A Return to the Garden:

Design Criteria for Therapeutic Exterior Environments for People with Alzheimer Disease

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A Practicum Submitted to the Faculty of Graduate Studies in Partial Fulfillment of the Requirements for the degree of:

Master of Landscape Architecture

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A RETURN TO THE GARDEN: DESIGN CRITERIA FOR THERAPEUTIC EXTERIOR ENVIRONMENTS FOR PEOPLE WITH ALZHEIMER DISEASE

BY

CHERYL JANICE MEMKA DIXON

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirements of the degree of

Master of Landscape Architecture

ABSTRACT

An alarming increase in the incidence and diagnosis of Alzheimer Disease, coupled with unprecedented stress on available health care facilities and systems has made designing environments for people with Alzheimer Disease an important area for research.

History and previous studies demonstrate the value of gardens as therapeutic environments for all people. The concept of re-connecting with nature is particularly poignant to individuals with Alzheimer Disease. As they become more and more disconnected from the life they once knew, the familiar rhythms of life, the cycles that are common to and unite us all, can be found in the garden.

This practicum identifies criteria necessary for the successful design of exterior environments for people with Alzheimer Disease, and other forms of dementia. The research conducted focuses on the design of outdoor spaces for care facilities, specifically, specialized dementia treatment units.

An amalgamation of existing research is presented in a Literature Review. The information provides a foundation for therapeutic gardens as a valuable component in the lives of people with Alzheimer Disease. Areas of study include the basic restorative effects of nature and natural environments on humans, the history and current applications of therapeutic or healing gardens, and horticultural therapy. Additional research is provided on designing for an aging population as well as information specific to people with Alzheimer Disease. Therapeutic Goals for designing outdoor spaces are also identified.

Through an examination of existing research, several design criteria were generated, which were synthesized into a set of Spatial Strategies. Spatial Strategies are comprised of design relationships, features, elements, and details to be included, considered or avoided in the design of outdoor spaces. The Spatial Strategies are organized and presented in three scales: macro, meso and micro.

The Spatial Strategies are then applied through conceptual garden designs for three care facilities within Winnipeg: Donwood Manor, Bethania Behavioural Treatment Unit and Rosewood Village. Rosewood Village is explored further with a detailed design scheme.

The conceptual designs are meant to provide inspirational references for future garden designs. This research is intended to expand the awareness of the therapeutic importance of gardens for people with Alzheimer Disease as well as to encourage such environments to be built.

For Evan James

Acknowledgments

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CONTENTS

FORWARD

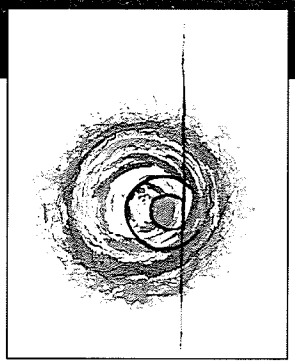


Figure 1: Monogram

Personal Philosophy

Before journeying through this body of research and work, an explanation of my personal philosophy and its relationship to landscape architecture is needed. A driving force in my design work has been the recurring idea of healing via therapeutic environments. This concept involves becoming more conscious of our connections with the processes and life cycles in nature and nurturing the human spirit. I value our connections with other living species, whether they are human, animal or plant, and believe that they can foster an incomparable sense of well being. This philosophy is an expression of my social and cultural values, and an expression of my beliefs.

Humans are one of the many 'parts' that make up the 'whole' of the earth. Being cognizant of this link in both life and death, can promote inner peace and well being. We need to reconnect, in both a physical and a spiritual sense, to the systems of the earth. In realizing our connection to other species, we clearly see our 'path' as just one small segment in the never-ending cycle of life.

My design work is a response to the need to reconnect. The idea of the earth and its landscapes as 'sacred' speaks to me. I believe we have lost touch with the power and spirit of the land. There is no sense of oneness felt and shared among humans, uniting us with the living forces of nature as well as to each other. Through the experiences of reproduction, birth, growth, aging and death, we are similar to the plant communities and animal species of the planet. Our disconnection from the earth and its elements evokes a distance that is detrimental to our existence.

Landscape Architecture serves as an important vehicle for the exploration of this philosophy. My role, as a designer, is to remember the larger picture - to recognize and remind others that we are not that different, through our basic needs, from the plants and animals. Landscape Architecture has been described as the creative laying-out and planning of outdoor spaces for the greatest possible amount of harmony, utility and beauty (Morrow 1987). Through the art and science of landscape architecture, gardens can be designed as places for people to reconnect with the natural environment. Gardens, together with the plant and animal communities that inhabit them, can promote an awareness of time and the cyclical nature of the seasons. This practicum is an exploration in garden design that aspires to bring people with Alzheimer Disease closer to nature. I have selected this population because I believe that their access to gardens is currently limited, and that they can benefit from this therapeutic relationship.

CHAPTER ONE *Introduction*

"An Alzheimer's special care unit frequently comprises the whole universe for many residents. That world can and should be a supportive environment - one that provides a sense of comfort and security. It should be as diverse as possible, not only to increase stimulation and response for surroundings for residents, but to create more interesting places for the staff, and to support continued family involvement." *(Brawley 1997:40)*

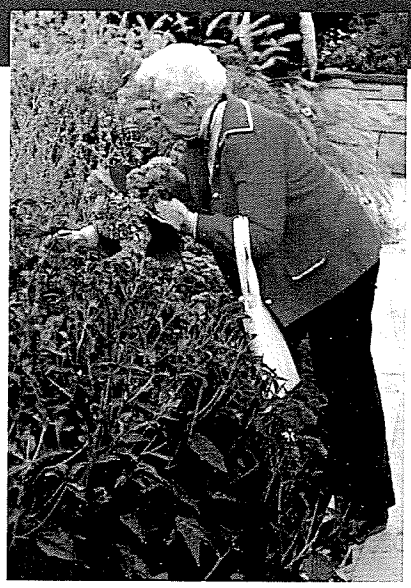


Figure 2

OBJECTIVE

This practicum identifies criteria necessary for the successful design of exterior environments for people with Alzheimer Disease and other forms of dementia. The research conducted focuses on the design of outdoor spaces for care facilities, specifically, specialized dementia treatment units. The design criteria are generated through an examination of existing research on this topic, which is synthesized into a set of spatial strategies. These strategies are then applied through conceptual garden designs for three care facilities within Winnipeg. The facilities selected for design development are Donwood Manor, Bethania Behavioural Treatment Unit and Rosewood Village. Rosewood Village is explored further with a detailed design scheme including planting, materials and layout and grading plans.

A number of issues are investigated in this study, including criteria for safe and stimulating environments meant to benefit people with Alzheimer Disease and the importance of reducing stress in order to increase quality of life. The basic restorative effects of nature and natural environments are also identified with further application of this knowledge to individuals with Alzheimer Disease.

The development of the design criteria explores a number of areas such as: universal design, lighting, places for privacy, flexibility of spaces, controlled access, group activities, garden types, wayfinding and orientation. Other important topics researched include the physical qualities of building and planting materials. The use of plant material to stimulate the senses through the use of colour, form, texture and scent is also explored. Due to the tendency of some individuals to wander, safety and security are also major concerns when designing an environment for people with dementia. Other outdoor design considerations include: site location and development,

exterior character of building, flower and vegetable gardens, wandering paths, seating areas and furniture. Microclimate control of an exterior space is also significant for wind protection, shade provision, and control of sun reflectivity and glare.

Facilities should be designed to create a home-like environment in both interior and outdoor spaces. Studies indicate that environmental attributes clearly influence the behaviour of people with Alzheimer Disease. Appropriately designed physical environments can improve their quality of life as well as maintain and enhance their capacity to function (Congress of the United States Office of Technology Assessment 1992).

RELEVANCE OF THE STUDY

A considerable body of literature currently focuses on buildings and the detailing of interior spaces for care facilities, with little emphasis on exterior spaces and how people with dementia relate to those spaces. Existing literature addresses the safety and function of outdoor spaces, with less significance on how these environments stimulate a therapeutic response from people with Alzheimer Disease. Encouraging people with dementia to access gardens is important: to provide an opportunity for interaction with nature, to provide a place for physical exercise, and to promote memory recall through sensory stimulation (Brawley 1997).

The impact of gardens on the residents, family members and staff who utilize them, needs to be assessed and tested. In order for such testing to occur, gardens need to be designed and built with support from families, the facility administration and the medical community. The information provided by the set of design strategies identified in this study will be applicable to the development or adaptation of any exterior environments for people with Alzheimer Disease. These strategies will be beneficial to personal care homes and specialized dementia units, as well as private residences. This research will increase, significantly, the amount of design information available currently, particularly in areas with colder climates such as Manitoba, and other regions of Canada. It will be advantageous to planners, architects, interior designers and landscape architects who design personal care home facilities and specialized units for people with dementia as well as for administrators and staff working in these facilities.

It is my hope that this study will be meaningful for people affected by dementia, their families and caregivers. Outdoor areas can be used for reality orientation, exercise, art and music therapy, pet visits, craft programs, sensory stimulation, physiotherapy and occupational therapy, outdoor dining and special events (Ernst-Drosdowski and Karpan 1995). The motivation behind this practicum is to develop strategies that may encourage people to create therapeutic exterior spaces that will make a difference in the lives of people with Alzheimer Disease. Spending time in a therapeutic garden is an experience they are entitled to.

ALZHEIMER DISEASE

> *"Today a great fear haunts people as they age – the fear of losing their mental capabilities, their memory – the loss of self. The fear is real."* *(Brawley 1997:17)*

Dementia is a collection of symptoms and is neither a disease nor a diagnosis. These symptoms include the progressive loss of the ability to think, remember and reason (McCann-Beranger 2000).

Alzheimer Disease is the most common type of dementia. Alois Alzheimer, a German physician, first discovered the disease in 1907 (Brawley 1997). It is a progressive degenerative disease of the brain which causes a gradual breakdown in the nerve cells and as a result, people with this disease become less and less able to make sense of information from the outside world (Alzheimer Society 2002). Alzheimer Disease is not a normal part of the aging process and it affects mood, behaviour, memory, judgement and a person's ability to reason. Other causes of dementia include Human Immunodeficiency Virus (HIV), head trauma, Parkinson's Disease, Huntington's Disease, Pick's Disease, and Creutzfeldt-Jacobs Disease (Tyson 1998).

With Alzheimer Disease, many changes occur in the brain, particularly in the nerve cells referred to as neurons. Neurons are responsible for primary functions such as sensations, movements, thoughts, memories, and feelings. Neurotransmitters are chemicals that help pass signals or messages between neurons. Acetylcholine is a neurotransmitter that is decreased when a person has Alzheimer Disease. Other changes include damaged neurons that interrupt the passage of signals as well as neurons that develop thread-like tangles. The brain also shrinks and brain cells are replaced by irregularly shaped spots, or plaques (see Figure 3). These conditions all affect brain function (Alzheimer Society 2002 and McCann-Beranger 2000). Figure 4 shows the decrease in brain tissue of the person with Alzheimer Disease (right) versus a person without the disease (left).

