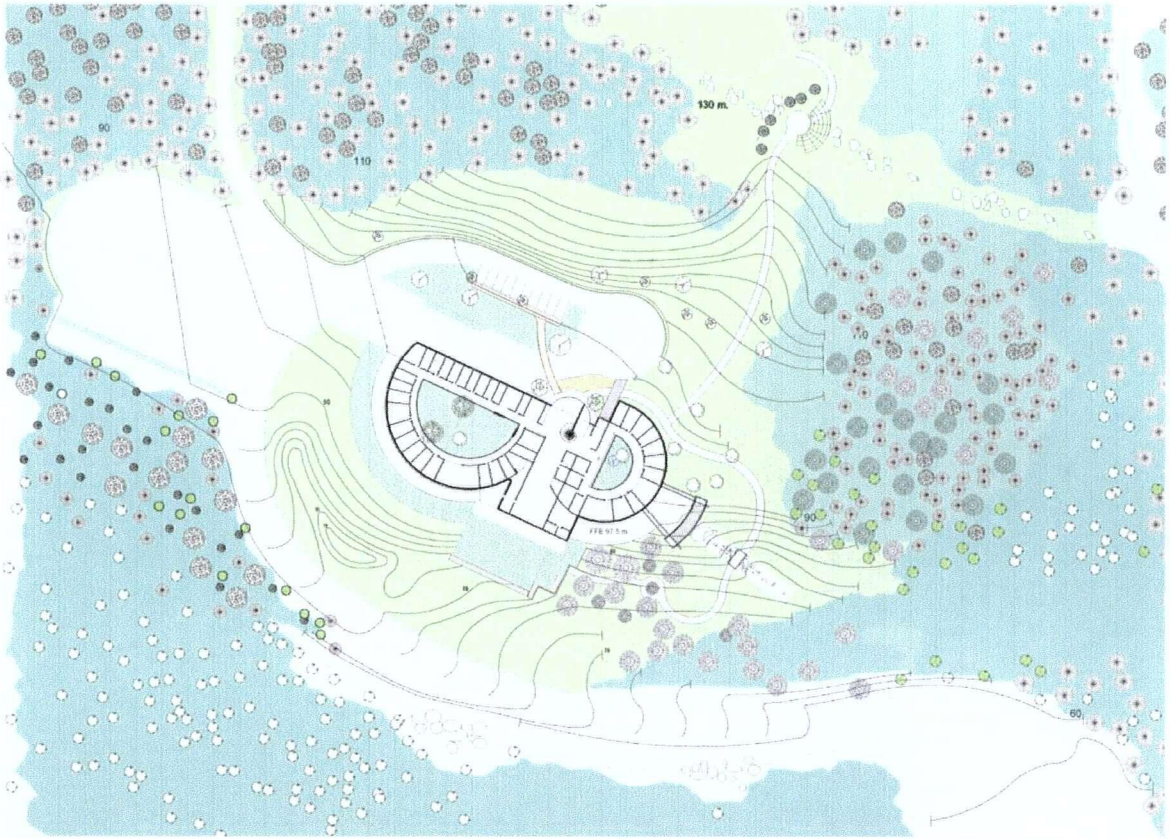
Sections in Order

Ill-Seasons Site Plan (immediate site) and Interior Spatial Diagrams Representing User Group and Access