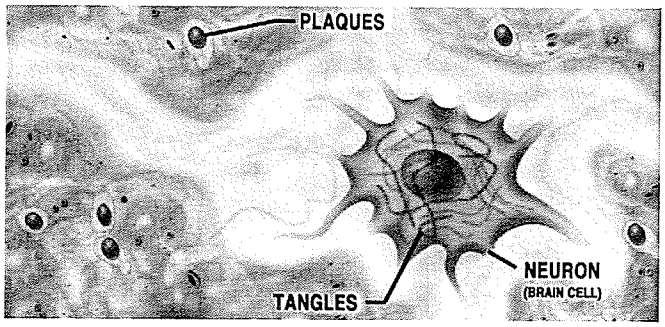


Figure 3

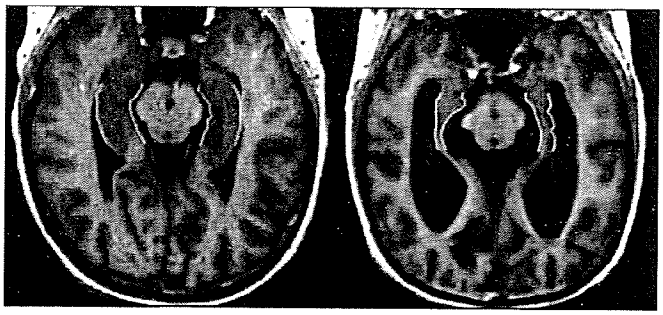


Figure 4

There are two forms of Alzheimer Disease: Sporadic and Familial Autosomal Dominant (FAD). Sporadic is more common and accounts for 90 to 95 percent of cases and usually occurs after the age of 65. Adults can develop the less common form, FAD, at any age.

Alzheimer Disease progresses at different rates from person to person and not everyone experiences the same symptoms. On average, people live with the disease eight to twelve years, but can live over twenty years in some cases (McCann-Beranger 2000).

Alzheimer Disease affects a person's mental abilities such as the ability to understand, think, remember, communicate, and make decisions. Short-term memory is affected initially and eventually long term is affected as well. Over time people with Alzheimer Disease gradually lose the ability to control their own moods and emotions. Changes in behaviour also occur and can include responses such as increased wandering or restlessness. The disease may affect a person's physical abilities such as co-ordination and, eventually, activities of daily living such as eating, bathing, and dressing. People with Alzheimer Disease are still able to appreciate, respond to and experience feelings including joy, anger, fear, sadness or love (Alzheimer Society 2002). (Please refer to Appendix A for a list of the 10 Warning Signs of Alzheimer Disease.)

According to the Alzheimer Society of Canada (2002), there is currently no known cause for Alzheimer Disease, nor is there a cure. Current treatments are unable to stop the progression of the disease, but there are medications that can assist with some symptoms. Risk factors such as age and family history have been linked to the disease. For example, the disease is more likely to occur in people over the age of sixty-five. Furthermore, as people age the risk increases for developing the disease. According to the Canadian Study of Health and Aging (1994), Alzheimer Disease affects:

1 in 100 people from ages 65-74

1 in 14 people from ages 75-84

1 in 4 people age 85 and older

Alzheimer Disease currently affects over 15,000 people in Manitoba and over 300,000 Canadians. This number will more than double within the next 30 years, affecting up to 3/4 million Canadians (Canadian Study of Health and Aging 1994). Already a major issue, the demand for appropriate and innovative living environments will increase proportionately with the demographics of population - as baby boomers enter the years of highest risk for Alzheimer Disease.

THE NOTION OF THE GARDEN

What are gardens? John Dixon Hunt (2000:11) believes that gardens are "concentrated or perfected forms of place-making".

> *"In its combination of natural and cultural materials, the garden occupies a unique place among the arts, and has been held in high esteem by all the great civilizations of which it has been a privileged form of expression."* *(Hunt 2000:15)*

'Gardens' refers to a wide range of places. From the space occupied by a small collection of planted pots, to an area for the growth of flowers and vegetables, to cemeteries, to private outdoor sanctuaries, to vast open greenspaces for public use, each are unique.

Figure 5

Why gardens? Gardens are important to people. Returning to the garden symbolizes many things. It represents a return to our historic roots as generations of our ancestors loved and appreciated plants. They were dependent on them and the land they lived on for the sustenance of life. For many, gardens also represent memories of childhood, of harvesting vegetables, tending to the crops and being outdoors (Goldman and Mahler 2000).

Gardens are a place for excitement, pleasure and discovery, a place to appreciate the powers and support provided by the sun and rain. They stimulate the senses through the fragrance of the blossoms and the familiar scent of earth. They are an ultimate display of colour and texture, an example of infinite beauty.

Gardens are a metaphor for the essence of life. In the garden, nothing is permanent. It is a place of constant change and growth. One can witness the transitions between birth, life, and death. The garden allows people to be part of the experience, to be involved and participate in the daily and seasonal processes.

> *"A garden offers us many gifts. Among many other things, it freely provides great beauty, tranquillity, a refuge for wildlife, delicious food, and a place to express our unique creativity. Gardens also provide a safe haven in which to heal and renew ourselves, as well as an environment in which we can experience the wildness and daily miracles of nature. In a garden, we can restore our inner harmony and balance as we gain some measure of control over our lives."*
>
> *(Goldman and Mahler 2000: 67-68)*

Returning to the garden embodies a way of thinking; it is an acceptance of the importance of gardens and nature and their role in healing. For people with Alzheimer Disease, returning to the garden signifies a freedom to access and return to a place, or type of environment that they are often denied. For many, the freedom to visit the outdoors or tend to one's own garden is lost in the world of long-term care.

Two experiential stories (see Appendix B) attempt to explain what life may be like for someone with Alzheimer Disease. The first story equates the progression of the disease to a journey by train in which a person has little control over a confusing and frightening experience. He or she is unable to recognize the passing scenery, people and places. He or she feels restrained by the other passengers and fears that they will never be able to return home.

The second story reveals how a garden can be part of a stimulating, yet soothing, environment. The garden is a comforting place to be in and the care provided by staff promotes feelings of compassion and support. Each of these stories inspired me to explore and depict with painting and drawing, what these experiences might entail (see Figures 6 and 7).

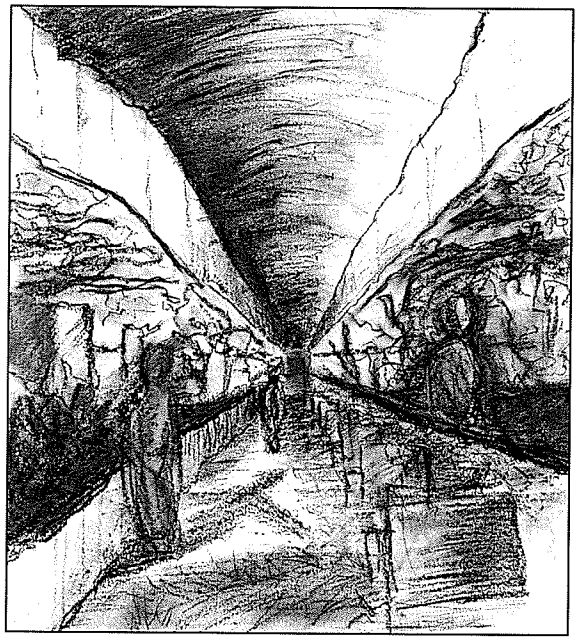


Figure 6

Figure 7

CHAPTER TWO *Design Process*

Figure 8

As with many studies, this practicum underwent numerous changes throughout its evolution. The process, as with the growth process encountered by plants, stretched in many exciting and unforeseen directions.

The study of therapeutic exterior environments for people with Alzheimer Disease began with research. The primary means of information collection was accomplished through a qualitative methodological approach. A literature review was conducted which resulted in an amalgamation of research pertinent to the topic of focus. The information gleaned from the literature review explains why therapeutic gardens are a valuable component in the lives of people with Alzheimer Disease. In addition to the areas of study addressed within the literature review, a review of case studies was performed of outdoor spaces specifically designed for people with Alzheimer Disease. This research was synthesized into a set of spatial strategies that defines the factors necessary to consider when designing gardens for people with Alzheimer Disease. The strategies are organized into three different scales: macro, meso and micro.

Funding for this study was provided by five sources and resulted in media attention via newspaper article, television and radio interviews. Media coverage generated interest among administrators at numerous personal care homes, who came forward requesting to be involved in the study. Consequently, seven facilities were visited in Manitoba. The characteristics of outdoor spaces at each facility were documented through general observations, photographs and notes. Each outdoor space was then analyzed in terms of its design strengths and weaknesses.

From the seven sites, three were selected for further examination, and used in order to illustrate the application of the spatial strategies. These sites were chosen to represent an adequate cross section or sampling of the possible facility types. Selection was also based on the type of greenspace, the facility user group, current maintenance and accessibility (or potential for accessibility) for residents.

Donwood Manor, Bethania Behaviour Treatment Unit and Rosewood Village were chosen. A site inventory was completed for each site. Base plan information was obtained, each site was photographed in autumn and winter, sun and shadows studies were conducted, access points were identified, and the context was examined. A site analysis was completed through an examination of existing conditions and patterns of use including relationships with interior functions. Utilizing this information, the process of introducing the spatial strategies to the site was initiated. Existing

design issues were identified on each site. Spatial Strategies were selected that would be most influential in improving the function of the space as well as improving the physical character and experience within the garden.

Based on the above, design intentions were determined for each garden. The design intentions, combined with the site-specific data and the Spatial Strategies, were then synthesized into conceptual designs for each site. A detailed design scheme was then created for one site, Rosewood Village and included materials, planting and grading plans.

CHAPTER THREE *Literature Review*

Figure 9

A number of different areas of study emerge when researching the topic of therapeutic exterior environments for people suffering from Alzheimer Disease. This chapter is an amalgamation of research pertinent to this topic of study. The information provided is the foundation for why therapeutic gardens are a valuable component in the lives of people with Alzheimer Disease. Areas of study include the basic restorative effects of nature and natural environments on humans, the history and current applications of therapeutic or healing gardens, and horticultural therapy. Additional research is provided on designing for an aging population as well as information specific to people with Alzheimer Disease. This includes an understanding of their range of abilities and cognitive function and information on how environments can impact behaviour. The chapter concludes with a compilation of goals for designing outdoor spaces.

SECTION ONE

RESTORATIVE EFFECTS OF NATURE

Figures 10, 11, 12, 13

"A poignant reminder - the wonders of nature heal the soul."

(Brawley 1997:172)

"Nature matters to people. Big trees and small trees, glistening water, chirping birds, budding bushes, colourful flowers – these are important ingredients in a good life"

(Kaplan 1983:155)

There is a general consensus that nature, whether it is through a visual connection or being in physical contact with the natural environment, can have a positive influence on a person's emotional well-being. This section will examine the concept of biophilia and the restorative effects of nature and sunlight.

Biophilia

Figure 14

In the book, *The Biophilia Hypothesis*, Edward Wilson (1993:5) defines biophilia as "the innate tendency to focus on life and lifelike processes," commenting that "to the degree that we come to understand other organisms, we will place greater value on them, and on ourselves." Wilson's interpretation of biophilia further concludes that humans are characterized by a disposition to pay attention to, affiliate with, or otherwise respond positively to nature and that this disposition is partly genetic (Wilson 1993).

Biophilia is not one single human instinct but rather, a complex variety of inherent emotional responses. These emotional responses may range from feelings of attraction to dislike, awe to indifference, or peacefulness to fear driven anxiety (Wilson 1993). For generations, the emotional responses have been part of humanity, and help to explain the value and affiliation humans place on the natural world. One of the ways humans have placed importance on the natural world is through a sense of 'dependence'. According to Stephen Kellert (1993), dependence may be recognized in the following ways: utilitarian, naturalistic, aesthetic and humanistic. Humans have been dependent on the natural world in a utilitarian manner for sustenance, protection, survival, and security. This dependence encompasses a variety of benefits from plant and animal species and other resources for food, medicine, clothing, tools and other materials.

Kellert (1993) also describes another human dependence on the natural world as naturalistic in which humans derive satisfaction through fascination, wonder and awe from direct contact with nature. "The mental and physical appreciation associated with this heightened awareness and contact with nature may be among the most ancient motive forces in the human relationship to the natural world..." and that the "mental benefits of these activities have been related to tension release, relaxation, peace of mind, and enhanced creativity which is derived from observing diversity in nature" (Kellert 1993:45-46).

According to Kellert (1993), humans are also dependent on the aesthetics of nature, which refers to the physical beauty of nature or animals in the landscape. This attraction encompasses a diversity of features extending from landscape elements such as rocks and topography, to scenery and vegetation, to animals existing in their habitat. "The aesthetic response could reflect a human intuitive recognition or reaching for the ideal in nature: its harmony, symmetry and order as a model of human experience and behavior. The adaptational value of the aesthetic experience of nature could further be associated with derivative feelings of tranquility, peace of mind, and a related sense of psychological well-being and self confidence" (Kellert 1993:50).

Humans are also dependent on the natural world through a humanistic experience. This experience refers to feelings of emotional affinity for distinct elements in nature. These feelings may include significant tendencies towards care and nurturance of companion animals, animals in the wild, plant species to inanimate features such as water and landforms (Kellert 1993).

Ulrich et al. (1991) describes the psychological value of the outdoor recreational experience through confirmation of well over 100 studies. The studies document recreation experiences in wilderness and urban nature areas in which stress mitigation was one of the most significantly expressed perceived benefits. During the last two centuries, in several countries, part of the justification for providing parks and preserving wilderness for public use in cities was the notion that exposure to nature encourages psychological well-being, decreases the stresses of urban living, and promotes physical health (Ulrich et al. 1991).

Cultural Groups

Ulrich (1993), suggests that a large body of research concludes that similar responses to natural scenes usually outweigh the differences across individuals, groups, and diverse European, North American and Asian cultures. According to Cooper Marcus and Barnes (1999), people from all different religious and cultural backgrounds view gardens, forests, and wilderness as appealing to humans' senses and spirit. Some of the religious faiths include: Judaic, Christian, Islamic, Buddhist and some cultural groups include: Native Americans, Scandinavians, and central Europeans. Buddhist beliefs include the idea that an interconnection exists between all matter, and that nature is not just something around us; we are part of nature and it is part of us.

In general, certain broad classes of natural elements such as water, green vegetation, and flowers are visually favoured over most modern synthetic elements like glass and concrete (Ulrich 1983; Kaplan and Kaplan 1989). Research has shown that the visual configurations and elements that people respond to as 'natural' is broad for people in industrialized societies, extending beyond wilderness to include human-made settings such as pastures, fields planted in cereal crops, and wooded parks (Ulrich 1993). Generally, European, North American, and Japanese adult groups

tend to respond to scenes as natural if the landscape is predominantly vegetation, water, or mountains, and the number of artificial features such as buildings and automobiles are limited, and if the dominant visual contours or edges are curvilinear or irregular rather than rectilinear or regular (Ulrich 1993).

Restoration

Environmental psychology has shown that contact with nature can reduce tension and results in a calm state of mind (Kaplan 1989). Roger Ulrich pioneered a number of studies to test these theories, using an analysis of the recovery rates of surgery patients. He found that patients had a quicker recovery rate and requested less medication when their room had a window view that included a stand of trees rather than the patients who had a view of an adjacent brick wall from their window. The benefits of visual encounters with plant life may be greatest for individuals experiencing stress or anxiety, and research demonstrates that responses to trees and other plant material can be linked directly to improved health (Ulrich 1993). Recognition of the benefits derived from the relationships between people and vegetation is manifested in decreasing levels of stress. Settings which contain characteristics such as verdant paths, calm or slowly moving water, some spatial openness, park or savanna properties (some trees, grassy understory), unthreatening wildlife, and a sense of security or of low risk are especially effective in promoting restoration (Ulrich 1993).

Research by Ulrich (1993) has shown that viewing unthreatening natural landscapes tends to promote faster and more complete restoration from stress then does viewing urban or built environments lacking nature. Studies have also indicated that stress recovery was found in healthcare settings where extremely stressed patients viewed unthreatening natural landscapes for periods as short as ten minutes. In healthcare settings, long term or frequent views of unthreatening nature may have persistent positive effects on psychological, physiological, and even behavioural components of stress. In time, these effects may be manifested in higher levels of wellness (Ulrich 1993). Other restorative responses may include a more positively toned emotional state, sustained attention or perceptual intake, and positive changes in activity levels in different bodily systems (Ulrich 1993).

Figure 15

Further supporting the benefits of nature, a study by Olds (1985) concludes that 300 participants were urged to visualize an environment considered to be healing for a wounded person. Every one of the respondents envisioned some form of nature including trees, grass, water, sky, rocks, flowers, and birds.

The natural environment and outdoor spaces have extreme significance in peoples' lives. Cooper Marcus (1978) suggests that experiences with nature, particularly from childhood, prove to be some of the most vivid memories recalled. Exposure to nature is also very important in connecting people with the natural environment and the rhythms and cycles of life (Lindheim 1985).

Sunlight

Sunlight is an important aspect of the natural environment which helps to provide a sense of orientation through a subconscious reference to the time of day and the changing of seasons. Exposure to sunlight has significant health benefits including stimulating the nervous system that can prompt appetite, improve mental attitude, and induce premium sleep (Brawley 1997). Sunlight has effects on the neuroendocrine system. Therefore, a lack of exposure to sunlight may result in sleep disorders and seasonal depression.

When sunlight comes in contact with skin, it assists in synthesizing vitamin D. Only a minimal amount of exposure is required in order to obtain the benefits of sunlight. According to Brawley (1997), ten minutes of sun exposure on the hands and face provides twice the recommended dietary allowance of vitamin D. Brawley (1997) also reports that the most sensible time to be exposed to sunlight is in the early morning or late afternoon. The human body is able to store adequate amounts of vitamin D during the summer months to last throughout the winter.

"Nature is but another name for Health..." *Henry David Thoreau*

SECTION TWO

HEALING GARDENS

"...[Good garden design] employs the mind without fatigue, tranquilizes yet enlivens it and thus gives the effect of refreshing rest and reinvigoration."

Frederick Law Olmstead

History

Healing gardens, also known as therapeutic, restorative, or sanctuary gardens are not a new approach to outdoor space. Throughout history there have been extensive examples of healing gardens that have promoted an atmosphere of wellness for people. Almost every civilization has developed some type of healing garden or sanctuary. Gardens have offered not only contact with nature but also relief from pain, stress, and fatigue - mental, emotional, and physical (Griswold 1996). The Garden of Eden is one of the first forms of garden sanctuary. Other early examples of restorative gardens include the arcaded courtyards found in hospitals and monasteries in Europe during the middles ages. In the fourteenth and fifteenth centuries, there was a decline in monastic care which led to the decline of these restorative gardens. In the seventeenth and eighteenth centuries, scientific medicine presumed that fresh air and cross ventilation would combat the spread of infections This idea led to the emergence of pavilion hospitals with outdoor spaces between wards. Also prevalent during this period was the emergence of Romanticism, which fostered a reconsideration of nature's role in bodily and spiritual restoration in which gardens were viewed as intrinsic to the healing environment (Cooper Marcus and Barnes 1999). At the end of the nineteenth and into the twentieth centuries, when fresh air and sunlight were used to treat diseases such as tuberculosis, patients could be found in hospital beds on roof gardens and porches (see Figure 17). As well, psychiatric hospitals and asylums integrated the concept of therapeutic experiences through landscape vistas for patients.

Figure 16: Meister, *Das Paradiesgartlein* c.1415

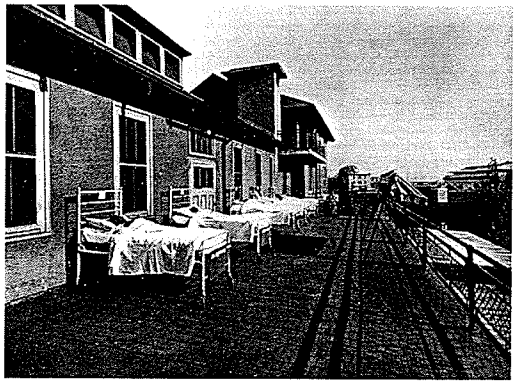


Figure 17: P. B. Bringham Hospital, Boston, 1913

During the twentieth century, there was a tremendous increase in the technological aspects of modern medicine resulting in a decreased emphasis on the therapeutic garden. Immense discoveries and advances were made in technology, transportation, communication and information. The idea that nature could promote healing was disregarded as technical approaches such as surgery, medications, and X-rays superseded the connection between nature and healing. (Cooper Marcus and Barnes 1999). The pressing need to accommodate modern medical technology and science in healthcare facilities surpassed traditional beliefs about the significance of the presumed therapeutic features of gardens (Ulrich 1999). Efficiency in design led to high rise and multi-story health complexes. As a result, outdoor space diminished and gardens disappeared. The design of personal care homes reflected the prevalent medical model of care in which outdoor spaces were neglected - the belief that the medical setting, itself, was sufficient for care (McBride 1999). The landscape surrounding most personal care homes consisted of a lawn with a limited number of trees and shrubs, an amount sufficient to blend in with the surrounding neighborhood. The landscape often served as a backdrop for the building and was not intended for recreational use (Cohen-Mansfield and Werner 1999).

Fortunately, in the last two decades the relevance of healing gardens has emerged once again. Studies have addressed how interaction with nature, including horticultural therapy, can increase cognitive functioning, the ability to focus and the tendency to seek out new experiences (Dannenmaier 1995). In the 1990's, a resurgence of alternative medicine emerged in healthcare. A national survey conducted in the United States reported that 40% of Americans utilized at least one alternative or complimentary remedy. (Cooper Marcus and Barnes 1999). People began to recognize that in both residential and healthcare settings, exposure to nature can have healing benefits. Emphasis on functional aspects of facilities slowly began to shift with the emergence of patient-centered care. Ulrich (1992a) describes patient-centered care as psychologically supportive characteristics that assist patients' ability to cope with the significant stress that occurs with illness. This shift in healthcare design to a more therapeutic approach was also reactionary to the increasing amount of research and published studies on the benefits of a therapeutic environment in improving patient health and accelerating recovery. The twenty-first century could possibly see healing gardens as an essential part of every healthcare setting.

Healing Gardens

Robert Ulrich (1999) defines a healing garden as reference to a variety of garden features that consistently tend to encourage restoration from stress and have many positive influences on patients, families and staff. Gardens range in size, and may be outdoor or indoor. Healing gardens, according to Ulrich, may have a strong natural presence made up of plant life, animal life or water. Therapeutic gardens have been integrated into a number of settings to benefit a range of clients including children suffering from mental disabilities, development of child and adolescents

as well as sick children and troubled infants. Other compassionate settings for healing have been created for the elderly and for people suffering from a variety of terminal illnesses.