Spatial Floorplan Representing
Specific User Groups



Main Facility Site with One-meter Slope Information

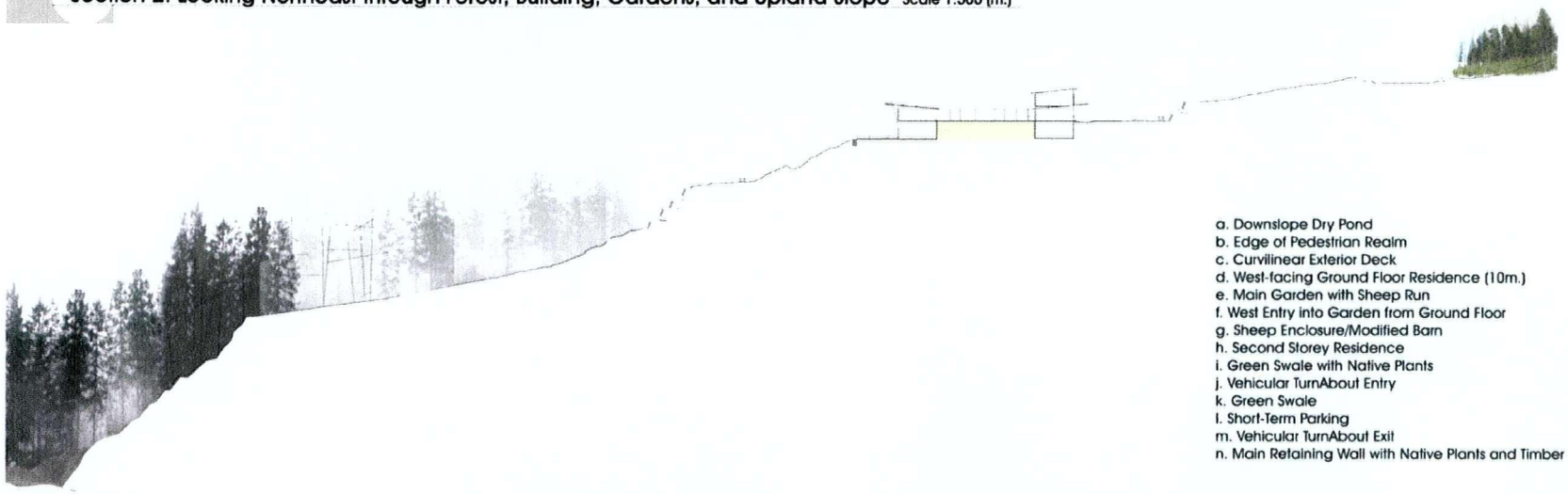


Section 1. Looking Northeast. Scale 1:200 (m.)

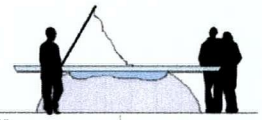
a. b. c. d. e.

a. reintroduction of native species on slope
b. drain pipe outflow point (5% slope)
c. green swale with structural soil; native species reintroduced
d. dry-laid stone wall tilted in towards slope
e. species/slope naturally in-situ

Section 2. Looking Northeast through Forest, Building, Gardens, and Upland Slope Scale 1:500 (m.)



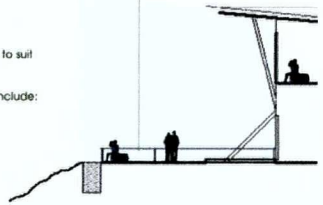
a. Downslope Dry Pond
b. Edge of Pedestrian Realm
c. Curvilinear Exterior Deck
d. West-facing Ground Floor Residence (10m.)
e. Main Garden with Sheep Run
f. West Entry into Garden from Ground Floor
g. Sheep Enclosure/Modified Barn
h. Second Storey Residence
i. Green Swale with Native Plants
j. Vehicular TurnAbout Entry
k. Green Swale
l. Short-Term Parking
m. Vehicular TurnAbout Exit
n. Main Retaining Wall with Native Plants and Timber

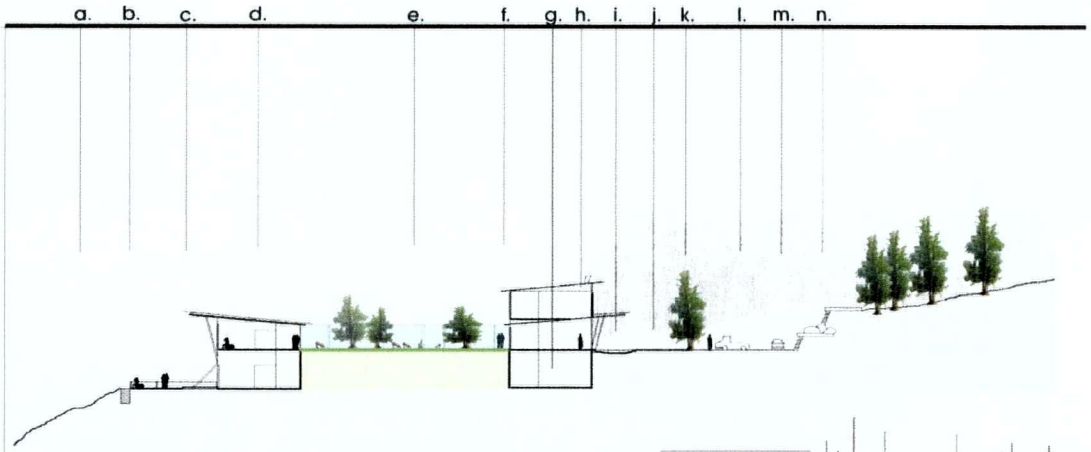


GRANITE WATER BOWL

...the water feature can be changed to suit seasonal activities.