Healing gardens typically employ plant materials, water, and soft and hard surface materials which play an important role in sensory stimulation. According to Thompson (1998), healing gardens have the potential to awaken a patient's sense of sight, smell and touch and to prompt body movement by inspiring the patient to explore the garden. Gardens can be restorative in a number of ways including exposure to the aesthetics of nature, supporting activities, and providing a meaningful experience through creation and maintenance (Cooper Marcus and Barnes 1999). The aesthetics of nature refers to the creation of a beautiful place that thrives with life, enables an experince, a place that people are drawn to visit. Essential to the success of activity areas is the ability of the individual to choose whether to participate or not. These may include socialization, spending time removed from others, walking, and gardening.

The experiential aspects of the garden are the foundation for a healing environment. Healing occurs in the garden as a result of a direct connection between the patient and the physical/natural environment and is therapeutic without the mediation of medical personnel (Cooper Marcus and Barnes 1999).

Benefits

Ulrich (1999) defines stress as a process of responding to events and environmental features that are challenging, demanding, or threatening to one's well-being. People respond to stress through a range of changes including: psychological/emotional (fear, anxiety, anger, depression, sadness), physiological (blood pressure, skin conductance, respiration rate), biochemical (neuroendocine components), and behavioural (sleeplessness, angry outbursts, helplessness, passivity) (Gatchel et al. 1989; Evans and Cohen 1987; Selye 1956; Ulrich 1999).

Figure 18

In healthcare settings, stress is regarded as a significant problem. Restoration, therefore is the major motivator for people to use gardens in healthcare facilities (Cooper Marcus and

Barnes 1999). A study of outdoor use in hospitals by Francis and Cooper Marcus (1992) revealed that 95% of those interviewed noted a positive change in mood after spending time outdoors, from feeling depressed, stressed, and anxious to a more calm and balanced disposition. More than two thirds of respondents revealed that visual elements of the plant world such as trees, flowers, colours, seasonal change, and greenery were beneficial in inspiring mood change and more than half believed that elements perceived by the other senses such as birds, squirrels, the sound of wind or water, fresh air, and fragrances were helpful.

The environment can contribute greatly to stress levels of patients or residents experiencing a loss of control within their surroundings. Possible examples include difficulties with wayfinding or orientation, increased noise levels and lack of privacy. In healthcare settings, stress relief provided by gardens can help patients achieve a sense of control and access to privacy and social support (Ulrich 1999). The sense of control may be actual or perceived and may include either a temporary escape (physical change of scenery, passive activities, views, daydreaming) or access to solitude. Social support is the perceived emotional support or physical help. Research in healthcare settings has found that gardens are also important settings for social interaction and offer increased social support for patients, staff and families (Ulrich 1999).

Gardens may also encourage residents to engage in physical movement and exercise, access to nature and other positive distractions. Positive distractions include design features or situations that foster an improved emotional state and restoration from stress (Ulrich 1992 b). Nature such as foliage, flowers and water are examples of distractions that are perceived as positive in healthcare settings (Ulrich 1999).

Cooper Marcus and Barnes (1995) conducted a study of garden users in four healthcare facilities and found that visual elements of nature such as trees, greenery, flowers, and water were determined to be the most positive qualities which affected their moods through relaxation and restoration. Other significant types of natural elements identified were birds, squirrels, sunshine and fragrances. These elements indicate the importance of the other senses in the creation of a successful garden.

Studies have recognized that people in the late stages of Alzheimer Disease exhibit less agitated behaviour when exposed to simulated natural elements such as recorded birds singing, babbling brooks and pictures of the outdoors (Whall et al. 1997). Cohen and Day (1993) found three Alzheimer care facilities with gardens or planted courtyards in which administrators reported that family members preferred visiting with residents outdoors rather than indoors.

Symbolism

According to Ittelson et al. (1974), human perception involves a level of symbolic value that is intrinsic within the environment. The subconscious mind picks up cues such as sights, sounds and smells through our sensory organs which enter the psyche at a subliminal level. According to Barnes and Cooper Marcus (1999), an open gate invites exploration and symbolizes inclusion. The paramount principle to creating supportive and healing environments for a vulnerable patient population is that the symbolic meaning embodied within the setting must be unambiguously positive (Barnes and Cooper Marcus 1999). Other symbolic representations include: bridges, to represent change, transition, and growth; a winding path represents a journey through the past or the anticipation of the future; water represents a source of life or cleansing or soothing (Barnes and Cooper Marcus 1999).

Figure 19

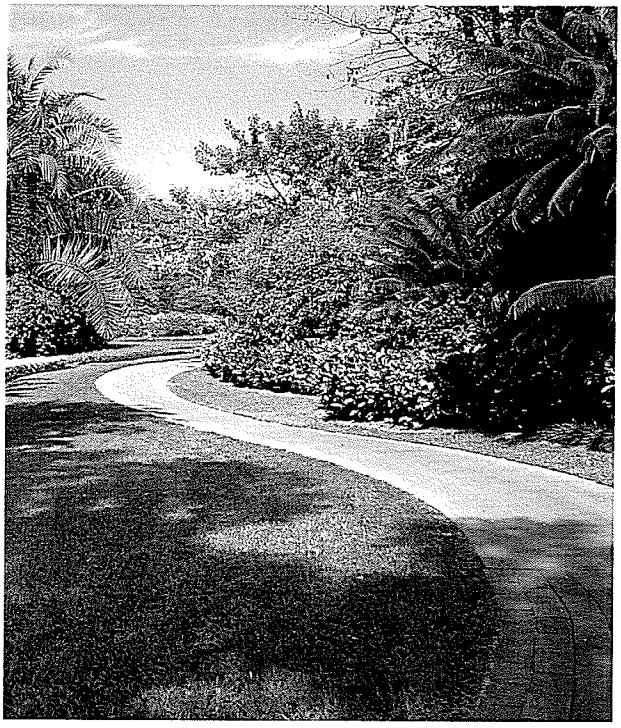


Figure 20

HORTICULTURAL THERAPY

Studies have shown the positive impact that gardening has on enhancing self esteem, creating a sense of tranquillity, expanding the feeling of being needed and increasing sociability (Lewis 1979). The inclusion of a horticultural therapy program can be eminently beneficial in a healing garden. This practicum briefly addresses the general principles of horticultural therapy. In a formal horticultural therapy program, the therapy would be an intrinsic component of the activity programming within the healthcare setting. Therapy would be performed with or under the supervision of a trained Horticultural Therapist.

Horticultural therapy is based on a traditional understanding of the relationship between people and plants and can be part of a complete wellness program that promotes a healthy, home-like environment and enhances resident well-being (Catlin et al. 1992). Horticultural therapy can provide participants with an opportuity to engage in meaningful productive activities and promote feelings of inclusion.

Figure 21: H.A. Rusk Institute of Rehabilitation Medicine

Goals of a horticultural therapy program may include: regaining and maintaining musculoskeletal integrity, enhancing self esteem and self sufficiency, reducing feelings of loneliness and stress, promoting cooperation between participants, and strengthening personal creativity (Lovering 1990). Participants have the opportunity to engage in exercise and physical recreation while fostering feelings of affiliation through commitment and involvement.

Horticultural therapy is effective in reducing stress and improving health and has therapeutic benefits. These include emotionally supportive contact with a caring and motivated therapist as well as interaction with other residents (Ulrich 1999). For residents, gardening fosters a sense of purpose and an awareness that they are contributing something of value. Gardening caters to residents' creative instincts and allows for a sense of accomplishment. The care and nurturing of plants and the harvesting of fruit or vegetables permits residents to see the product of their efforts as well as to witness the life and growth cycles of living species.

Healing gardens and participation in horticultural therapy play important roles in providing therapeutic environments for people with Alzheimer Disease.

SECTION THREE

DESIGNING FOR AN AGING POPULATION

"Aging is a process not a disease."

(Brawley 1997:7)

According to Bite and Lovering (1985), when designing for an aging population a number of points should be considered such as: the physical changes and decline in health, as well as difficulties with vision, hearing and physical mobility. Decreased muscle strength and reflex times, as well as diminished energy levels contribute to mobility loss. An older person's ability to contend with the environment is affected by all of these changes. Many physical changes take place as people age. Chronic limitations of mobility factors affect 80% of the elderly while 48% suffer from arthritis, 29% have hearing loss, 17% have orthopedic impairments, and 14% percent have vision problems (Kleeman 1981; Rickman and Soble 1988). Other problems include incontinence, sensation loss, respiration and cardiac difficulties (Brawley 1997). A thorough understanding of all the needs of older persons is required in order to design appropriate environments.

Figure 22

SENSORY CHANGES

Negative environmental conditions often affect a person's comfort level and can lead to feelings of agitation. Some of these conditions include, glare and reflections from direct sunlight, noise and odors. If a person has difficulty with their vision or hearing, then it may affect their ability to comprehend what is happening in the environment around them.

Vision

According to Brawley (1997), throughout a sighted person's lifetime, ninety percent of information learned is through the eyes. Vision is the most important sensory channel with a wider range of information received than through all other senses combined. As early as age forty, vision begins to decline (AIA Foundation 1985). A number of normal age-related changes happen in the eye, most often due to changes in the lens which disrupt vision including: impaired ability to adapt to changes in light levels, extreme sensitivity to glare, restricted field of vision and depth perception, and reduced ability to discern detail, contrast and colour (AIA Foundation1985; Brawley 1997). These changes result in a number of potentially distressing situations for people including problems with perceiving spatial organization, patterns, distances and edges. Difficulty with depth perception greatly affects a person's ability to discern shadows, especially on the ground. Such shadows are often seen as a step or a hole, making the person feel as if they have to step over or around the shadow. Moving from interior to exterior spaces, and vice versa, can prove to be troublesome for the aging person because the eye has difficulty adjusting to abrupt levels of change in light. Malkin (1998) suggests that losses in colour discrimination (due to the yellowing of the lens) often results in difficulty differentiating between cool hues such as blue, green and violet, especially in pastel shades. Highly saturated warm hues such as yellow-based pinks including salmon, coral, peach, or soft yellow orange remain distinguishable. These age-related visual deficits affect activities due to difficulties with reading and interpreting the environment precisely (Brawley 1997).

According to Stuen and Offner (2001), as a person ages they are susceptible to common eye disorders such as cataract, mascular degeneration, glaucoma and diabetic retinopathy. Central or peripheral visual field loss, as well overall blur, are some of the results of these disorders.

Research has indicated that light and colour stimulate the brain and autonomic nervous system with documented changes in heart rate, blood pressure, respiration, muscular tension, and other changes in internal organs (Colby 1990). Colour and light affect emotional and physical health, impacting sleeping, wakefulness, emotions and health, therefore, they have an important role in daily life (Brawley 1997).

Hearing

Hearing is also affected by age. For older people, high frequency sounds such as bells and sirens are less audible than low frequency sounds (AIA Foundation 1985). As well, older people often are less sensitive to lower frequency pitches. They are also unable to discern the difference between one voice or sound and any competing background sounds (AIA Foundation 1985). This affects the comprehension of normal conversation. If a person is continually straining to hear, the effects are physically exhausting and emotionally fatiguing which may result in agitation and

anger (Brawley 1997). Hearing loss can contribute to communication difficulties, which can result in feelings of isolation and lower self-esteem. Comfortable sound levels must be achieved by controlling noise, which in turn reduces stress.