Programs specific to the water bowl include:
Hydroponics
Sailboat races
fishing





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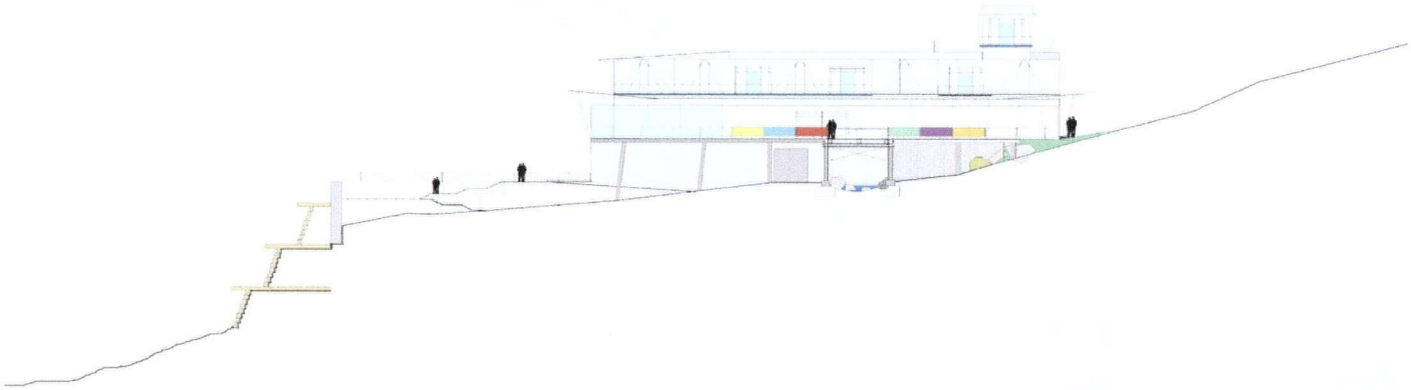
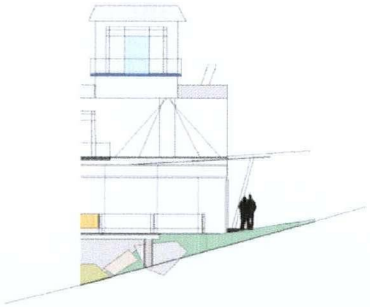
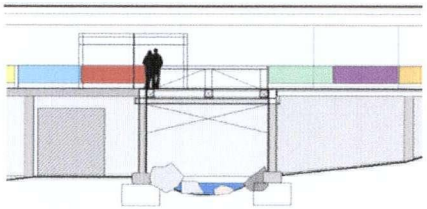
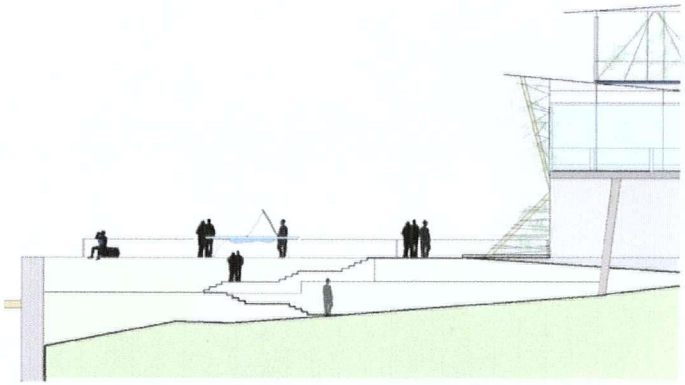
section 2/7

Section/Elevation 3. Looking Northeast through Working Garden, Main Water Feature, Building, and Upland Slope

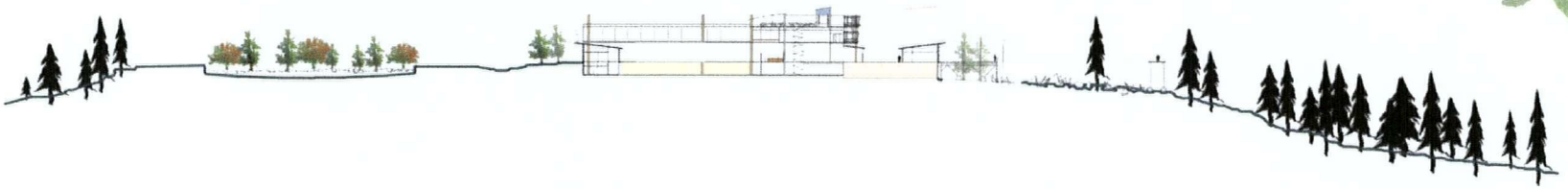


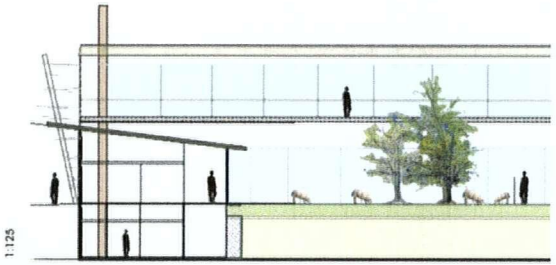


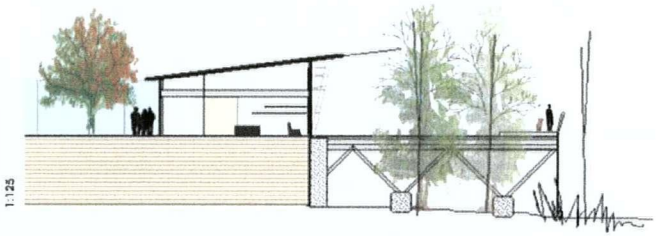




Section 4. Looking Northeast through Parking, Building, and Pedestrian Realms Scale 1:500 (m.)







Section 5. Looking South-East through Garden and Building. Scale 1:200 (m.)

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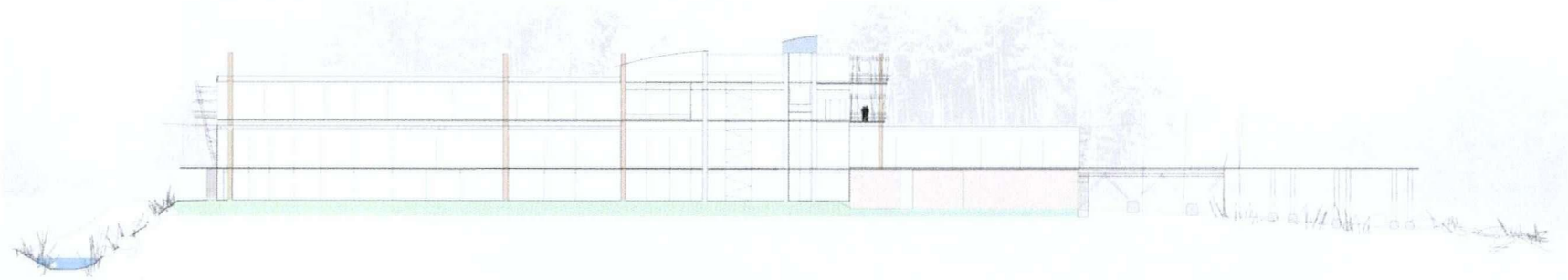
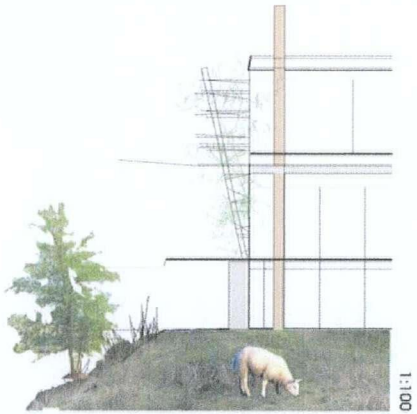
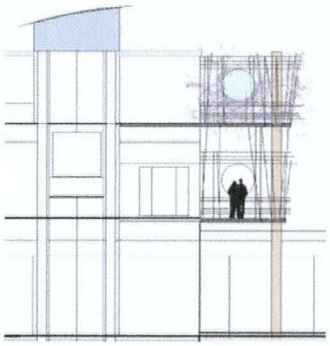


Detail of Gravel Swale and Adjacent Residential Deck with Vertical GreenScreen



1:100

Detail of three-tiered building with External Decks Supporting GreenScreens



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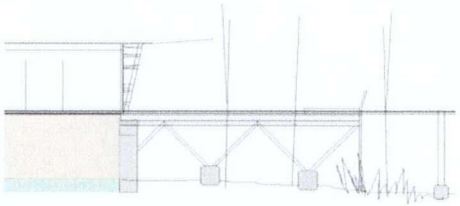
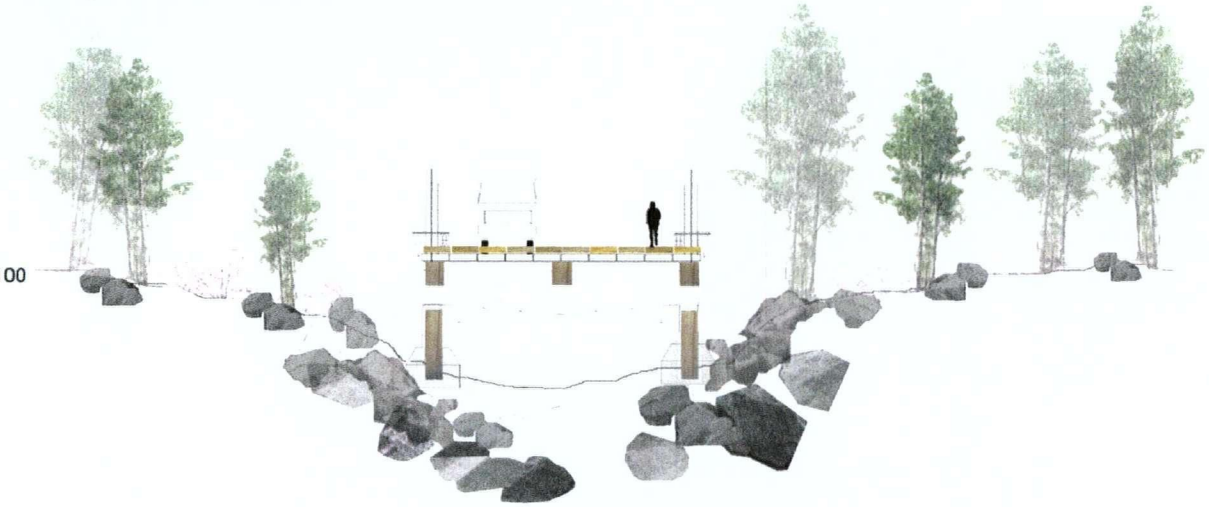
Detail of Ocean Outlook and the relationship between Interior and Exterior Space