Smell & Taste

Research by Ordy and Brizzee (1979) suggests that olfactory capacity decreases thirty to fifty percent with age. Physical and emotional discomfort can result from the inability to smell the scents that once gave a person pleasure. Changes in levels of olfactory stimulation directly affect the dietary experience, as the smell of food is crucial to the experience of eating. Brawley (1997) believes that the reason aging people do not eat as well is that food does not taste as delicious as it once did and, in turn, this may contribute to depression. The dietary experience can also be affected by dental problems such as ailments with teeth, dentures and gums.

Touch

As people age, their skin becomes more dry and less elastic (AIA Foundation 1985). These changes result in a decline in sensitivity to touch which makes variations in texture increasingly difficult to perceive. Brawley (1997) suggests that the most prevalent tactile losses of aging include the immediate sensitivity to pain and temperature. The tolerance therefore decreases for extremes of temperature. Generally, this results in a preference for warmth in winter and an inability to withstand the extreme heat in the summer.

Touch can be an extremely therapeutic method of communication, especially when there is a decline in other senses. People at any age seek the support of interaction through touch. The warmth and comfort provided through contact with another person or pet is immeasurable.

CHANGES IN MOBILITY

A person's level of physical activity typically decreases as one ages. Studies have indicated that regular exercise improves circulation, manual dexterity, coordination, flexibility, strength, endurance, bone mass and cardiovascular fitness, as well as contribute to a reduction in anxiety, fatigue and symptoms of depression (Brawley 1997). Common conditions that greatly affect mobility as one ages, are arthritis and osteoporosis. Keeping distances at a manageable length for residents to travel should be considered when planning their living environments. Fear of falling increases as people age and is therefore an important consideration in the selection of materials. A safe surface for grip and support increases the level of confidence for users. This is especially critical in Manitoba due to the northern climate. Ice on pathways and patios can pose a serious hazard for the elderly.

DEPRESSION

As people cope with life changes such as retirement, the deaths of a spouse, relatives and friends, the prevalence of depression, loss of self-esteem, loneliness, anxiety and boredom increase (Brawley 1997). Social adjustments, including isolation from the community and separation from friends and family, can result in psychological and emotional burdens for the elderly (AIA Foundation 1985).

Designers should acknowledge the constraints placed on frail, elderly people in the environment (Stoneham 1990). When designing for the elderly, recognition of their sensory changes are necessary. Other design issues to address in personal care home settings are privacy, social interaction, appropriate seating and safety. For information regarding these design issues, please refer to Part 2 of this chapter: Goals of Outdoor Space.

SECTION FOUR

ALZHEIMER DISEASE & THE ENVIRONMENT

Chapter One of this practicum introduced and defined Alzheimer Disease. This section addresses the special needs of people with Alzheimer Disease to be considered when designing an environment. Subjects to be examined include: the impacts of the environment on behaviour, the role of specialized care units and home-like environments, gardens, and the goals of successful outdoor space. Emphasis is placed on the outdoors, but many principles are addressed that relate to building interiors and their arrangements as well as general environmental features.

A large amount of literature exists on Alzheimer Disease and how it affects cognitive function. People with Alzheimer Disease experience symptoms such as decreased skill in cognitive, motor, sensory integrative, social and psychological functioning. These disabilities, in combination with common age related changes, begin to impair peoples' ability to move through and to enjoy the outdoor environment (Lovering 1990). People with dementia are generally very active and they often find it frustrating to be in a restrictive environment. In healthcare settings, outdoor spaces must be secure, yet residents should have free access in order to maintain some degree of independence. "Many people have a life-long orientation to the outdoors, either through work or through recreational activities. For these, this is an important component of quality of life" (Health and Welfare Canada 1991:97). There are many potential benefits of the outdoors including, fresh air, sensory stimulation, familiar natural elements, variation of daylight and weather, seasonal changes in foliage, and access to wildlife. Many people with Alzheimer Disease have a tendency to wander and experience difficulties with orientation. Therefore, they should have access to wandering loops as well as short/direct connections between destinations. Distinct landmarks and artifacts can assist with orientation and foster a sense of familiarity. Elderly patients need an environment that provides them with plenty of cues about time, place and purpose (Hagedorn 1990).

An important principle of therapeutic gardening pertinent to people with Alzheimer Disease is the participation in an act that is familiar. Residents should have the opportunity to participate in recreation-based activities such as raking leaves and weeding. Brawley (1997) suggests that some people with Alzheimer Disease have tendencies toward violent behaviour or agitation. The use of well designed outdoor space and gardens has been successful in reducing the number of these type of incidents.

The Person

One of the most important things to keep in mind when designing an environment for individuals with Alzheimer Disease is that the design is for real people, who want to maintain their dignity and remain independent. Providing a setting that assists in maintaining a person's ability to function where they can feel confident and comfortable is vital to the success of an environment. When afflicted with Alzheimer Disease, a person undergoes physiological changes and their needs change as a result. Their environment needs to be aesthetically pleasing, supportive and flexible, enabling the person to feel good and enhance their life, health and well-being. The establishment of a philosophy that includes creating an environment that speaks about life and the living, about vitality and the dignity of a human being will only help designers and residents alike (Brawley 1997).

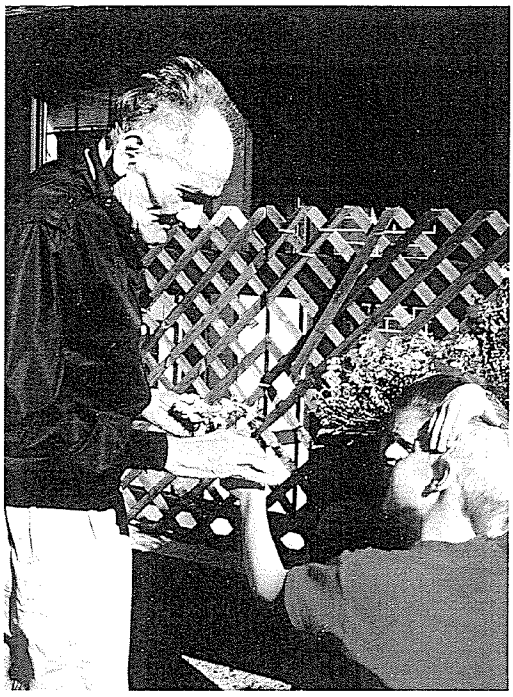


Figure 23

The Behaviour

According to the 1987 National Medical Expenditure Survey, 59 percent of residents with dementia had one or more of the following behavioural symptoms: wandering, physically hurting oneself or others, dressing inappropriately, crying for extended periods, hoarding, getting upset, not avoiding dangerous things, stealing and inappropriate sexual behaviour (U.S. Congress 1992). Sundowning is also a common symptom of Alzheimer Disease in which people become confused and agitated around sunset. These challenging behaviours result from the progression of the disease. For example, changes occur in the brain that are affected by environmental circumstances and as a result, negative behaviour is initiated.

Dementia can greatly affect a person's ability to understand events and people in the environment (Brawley 1997). Hiatt (1991) refers to five areas that cognitively impaired residents may have diminished capacity in:

- "Memory for fact: names, numbers and sequences
- Action and motion: ability to balance, coordinate, swallow, and maneuver utensils
- Emotion: capacity to match emotions with particular situations
- Social behaviour: ability to relate to people in conventional ways, need for smaller groups
- Judgement: ability to plan, anticipate, change behaviour midcourse, override situations, and anticipate danger" (Brawley 1997:31).

Memory loss can be extremely troublesome and difficult for people to cope with, making everyday activities difficult. An increased dependency on others occurs as a result. When one's surroundings are not easy to understand, a person often becomes confused or frightened which may lead to defensive and even aggressive behaviour. People with Alzheimer Disease need to have the ability to remove themselves from situations which they find uncomfortable. Whether the problem is too much noise, too many people or some other environmental factor, they should be able to separate themselves from the source of tension. Environments should be designed to accommodate the needs of individuals as well as groups.

According to Brawley (1997), wandering is a common conduct of people with dementia and it has physical exercise benefits. The challenge is to make wandering or walking paths meaningful in some way with potential for emotional satisfaction. Wandering may act as a means of reducing stress and tension. Sometimes, wandering is indicative of other problems such as boredom, the need to find something that was once lost or find the boundaries of one's environment. It can also represent the need to perform an act that is familiar from earlier in life through pleasure, sport or occupation. Hiatt (1978) proposes that wandering is a behaviour that can be divided into three categories. The first is goal-directed in which the person is searching for something or someone. The second is goal-directed in an industrious manner with residents wanting to remain busy. The third is apparently non-goal directed in which the person aimlessly is drawn to particular elements but only attentive momentarily.

At the Corinne Dolan Alzheimer Centre in Chardon, Ohio, a study suggests that negative aggressive behaviours were lessened when residents were provided with the opportunity to wander freely in a protected environment (Namazi and Johnson 1992). According to Coons (1988), the need for wandering is more than a physical need to move from place to place; safe wandering paths that provide opportunities for interesting experiences are effective in assisting to reduce wandering behaviour.

Wandering behaviour can be improved with walking which leads to better general health, increased appetite, better sleep patterns. With adequate clothing, residents should have the freedom to walk outdoors in all weather (Liss 1986).

Environment Impacts Behaviour

Environments must be considered as partners in care, and each environment impacts people in different ways. Environmental experience and perception is dependent on factors such as culture, background, age, and position in life (Brawley 1997). A lack of control over the conditions that affect a person's life may lead to feelings of humiliation, degradation, low self-esteem and self-worth (Lindheim and Syme 1983). Symptoms of Alzheimer Disease may be reduced as well

as easing the onus on family members through well designed environments, good planning, and medical and social management (Zeisel et al. 1999). When designing an environment for people with Alzheimer Disease, a carefully planned setting can maximize functional independence and autonomy, decrease agitation, incontinence and wandering, while a poorly designed environment can contribute to difficult behaviours that foster responses of disorientation and confusion, and precipitate agitation (Brawley 1997). Mather et al. (1997) completed a study regarding the effects of an enclosed garden on behaviour of people with Alzheimer Disease and found that residents who spend more time outdoors displayed fewer disruptive behaviours, and had less night time sleep disruption.

An environment needs to be supportive with emphasis on residents' abilities, and a focus on making life enjoyable. Thoughtful design can promote mental functioning, minimize confusion, and allow residents to function more independently (Brawley 1997).

A connection to other people and with one's biological and cultural heritage assists with a person's identity. Isolation from the cycle of life affects a person's sense of individuality, and the connections with others. The environment performs an important role in personal health (Lindheim and Syme 1983).

Specialized Care & Design

When designing for a specific population, one must consider the intimate needs of the residents and their routine of daily living. People with Alzheimer Disease may live in a number of different settings. In the early stage of the disease many people remain in their own home, but as the disease progresses further, support is often needed from family, friends and/or an outside agency. Next, the person might live in an assisted living apartment and then proceed to a personal care home with or without a specialized dementia treatment or care unit. An important consideration in any healthcare setting is the facility's 'Philosophy of Care'. The program philosophy characterizes the intentions and purpose of the care program while defining the relationship with the physical environment (Brawley 1997).

Specialized care units are equipped to manage the multiple and complex needs of people with Alzheimer Disease and provide care that concentrates on the psychological needs of the person. Appropriate care settings for people with Alzheimer Disease promote therapeutic activities designed to maximize remaining cognitive and physical abilities while providing an environment that supports individual care and behavioural approaches to managing residents (Brawley 1997).

According to Berg et al (1997) special care units are unique in five areas: admission of people with dementia, trained and specially selected staff, specifically designed activities for people with

cognitive impairments, family involvement, and specially designed and separate environment that focuses on safety and accommodates behaviours associated with dementia. Wiesman et al (1994) describes a therapeutic milieu of specialized units that meets the needs of residents in a compassionate, patient, understanding, and creative manner while providing a safe, pleasant and clean environment.

Home-like Environments

A home-like environment is smaller and more residential in scale than typical personal care homes. The rooms and spaces are organized and modeled after small villages or country homes rather than a hospital. The framework and features required to achieve a home-like character include small residential clusters or pods, small group spaces, residential furniture, decorations and lighting (Zeisel et al. 1994). Instead of a cafeteria or dinning hall, there may be familiar traditional home-like elements such as an eat-in kitchen. Instead of activity rooms, there may be living or family rooms. The reduced size of such environments can make it more manageable for residents and less confusing as they attempt to orient themselves within these spaces. According to Zeisel et al. (1994), a residential character can be achieved through a high level of familiarity and resident numbers of seven to fifteen residents per unit. Fewer people will result in less noise and activity. Too much activity and noise can result in over stimulation, which may lead to agitation. According to Zeisel and Tyson (1999), research has shown that residents display fewer dementia symptoms in familiar home-like environments than in larger institutional personal care homes. Smaller home-like environments may reduce anxiety for families and staff as well.

Home-like personal care home environments can foster feelings of connectedness, bondedness, and identity between residents and their living place (McBride 1999). Contrary to an institutional setting, a home-like environment implies safety, familiarity, privacy, belonging, and caring (Dovey 1978; Rubinstein 1989; Howell 1985).

Other important features associated with home-like environments are outdoor space and transition areas joining the interior and exterior with a residential appeal. These spaces include front porches, patios, planting areas or gardens. Visual metaphors for security and stability in the garden include mature trees, historical stylistic references, and traditional vegetation (Gowans 1986; Dovey 1985). Garden design may be park-like or reflect components typical in backyard gardens including vegetable and flower gardens. Home-like exterior environments are inviting, comforting, familiar, and physically safe and secure, and increase quality of life for the resident.

Gardens

Gardens, lawns and woods are a source of sunshine and exposure to them may result in a connection with nature (Brawley 1997). To be able to go outside provides residents with a change in scenery, giving them the opportunity to be exposed to an environment that is refreshing and different than the interior environment. Outdoor environments are a pleasing change of space and add variety to one's surroundings. In outdoor environments that are universally designed and non-confining, residents are free to explore and have an opportunity to observe the change of seasons. Spending time outdoors allows residents to have access to fresh air as compared to the recycled air that exists inside many facilities. Access to outdoors is important for well-being; it is a part of life that people outside of the health care environment encounter as part of their daily life and routine. Even in the coldest days of winter, people encounter the outdoors as a normal part of their lives. Why should life change so drastically when a person ages? For many people, spending weeks confined to an indoor environment is unimaginable and access to the outdoors is necessary as a life experience.

Figure 24: Royal Chesterfield and North Derbyshire Hospital, UK

In health care settings, outdoor spaces may include community or entrance gardens, interior courtyards (all sides enclosed by building), exterior courtyards (fences along at least one side, other edges may be defined by building), atrium or indoor gardens, viewing gardens, and roof gardens (Zeisel and Tyson 1999).

Garden use is dependent on the physical or perceived level of safety, the location or proximity to the residents' living area and the accessibility of the space. Brawley (1997) believes that staff motivation is the most important factor in determining whether or not residents use outdoor spaces. The greatest factors motivating resident and staff use of outdoors spaces are opportunities to observe activities and changes in seasonal landscapes (Lovering 1990). The use of outdoor space is also dependent on comfortable seating and protection from the elements (Bite and Lovering 1984,1985).

SECTION FIVE

GOALS OF OUTDOOR SPACE

As indicated in previous sections, the therapeutic benefits of gardens suggest that such spaces should be incorporated into living environments for people with Alzheimer Disease. When designing outdoor environments there are a number of objectives to consider including providing safety and a sense of security while encouraging physical freedom and independence. Areas for privacy or solitude should be provided as well as opportunities for socialization. Residents should have the freedom to choose whether to go outside, participate in activities or just passively observe. The outdoor environment should be supportive and assist with orientation and wayfinding while contributing to memory recall and sensory stimulation.

"Universal design is a concept, or way of thinking about design". It "creates environments that respond to the needs of the range of the population to the greatest extent possible" (City of Winnipeg 2001). In order to specifically address the needs of people with Alzheimer Disease, the principles of universal design must be used to create environments that are supportive for this user group. The intentions of the following goals are to help make gardens as usable as possible for people with Alzheimer Disease.

Safety & Security

The physical and perceived level of safety of an outdoor environment is perhaps the most important factor when determining the amount of use. Safety and security is dependent on a number of factors. One of particular significance is visibility or the ability of staff to monitor the outdoor space though sightlines. According to Morgan and Stewart (1999), surveillance is considered essential by staff for maintaining safety in environments for people with dementia. The single largest barrier to free use of accessible space outdoor space is staff concern that a resident may wander away or become injured (Stephens 1996).

According to Lovering (1990), other factors that contribute to the safety and accessibility of outdoor environments are a person's decreased visual acuity, strength, endurance, balance, and coordination. Falling is one of the primary dangers associated with residents using outdoor spaces. Other safety concerns involve issues of shelter and protection from climatic conditions. These include protection against sunburn and sunstroke. Another concern, especially in Manitoba, is adequate protection during the summer months from insect bite, particularly mosquitoes.

Security matters must also be addressed. The concept of 'sheltered freedom' involves allowing residents a greater degree of freedom and dignity within the bounds of a safe and protected environment (Hall, Kirschling and Todd 1986). Areas must be secure for residents, especially for

residents inclined to wander. These residents may attempt to 'escape' the facility in the desire to return to, or find, home. The most able residents have the ability to climb and scale walls and fences or crawl under fences. 'Exit control' refers to the immediacy of control over methods to get out of the unit through locks, alarms, or surveillance and the lack of awareness for residents in their ability to exit (Zeisel et al. 1994). The use of alarmed doors can be very disruptive for residents. Not only is the noise frightening for all residents, but the alarm signals a feeling of being controlled or, conversely, lack of control. Residents experience difficulty in comprehending a routine of when they can and cannot exit a space which leads to anxiety. Exit control for accessible gardens does not refer to residents entering garden areas but rather to exiting the enclosed safe and secure garden to another 'off limits' outdoor space. Exiting a garden through gates used for maintenance is an example of a location for desired exit control. The ideal situation for exit control arises when there is a high level of unobtrusiveness and a high level of control in which exit control is sufficiently disguised and residents are unaware of them (Zeisel et al. 1994). Screening, hiding or disguising a gate latch or handle or the gate itself can be effective for controlling frustration and exiting behaviour in residents.

Accessibility & Outdoor Freedom

Outdoor spaces should be accessible to residents physically, visually and socially. Outdoor freedom refers to the degree to which outdoor space is immediately accessible to residents, and the magnitude to which the outdoor space is specifically designed for use by residents with dementia (Zeisel et al. 1994). A successful outdoor space is both highly supportive of, and available to, residents. Both research and clinical experience shows that appropriate and therapeutic outdoor spaces for people with dementia needs to be accessible and supportive (Zeisel et al. 1994). Outdoor spaces should be safe and secure and located on the same floor as, and adjacent to, indoor space. Doors should be open for independent access, and the space should have design elements that support effective functioning in residents with Alzheimer Disease (Zeisel et al. 1994). Accessible spaces have doors that are highly visible and have ample windows which help connect and cue residents with the outdoors and allow for maximum surveillance by staff. Residents must know that the garden exists, and they must be able to find their way to such gardens without difficulty. They must also be able to use the garden in either an active or passive manner (Ulrich 1999). When residents have access to outdoor space, staff and residents are less agitated and residents derive benefits from contact with daylight, change in seasons, weather changes and contact with earth and plants (Zeisel et al. 1994).

Independence

Autonomy is achieved when residents are able to use their remaining faculties as much as possible and when environments are highly prosthetic and designed to give staff the assurance that residents are safe (Zeisel et al. 1994). Independence helps residents maintain their self identity and increases dignity. Functional independence needs to be promoted in environments that support residents through orientation and familiarity. This leads to control within the environment. In outdoor spaces, independence can be attained when staff have a high level of surveillance to monitor residents, paving materials consist of even, non slip-surfaces, have well defined edges and limited glare, and employ adequate cueing.

Privacy vs. Socialization

Residents require the ability to choose how and where they would like to spend time. The option to access either spaces for privacy or for socialization must be provided. Perceived privacy contributes to resident comfort and creates a peaceful atmosphere and tranquil environment. Residents may achieve a sense of privacy yet still be monitored by staff through visual access or sightlines. Privacy may be regarded as solitude, intimacy, anonymity or reserve, and is essential to maintaining positive self regard, self refection, autonomy or emotional release (Lovering 1990).

Spaces for socialization may consist of an intimate setting for two or spaces that accommodate gatherings of small or large groups. Socialization and interaction with other residents, staff and family members is important for well-being. Socialization can be increased through sheltered, comfortable seating that encourages eye contact (Sommer 1970). Studies have shown that conversation can be stimulated by activity and changing locations (Brawley 1997).

Activity Spaces

When residents with Alzheimer Disease participate in activities, it helps to reinforce feelings of satisfaction and usefulness. "No matter how elegant and beautiful an environment, no matter how efficiently designed, no matter how safe – unless people can in someway, participate in activities that affect their lives, the outcome is likely to be dissatisfaction, and even illness" (Syme 1995, in Brawley 1997:30). The range of opportunities for residents to participate should be meaningful with the main objective to keep residents functioning at the highest level possible. Alzheimer care program activities should enable pleasure, minimize failures, and support dignity. Since people with Alzheimer Disease require assistance with activities of daily living, therapeutic programs need to be designed to support their remaining functional abilities. Daily living should be simplified and broken down into manageable steps and adapted to meet their individual needs (Brawley 1997).

Varied and flexible activity spaces that are dispersed allow residents to have the freedom to choose the activities in which they want to participate. Active experiences include physical rehabilitation, exercise, walking, horticultural therapy, gardening, raking leaves, harvesting vegetables, digging, planting and watering. Less active experiences involve sitting and talking, feeding and caring for pets, and spending time with children. Passive activities include: observing other residents, watching animals or birds move about or feed, or viewing features in the garden. Retaining a residential backyard scale is important as is providing spaces for families and visiting. Activity programs should have structure yet maintain flexibility. Structured activity programs should be appropriate to residents' abilities and provide sensory, cognitive and physical challenges (Brawley 1997). Although short-term memory is affected with Alzheimer Disease, familiar daily life activities can draw on deep memories from residents' earlier life (Calkins 1988). Involving residents in a garden's stewardship adds to the sense of 'home' and transfers feelings of ownership away from the facility to the people who live there and their families (Zeisel and Tyson 1999).

Memory Recall

Although people with Alzheimer Disease have difficulties with short-term memory, long-term memories often remain vivid and discernible. The stimulation of long-term memories of previous experiences in life may take place in an outdoor setting. Brawley (1997) suggests activities such as mowing the lawn with a push mower, raking leaves, gardening, hanging clothes on a clothesline for memory stimulation.