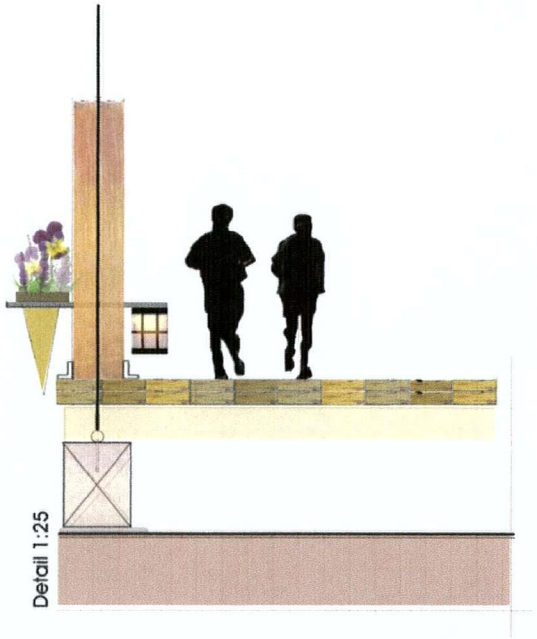


1:100

Sections 6 & 7; Looking at the Main Entry Bridge onto the Ill-Seasons Site

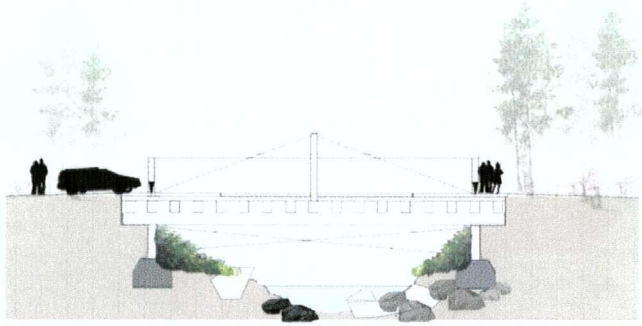
S6. 1:100





Detail 1:25

S7. 1:200



planting plan

Angelica
Anise
Basil
Beebalm
Borage
Chamomile
Corn
Dianthus
Dill
Fennel
French Tarragon
Hyssop
Lavendear
Lemon balm
Lemon Verbena
Mallow
Marjoram
Nasturtium
Pansies
Rosemary
Sage
Salad Burnet
Scented Geraniums
Summer Savory
Sunflower
Thyme
Violets
Winter Savory
Woodruff

Artemesia
Echinacea
Lemon-Scented Geraniums
Lemon Verbena
Lovage
Opium Poppy
Passion Flower (needs a sunny location and support)
Roses (need to be in a raised bed above residential floors)

Columbine
Hollyhock
Horseradish
Lamb's Ears
Monkshood
Musk Mallow
Rhubarb* (only stalks should be consumed)
Valerian
Wisteria

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Appendix II. Case Study Remarks and Site Visit Scores

Facility Remarks, Program or special feature	Bay View Gardens	The Mansion @ 1906 Glen Canyon
Notable Site Features	Semi urban lot New facility No plants or trees visible at entry Parking-Oriented View of ocean dominated by adjacent roof	Semi rural lot Adjacent to vineyards -horse farms -estates -natural corridors
Grounds/Location	Neighboring property boasts potential for medical staff expansion/office use	Mature cedars, gardens; shade -owner has interest in plants (evident) -consistent plans and budget for gardens -programs oriented towards outside realm
Security Systems in place	Alarm-system Lock key system on doors Allocated parking Corner lot	Lock key system on doors Perimeter Fence Security Gate Camera/ Door opener (code) Specified parking
Entryway	Entry: Visitor couch, front desk, coat rack Small office spaces near door	Entry: Nurse station Small office space near door
Room Layout	Small double-rooms 27 (47 capacity)	Dated rooms 24 patients
Bath rooms and water closets	Allocated floor tub rooms (no tubs in res. Rooms)	Each resident room has it's own tub and shower
Porch	None	Extravagant porches-all sides
Courtyard	Great pedestrian bridge crossing stream Access to courtyard and "track"	No courtyard Access to three acre plot
Dining Area	Specific room dedicated (one large room) Kitchen adjacent	Shared activity and dining space Kitchen adjacent
Family Visitation	Ample space for visits	Limited space, 9-9 hours only With the exception of mealtimes
Positive Natural Light	Kitchen, Resident Rooms	Resident Rooms, Porches, Activities Room
Average age of caregiver	35	45
Notable workers while visiting	Director, Secretary, LPN, Program Director	Assistant supervisor, Supervisor, kitchen crew, cleaning crew
Programmable Spaces	On two Tiers Mutable	On Three Tiers Set, established
Overall Feeling/Take Home Message	5/10; Needs more human-oriented, unique places Needs improved connections outdoors Needs plants, greenery Needs more light	8/10; Needs Updating Needs improved visitor areas

VISITS

2/15/05

Facility Remarks/ Program	The Avenue	Victorian Manor	Lakeview Lodge
Locale	Urban, centrally located In downtown S.F.	Suburban heritage rowhouse surroundings	Suburban hilltop location near San Jose
Immediate thoughts	Clean. New. Bright. Knowledgeable.	Dirty. Needs update or new building.	Accommodating to all dementia-types. Outdated.
Architectural Style of building	Modern, high-rise. Modern "feel" amidst downtown heritage street	Stucco. Horizon-oriented layout. White, inset windows flank each side of the box building	Cluster-style, ground-floor orientation. Circa '60-'70s. Post & beam features.
Green space offered	Small external patio adjacent to indoor dining area; Patio bordering urban alley with bamboo planters and stainless steel fencing.	Flanked, outdoor courtyard. Tables, planters, trees, tiles. Lots of light but needs dramatic update/overhaul.	No dedicated outdoor space. No programmed outdoor space. Heavily paved. Mature trees at property edges only. Security gate.
Attention/Distribution between facility offices and facility remainder	Equally distributed attention by the design team or interior designer	Was not observed	Significant attention paid to offices; remainder of facility non-par.
In-House caregivers	Yes	No	Yes
Entry Way	Elegant; offices flank central hallway; flowers, orchids, cushioned-benches	Mirrors on walls. Kitchen, offices, preparation spaces located at rear of this floor. Confusing entryway as reception was on 2nd fl. Via elevator.	Activities were taking place just inside main entry door. Dining room immediately off this space. Office adjacent to dining room. Strange adjacency patterns
Room Layout	Large windows. All face outside adjacent streets. Built in closets.	Wardrobe closets. Dirty rooms. Stained carpets. Distinctive smell. Magnificent views, however, out windows towards north bay.	Wood floors; small rooms; shared baths. Views of parking areas and perimeter trees, prevelent throughout.
Bathroom/wash room	All private bathrooms as well as special slide-a-side tub rooms for bathing issues.	Shared bathrooms with toilet and sink, only. Allocated shower rooms in hallways.	
Patient population age & demographics	Avg. age 80; Asian and Caucasian majority. Will accept medicare and medicaid.	Avg. age 60; amputee victims, non-ambulatory majority, mixed group.	Avg. age 70; Large mentally-challenged population; Parkinsons disease and other dementia patients.
Funding	Will accept medicare/medicaid. Very reasonable rates-all inclusive, all stages through to hospice.	Privately funded only. Little choice in room style/$.	Will accept medicare once funds have run-out. Takes patients from stage one through three or hospice-type.
Family Visitation (area/programs)	Highly encouraged; allocated space available for private dining	Not encouraged; not visible.	Not visible

VISITS

2/17/05

	TMA 1906	B.V.G.	T.A.	V.M.	L.L.
Site Systems and Research Concepts (1-10 scale)					
Positive grounds & location	9	4	3	5	4
Solid Programmable Spaces	7	9	10	2	4
Notable Site Features	8	5	3	1	1
Positive Natural Light	6	6	9	4	5
Security Systems in Place	10	7	8	2	7
Encouragement of Family Visitation	4	7	9	1	2
Programmed Spaces (rated, 1-10 scale)					
Porch	10	8	6	1	1
Courtyard	7	5	7	6	1
Entry way	7	5	10	2	2
Room layout	6	9	10	5	2
Bathroom/washroom	8	8	9	3	2
Family visitation areas specified	7	8	9	1	1
Concepts that either add to, or subtract from mean score (+ or – accordingly)					
Architectural Style of building	+1	+1	+1	-1	-1
Notable preference between office staff and patient rooms	(n.)	-1	+1	-1	-1
Patient age and demographics	(n.)	+1	+1	-1	-1
Funding	(n.)	+1	+1	-1	-1
Notable workers during visit	+1	+1	+1	-1	-1
In-house caregivers	+1	+1	+1	-1	-1
Summary of Scores					
Immediate Thoughts/ Overall Feeling	B*	C	B*	F	D
Overall Score from Above	94 o.a.s.	84 o.a.s.	99 o.a.s.	27 o.a.s.	25 o.a.s.

Appendix III.

Caregiver Survey Issued to Memory Garden Staff of Jamestown, New York.

December 2004.