The age of the resident is an important consideration. Outdoor spaces should employ the popular gardening styles rooted deep within the long-term memories of residents. For example, what did gardens look like when they were a child or young adult? Which types of flowers were popular and common selections in their own yards or parks? What types of plants were significant or have special personal meaning to the particular population?

Wayfinding

According to Carpman (1991), wayfinding involves knowing where one is, knowing one's destination, knowing and following the best route to a destination, being able to recognize the destination, and finding one's way back to a point of origin. Since people with Alzheimer Disease have difficulties with short-term memory, they can find their way more successfully in environments that contain supportive cues. Wayfinding cues can include signs indicating the location of some place or object (Zeisel et al. 1994). Wayfinding cues can also include colour and texture. Cueing is an important device for helping people with Alzheimer Disease to function and to recognize the conditions within their environment. People with Alzheimer Disease need sensory cues and events that interest, engage and orient them in space (Zeisel et al. 1994). Visual

cues should be provided through precise and consistent information and should be prominent, unique and assorted. Exposure to cues regarding the time of day can be achieved through placement of windows, access to sunlight and access to the outdoors. They provide a suggestion of a person's location within an environment and what activities take place there. Possible cues to assist residents with navigation through their surroundings in a self sufficient manner include landmarks, doorways, change in ground surface, and clear signage.

When designing for an aging user group, an objective of wayfinding is to enable people to read their surroundings which allows them to orient themselves and make appropriate decisions about how to reach their destination (AIA Foundation 1987).

Wandering paths are continuous outdoor circulation routes that return to their starting point or connect adjacent spaces. They have a clearly defined edge and are easy to use. They accommodate therapeutic walking for residents which supports residents' ability to perceive the pathway as a place (Zeisel et al. 1994). Wandering paths should allow for independent wayfinding through clearly linked pathways, a continuous organization, understandable visual cues, and include events along the way (Zeisel et al. 1994). Features along the way can attract interest and motivate residents to stop and enjoy the experience and then proceed further along the path.

Possible nodes for outdoor pathways include: alcoves, seating rest area, planting features, bird or animal feeder, fountains or pools. Dead ends are disruptive to the continuity of the route and prove to be frustrating and confusing for residents. Pathways should be well defined in order to help residents orient themselves within their environment. Aging studies show that older people move more slowly and take smaller steps to accommodate physical changes (Zeisel & Tyson 1999). Design considerations for pathways include increased width and well defined edges.

Zeisel and Tyson (1999:443), refer to Kevin Lynch's research from his book *Image of the City* (1960). They take Lynch's five elements for orientation and wayfinding and apply them to garden design as follows:

- "Paths: The channels along which people move; the predominant element in their image of their environment as they move through it.
- Edges: Boundaries between two areas, either impenetrable barriers or seams that join parts of a garden together.
- Districts: Sections of a garden that are recognizable as having a unique identifying character.
- Nodes: Spots in a garden that are foci to and from which people travel. Nodes can be junctions or places of intense activity.
- Landmarks: Reference points singled out from a field of elements in a setting, such as gazebos, fountains, trees, doorways."

Zeisel and Tyson (1999) believe that people with Alzheimer Disease have difficulty remembering places and connections between them. Lynch's five elements help people to be more competent in gardens because they do not have to organize a mental cognitive map.

Sensory Stimulation

People with Alzheimer Disease respond on a sensory rather than intellectual level and have difficulty with spatial relationships (Brawley 1997). Appropriate levels of sensory stimulation are required, and should be balanced between environmental overstimulation and deprivation (Day et al. 2000). Unfortunately, there is no exact method for determining adequate levels of sensory stimulation. Too much stimulation can result in a decreased ability to ignore distraction which can lead to difficulty performing tasks and activities. Too little stimulation may result in sensory deprivation which may affect concentration, attention span, and perception. In general, people in the early stages of Alzheimer Disease are more active and require a more stimulating environment. People in the middle to late stages of dementia respond to a peaceful, calm, quiet environment (Skolaski-Pelliteri 1983). Recent studies indicate that sensory stimulation activities increase functional ability and enhance quality of life for persons with dementia. Functional effects include increased ability to perform activities of daily living, improved memory and cognitive ability, increased verbalization and socialization, decreased depression and decreased medication usage for aggressiveness (Witucki and Twibell 1997).

In the life review process, sensory reminiscence has been found to be an important mode both as a form of therapy and as preparation for death (Ott 1993). Reminiscences of gardens through sensory stimulation using plants can be beneficial for the elderly as they look for continuity and meaning in their lives (McBride 1999).

Sensory comprehension is comprised of the sounds, visual images, smells, and kinesthetic experiences that residents conceive (Zeisel et al. 1994). Sensory comprehension involves drawing upon past experiences in life. Sensory confusion must be avoided in gardens which include competing sounds or visual sights such as vehicles, music from different sources, traffic sounds, horns, or tires. The ideal sensory environment is meaningful and manages noise levels which allows for moderate amounts of sounds, sights, smells and other experiences (Zeisel et al. 1994).

Sensory stimulation resulting from interacting with nature, manipulating natural objects and observing seasonal changes can be a beneficial distraction from the everyday routine of the personal care home (McBride 1999). People with Alzheimer Disease may benefit from sensory interaction with plants due to their heightened sensitivity to mood, emotion and senses (Zeisel and Tyson 1999). Although it is common for people to ingest plant material in the later stages than

in the early stages of Alzheimer Disease, all plantings should be non-toxic (Hoover 1995).

Healy (1991) believes that experiences can prompt memories of home and of the past without requiring cognitive functioning. Examples of activities which may stimulate the sense are: smelling the fragrance of flowers, tasting ripe fresh fruit or vegetables from the garden, touching smooth leaves from trees or the soil which has been warmed by the sun. A study conducted by Witucki and Twibell (1997) indicated that sensory stimulation such as smelling flowers resulted in an immediate increase in psychological well being in a sample of people of advanced Alzheimer Disease.

Pets and other animals are a compatible complement to any outdoor space. Sensory stimulation may be achieved through a formal pet therapy program or through informal interaction with pets. Animals give residents something to nurture, something spontaneous to react to, something to interact with on an emotional level, and something to touch (McBride 1999). Studies have shown that visiting with pets can increase desirable behaviours such as smiling and alertness in residents (Thomas 1996).

Each of the eight goals described (safety & security, accessibility & outdoor freedom, independence, privacy & socialization, activity spaces, memory recall, wayfinding and sensory stimulation) are important components of a therapeutic outdoor space. Together, they create an environment that is supportive for people with Alzheimer Disease. This chapter presented many of the reasons why access to gardens is warranted for this specific population. The restorative effects provided through contact with nature as well as the benefits of gardening were reviewed. The chapter also outlined information regarding aging and Alzheimer Disease which is critical to consider when designing for this group. The next chapter, Spatial Strategies, is an assemblage of design criteria or factors necessary to consider when approaching a design project. The Spatial Strategies are intended to help achieve the eight goals of therapeutic outdoor spaces identified above.

CHAPTER FOUR *Spatial Strategies*

Figure 25

This chapter identifies a variety of different factors to consider when designing new or existing outdoor spaces for people with Alzheimer Disease. Much of the information provided specifically addresses the outdoor space at assisted living or long-term care facilities. However, many of the principles are applicable to the gardens of most living environments including personal residences as well as adult day care facilities. The principles or factors identified in this chapter are termed 'Spatial Strategies' and are comprised of design relationships, features, elements, and details to be included, considered or avoided in the design of outdoor space. The Spatial Strategies are organized and presented in three scales: macro, meso and micro.

The macro scale strategies include general planning issues such as the relationship of the garden to the building, the relationship of the user with the garden, the programming of the garden and the facility's care philosophy. The meso strategies include the types of spaces within the garden and principles of garden layout. The micro strategies focus on functional information such as design guidelines for sensory perception as well as information for the detailing of garden spaces (i.e. building and plant materials and site furniture).

The Spatial Strategies support the Goals of Outdoor Space identified in the previous chapter. Several examples of successful applications of these strategies are sited in this chapter through the use of images, plans and descriptions of outdoor spaces at facilities across North America and abroad.

SECTION ONE

MACRO STRATEGIES

The Macro set of Spatial Strategies address broad planning issues such as the relationship of the building to the garden including: adjacencies of living spaces, accessibility of the garden, relationship between functions of interior and exterior spaces, views into the garden, monitoring and placement of windows. Transition spaces and relationship to context are also discussed. Other issues are addressed such as: user/garden relationship, garden programming and the facility's care philosophy.

RELATIONSHIP TO THE BUILDING

This section clearly identifies the importance of considering exterior spaces in relation to the building/facility of which the garden is a part. Considering how a garden will function in relation to interior spaces should be included in the overall architectural design of the facility. Exterior spaces should not be considered as an afterthought; Landscape Architects should be involved early in the design process as they are integral to the analysis and planning process. The information provided in this section will be useful in the planning and design of facilities. The following topics address the many factors that affect the degree to which an outdoor space can be considered successful

Building & Garden Relationship

As discussed in the previous chapter, depending on the footprint of the building, outdoor spaces may be located in a number of different configurations in relation to the built form. Examples of outdoor spaces include: entrance gardens, interior and exterior courtyards, viewing gardens and roof gardens.

Figure 26: Interior Courtyard, Cooperidge, MD

Figure 27: Roof Garden, Alta Bates Medical Centre, CA

Proximity to Living Space - Adjacencies

An important factor that affects the use of a exterior space is its location in relation to interior spaces. There are many different types of care facilities, with or without specialized care units for people with dementia. In conventional care facilities, interior activity spaces may be located adjacent or distant from bedrooms and these activity spaces may serve a large number of residents. Special care units may emphasize home-like environments (see previous chapter for more information on special care and home-like environments) and may have indoor activity spaces designed for the sole use of the unit's residents. In either configuration, the most important factor is that the exterior space is located close to interior living areas. If outdoor spaces are

located near activity and living areas, residents will be more inclined to visit them. The greater the distance that residents need to travel to access outdoor spaces will directly affect the amount of time the outdoor space is used. Connection of outdoor spaces to living areas is vital to the continuity of circulation from interior to exterior spaces. An ideal living environment is a home-like environment in which a smaller number of residents are housed together in a unit and the bedrooms are located in close proximity to common areas and outdoor spaces are easily accessible from common areas.

Accessibility - Closed or Locked Unit


Figure 28: California Pacific Medical Center, Garden Campus

When determining the use of outdoor spaces, perhaps even more important than location is whether or not residents are able to access them. Again, there are many different configurations of interior spaces, units may be "closed" or locked in which residents with dementia are separated in a special care unit. If these units are located adjacent to an outdoor space that is accessible to them, then the configuration is ideal. If the outdoor space is not physically accessible, then the situation is less than ideal. Residents may have to be accompanied out of their unit in order to access the outdoors. This situation greatly impedes residents' freedom to choose when they would like to access the garden and is dependent on staff resources. This situation is further complicated by the distance residents have to travel in order to access the outdoor space. Facilities in which the unit is located on floors other than the ground floor provide the most challenge for accessibility. Possible options for upper floors include an outdoor space nearby (at grade level), balconies or rooftop gardens. However, these spaces have their own unique challenges. Balconies on upper floors are dangerous and are only recommended if they are fully enclosed.