Questionnaire-Olson Thesis, MLA program

What is your age? 18-22 23-30 31-40 41-50 51-60

What is your job title? LPN RPN Other

How long have you worked at Memory Garden? 2+ 1 to 2 <1 [in years]

Have you worked at other Alzheimer's units before? Yes No

Why did you decide to begin work at Memory Garden? Interest Other

How many patients are you associated with on a typical day? All 1 to 5 5 to 10 15 to 20

How many patients in your recollection are early stage patients? All 1 to 5 5 to 10 15 to 20 20 to 25 >25

How many patients in your recollection are mid stage? All 1 to 5 5 to 10 15 to 20 20 to 25 >25

How many patients in your recollection are late stage? All 1 to 5 5 to 10 15 to 20 20 to 25 >25

What is the ratio of patient to aid/ or caregiver? 1_5 1_10 1_15 1_20

How many patients have a loss in overall initiative in activities? All 1_5 5_10 10_15 15_20 20_25 >25

How many patients have hourly changes in personality? All 1_5 5_10 10_15 15_20 20_25 >25

How many patients do you feel would benefit from immer immersion in a protected outdoor environment with with shade, comfortable seating and colorful vegetative displays such as flowers?
All 1_5 5_10 10_15 15_20 20_25 >25

Are Personal Emergencey Response System ms (PERS used as a personal medical alarm that can summon assistance in case of emmergency) worn by patients? Yes No On late stage patients

Are PERS located in patient rooms? Yes No On late sta On late stage patients

How many patients have LIVE Flowers or plants? All 1_5 5_10 11_20 21_30

How many patients have SILK/other plants? All 1_5 5_10 11_20 21_30

How many activities do patients on average attend each day at Memory Garden?
All 1 2 3 4 5 6

During spring or summer, how many of these activities are held outdoors? All Many Some Few

Do you feel patient's health/outlook/personality would improve with daily visits outside? Yes No Maybe

How often are patients bathed? Daily Everyother Everythird Difficult to say

Would you find it easier to bathe patients with improvements from the architect in overall design and layout of the bathing areas?
Yes No Possibly

Do you find insomnia a big issue in your facility? Yes No Seldom

Do you think views are important for the patients? Yes No Possibly

Do you find that the majority of patients initiate conversation pertaining to the natural world outside--i.e. "look at that colorful sky"?
Yes No Sometimes If conversation is initiated by me

Is wandering a problem at Memory Garden? Yes No Possibly

Do you as a caregiver wish you had a shady spot outside away from the building in which you could sit on your lunchbreak or other daily breaks from work? Yes No Possibly

Do you wish you had more areas that resemble a den or lounge with plush furniture, books, magazines, plants, paintings, yoga or meditation CDs or music? Yes No Other response (have plenty?)

How long does a typical family visit to the facility last? 3hrs 1hr 45m 20m 10min
What would help to remedy this situation in your opinion?

Do you as a worker have enough down time away from the facility? Yes No

What do you do to get away from the concept of "work" or to unwind?

Do M.G. workers have a support system to help when and if caregiver 'burnout' appears? If so, what does the facility offer?

Do you enjoy field trips associated with the facility? Yes No
Any suggestions:

Have you heard of the 'Aging with Dignity Five Wishes Brochure' associated with wishes pertaining to the patient at a stage close to incontience or death? Yes No

When you think about aging, yourself, describe the type of facility you envision n:

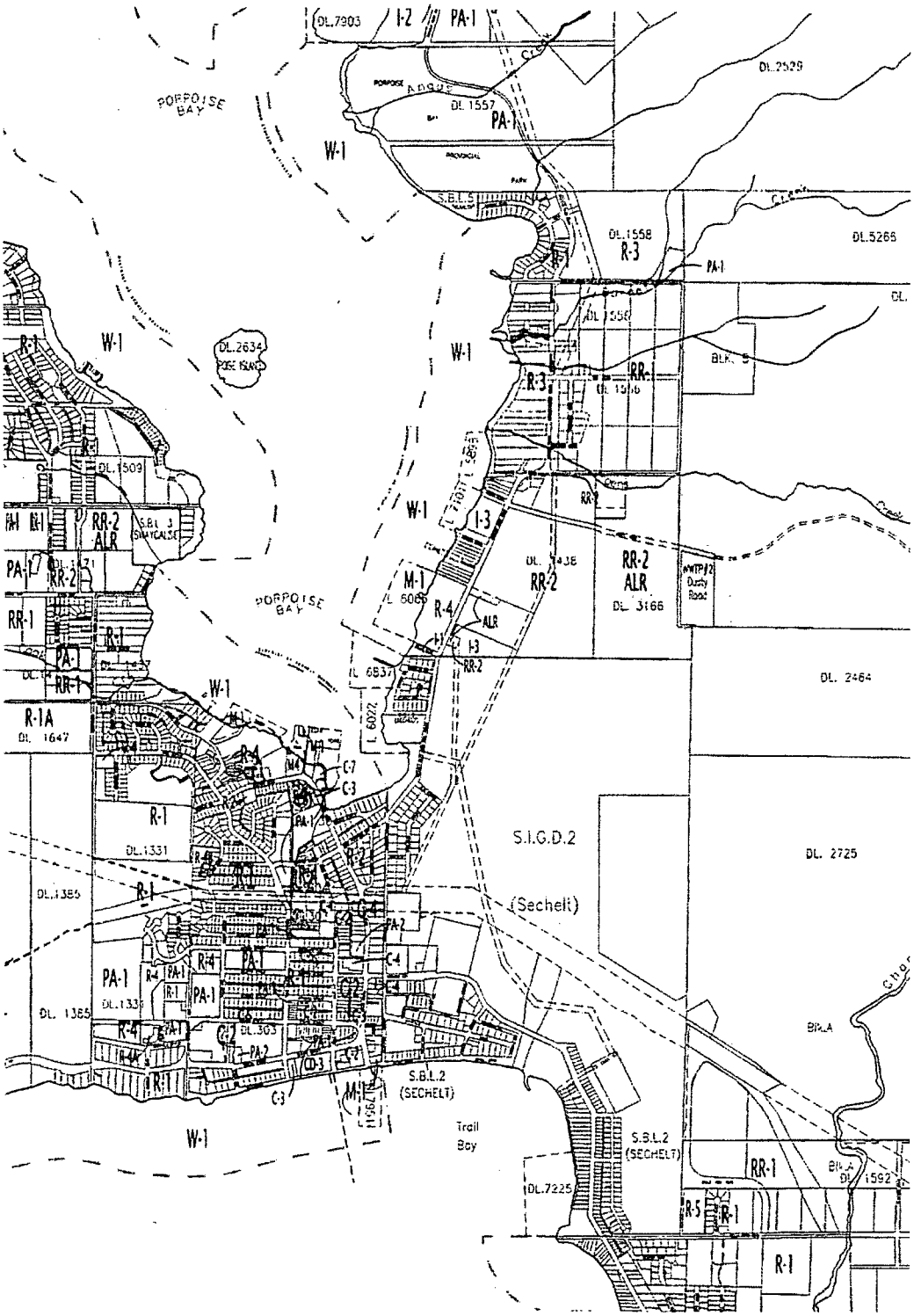
Do you have any overall comments on how architects could better design facilities in general?

What is the most common comment you receive from friends or family visiting the facility?

SURVEYS DISPERSED DECEMBER 28, 2004-COLLECTED JANUARY 1ST, 2005

Appendix IV.

Zoning Map Courtesy of the District of Sechelt, British Columbia. 2004.



Appendix V.

Zoning Bylaw as it Applies to the Keeping of Livestock; Updated 2001.

304. KEEPING OF LIVESTOCK

In the RR-1 and the RR-2 Zones, on a lot having an area of **four thousand (4,000) square metres or more,** keeping of livestock is permitted provided that:

1. The keeping of livestock shall be for the purposes of **domestic use only;**

2. a) an enclosure or other structure;
   b) feeding or drinking trough;
   c) a structure used or intended to be used for the storage of feed, bedding or manure related to the keeping of livestock shall not be located within **seven point five (7.5) metres of a lot line;**

3. In any Residential Zone other than an R-1 Zone, on a parcel having an area of one (1) hectare or more, the use of land, buildings and structures may include **the keeping of poultry or rabbits for domestic consumption only provided that:**

   a) an enclosure or other structure;
   b) feeding or drinking trough; and
   c) a structure used or intended to be used for the storage of feed, bedding or manure related to the keeping of rabbits or poultry shall not be located within **seven point five (7.5) metres of a parcel line.**

Appendix VI.

Excerpt from Section 320. Flood Control Requirements on Residential Lots.

District of Sechelt Zoning Bylaw Number 25, 1987.

2. **Setback Requirements**

Notwithstanding any other provisions of this Bylaw, no building, mobile home or unit, modular home or structure or any part thereof shall be constructed, reconstructed, moved, extended or located:

i) within **seven point five (7.5) metres of the natural boundary of a lake, swamp or pond;**

ii) within **fifteen (15) metres of the natural boundary of the sea;**

iii) within **thirty (30) metres of the natural boundary of Chapman Creek and Gray Creek,** and within **fifteen (15) metres of the natural boundary of any other watercourse.**

3. **Elevation Requirements**

a) Notwithstanding any other provisions of this Bylaw, no building, mobile home or unit, modular home or structure or any part thereof shall be constructed, reconstructed, moved, extended or located with the underside of a wooden floor system or top of a concrete slab of any area used for habitation, business, or storage of goods damageable by floodwaters, or in the case of a mobile home or unit the ground level or top of the concrete or asphalt pad on which it is located:

i) lower than the Flood Construction Level for any watercourse or the sea where it has been determined to the satisfaction of the Ministry of Environment and Parks, or where it has not been determined or a site-specific Flood Construction Level has not been determined;

ii) nor lower than **three (3.0) metres above the natural boundary of Chapman Creek and Gray Creek;**

iii) nor lower than **one point five (1.5) metres above the natural boundary of the sea, a lake, swamp or pond;**

iv) nor lower than **one point (1.5) metres above the natural boundary of any other watercourse;**