Accessibility of a garden is directly related to a number of factors. The previous chapter reviews the Goals of Outdoor Space; these goals should be met in order to provide a successful outdoor environment. The most important factor identified is safety and security. If a space meets these requirements, then the doors should remain unlocked to the garden. The control of door locks is an entirely unique topic. This decision is based on a multitude of factors including the facility's philosophy of care, ratios of residents to staff, the attitude of staff, the visibility of the garden from the interior in order for staff to monitor residents, the policies of the facility (i.e. whether residents can access space independently or have to be accompanied by a staff member, family member or volunteer). Doors may be unlocked during particular times of the day or under favorable weather conditions.

Relationship of Interior & Exterior

Interior to exterior functions

Interior and exterior spaces can relate based on their functions. For example, outdoor activity areas can reflect indoor activity areas. Exterior patios are spaces for social gathering and can provide a direct link to the indoor social or activity areas. Adjacencies of spaces becomes important for connecting similar or compatible activities such as indoor and outdoor dinning areas. Cues provided by views from windows as well as an uninterrupted ground plane may help to lead a person outdoors. Providing a continuous route that involves both the interior and exterior can create a successful wandering path. In this case the transition area ground plane should as barrier free as possible.

Other considerations that help to provide an effective relationship between interior and exterior include proximity of essential features such as drinking fountains, refreshment areas and washroom facilities. Since incontinence is a common problem in care environments, washroom facilities should be located as close as possible to outdoor space. Distances from washrooms must be considered in overall planning. If possible, a washroom that can be accessed from the outdoors is an excellent design feature.

Figure 29: Washroom at Riverview Lodge, Wingham, Australia

Views into the garden

Providing views of the garden from the interior provides stimulation and encourages resident use of the outdoor space. According to Cohen and Weisman (1991), outdoor views from interior common areas will reduce the sense of confinement and provide valuable stimuli and information to residents. Views to the outdoors can complement interior spaces by providing interest. Residents may have the opportunity to admire the sky, clouds, or the colours of a sunset. Vegetation can provide a multitude of visual stimulation. These include the transformations throughout the year such as foliage bursting in spring, flowers blooming and bearing fruit, plants attracting insects, butterflies or birds. The wind or a gentle breeze can animate the leaves to rustle and flutter and the branches to sway. In autumn, the transformation as leaves change colour and

fall to the ground provides further interest. Trees, shrubs, and grasses provide unique forms to hold the frost, ice, and snow in winter. During each season, residents have the chance to observe birds, animals, and other wildlife interacting in their habitat and feeding.

Views to outside areas further assist residents with orientation to the time of day, season, and weather conditions. Lack of views to the outdoors and to sunlight can contribute to disorientation through the loss of awareness of time of day and the difference between day and night.

Monitoring

Views to the garden also assist with staff surveillance, allowing them to monitor residents. Cohen and Weisman (1991) believe that staff surveillance should be efficient and not disturbingly obvious to the residents.

The Forget Me Not garden in Scotland was designed by landscape architect Annie Pollock and gardener Rosalind Hume. The placement of the garden in relation to the building provides views from the interior, which helps staff to monitor the space. Planting between bedrooms and pathways and patio area allows for privacy on the interior while still providing views of the garden and plant material from within (see Figure 30).

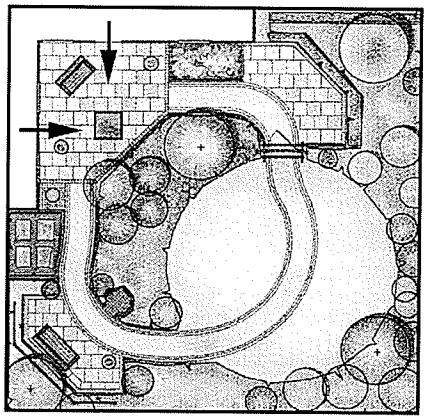


Figure 30: Plan of Forget Me Not Garden

Windows

The use of windows and their placement are vital in the relationship between interior and exterior. Windows control views to the garden as well as emit sunshine, fresh air, and light. Windows can cue and encourage residents to access the outdoors through fostering an awareness of the spaces or places to visit in the garden. Windows help to integrate the interior and exterior by providing views of nature, activity, destinations, landmarks, and focal points that help to attract them into the space.

Figure 31: Anton Pieckhofje, Haarlem, The Netherlands

Placement of windows requires careful consideration due to their effects on interior spaces. For example, windows should not be located at the end of corridors because the stark contrast between light from outside and the dark corridors can cause confusion in residents. Another important consideration is the view provided by windows from a seated versus standing position. For people in seated positions, windows placed low to the floor plane can help to increase visual access to outdoors. Planting outside windows is also important. In order to achieve uninterrupted views into gardens, Cohen and Weisman (1991) suggest low shrubs and trees, with canopies above eight feet.

Indoor atrium spaces are enclosed on all sides with an abundance of windows or skylights that capture sunlight and views to the exterior. Often filled with plants, these spaces also help to visually and physically connect residents with the garden. Ensuring adequate air circulation is essential, as are window treatments and finishes that can be used to control glare.

Views from residents' rooms are also an important design consideration. Although these areas outside residents' rooms are sometimes not accessible to the residents, stimulating views should be provided nonetheless. Garden boxes filled with seasonal plant material or the planting of trees, shrubs or perennials that vary in colour, form and texture can be incorporated to provide interesting views from residents' bedrooms. If the outdoor space outside a resident's room is accessible, then privacy must be considered. Planting can assist with providing a buffer between activity areas and residents' windows.

Gradual Changes in Lighting & Transition Spaces

People with Alzheimer Disease require high levels of evenly distributed illumination. Insufficient lighting conditions can be responsible for inactivity in residents, particularly walking. As the eye ages, it is less able to adjust quickly to changes in light levels. Therefore, gradual changes in light levels should be incorporated into all designs. Covered porches or other transition spaces are required between indoor and outdoor spaces to allow the eye adequate time in order to adjust. Overhangs and awnings also help to provide gradual change between light levels.

Figure 32: Willowood, Edison, GA

Transition spaces between indoor and outdoors will most likely incorporate a change in paving materials. These areas should be as smooth as possible with the thresholds of doors being of significant importance. Design elements to avoid in transition areas are changes in level, whereas seating elements are beneficial to include.

Transition areas may also be incorporated to simulate familiar activities or places. Porches provide a place to sit and observe activities in the neighbourhood and are often identified with relaxation. A porch can also serve as a visual landmark that signifies returning home.

Transition areas also encourage residents to have exposure to ambient light in an outdoor environment while being protected from the elements, especially the sun.

Relationship to Context

The context refers to the cultural and physical community that surrounds the facility. Views out of the garden provide a connection to the context of the facility. Views also foster a connection to the surrounding land and include the idea of the borrowed landscape. The borrowed landscape is physically inaccessible but visually accessible. It draws upon outward views of elements or features such as wilderness, forest, lakes, mountains, meadows, fields and residential neighbourhoods. At East Gate Lodge in Beausejour, Manitoba, the garden is located adjacent to an agricultural property. The view helps to incorporate these elements into the overall setting of the garden.

Figure 33: East Gate Lodge, Memory Garden

Figure 34: Rosewood Village, Winnipeg, MB

Some residents foster a desire to leave the confined space and explore their surroundings. In some cases, views outside the garden may encourage residents to try to flee the facility. Residents may wish to return home or to another place that is familiar. Views that residents may find disturbing include parking lots. In some cases, watching people come and go may make residents anxious because they are observing an activity in which they cannot participate.

Views of positive activities may also help to entertain residents. At Rosewood Village (see Figure 34), chairs are found lined up in a row in order for residents to watch the activity at a nearby athletic field or the trains that pass by on neighbouring tracks.

Views may be controlled through site features and amenities such as fences. At Riverview Health Centre in Winnipeg (see Figure 35), a combination of solid and semi-transparent fencing is used to accentuate or obscure views of the surrounding neighbourhood. In order to determine if a garden should incorporate views outward, one must evaluate whether the views would be positive or negative. This will depend greatly on the characteristics of the surrounding landscape as well as the needs of the user group.

Figure 35: Riverview Health Centre, Winnipeg, MB

USER RELATIONSHIP

Another important factor in determining how an outdoor space will function is the user relationship. User relationship encompasses whom the space is used by. The space may be used by residents, family members, facility staff, the public or any combination thereof. Clearly, the most important relationship is between the residents and the garden. Residents must be encouraged to have access to outdoor space and they must be able to choose to access the spaces whenever there is a desire. Sometimes, people with Alzheimer Disease will not initiate access to the outdoors. In these cases, cues are necessary to remind them that the garden is available to them, as well as facility staff who will propose that going outdoors is an option. User relationship is greatly dependent on the facility's procedure or process for accessing outdoor space, including if residents can access space independently or if they require accompaniment. The design of an outdoor space must also consider user relationship in regards to flexibility of use. Considerations include whether the number of users may potentially change due to levels of activity or gatherings. As well, the population may change over time due to residents progressing through different stages of the disease or a variety of resident abilities. Facility programming may also change.

THERAPEUTIC PROGRAMMING

Another factor that greatly affects the use of outdoor space is the facility's programming. Use of outdoor spaces should be integrated into the overall care program. This may be accommodated through combining different daily functions and activities with accessing outdoor space. A

variety of activities can be scheduled to take place outdoors, including dinning, crafts, physical rehabilitation, exercise, story telling and pet therapy. Essential to the use of outdoor space is staff attitude. Administration must give the directive that staff should encourage residents to access the outdoors and that staff should also be encouraged to join residents outdoors. Some facilities have guidelines making the use of outdoor space mandatory, if the weather permits. This may include a minimum number of times per day, week or month that residents are taken outdoors.

Horticultural therapy is another aspect of programming that facilitates the use of outdoor spaces for therapeutic purposes. Programs may be formal or informal and may include individual or communal gardening. Horticultural therapy is discussed at greater length in Chapter Three.

PHILOSOPHY OF CARE

As discussed in the previous chapter, a facility's 'Philosophy of Care' defines the intentions and purpose of the care program while defining the relationship with the physical environment (Brawley 1997). A significant aspect of a facility's philosophy is whether its administrators and staff recognize the importance and value of residents connecting with nature.

Eden Alternative

The Eden Alternative is an approach to care that was pioneered at the Chase Memorial Nursing Home in New York in 1991. The philosophy emphasizes the importance of interaction with nature to promote a vibrant, diverse, and harmonious environment (McBride 1999). Interaction may take place through contact with children, plants and animals. Approximately 450 health care facilities in the United States and Canada have participated in Eden training. In Winnipeg, the Eden Alternative is utilized by Lions Housing Centres. The core concept of the philosophy is that care environments are habitats for human beings rather than institutions for the elderly and they nurture the human spirit as well as the human body. This distinct environment promotes the idea of a garden as paradise and that life lived close to nature involves plants, animals and humans growing and thriving together (Lions Personal Care Centre 2001).

Another aspect of a facility's philosophy is the degree to which it supports a home-like environment. Elements of a home-like environment were discussed in the previous chapter. These include small or residential scale development, areas of lawn, comfortable furniture and quiet atmosphere.

SECTION TWO

MESO STRATEGIES

This section describes the planning and organization of gardens for people with Alzheimer Disease. Issues are addressed such as the types of spaces found within the garden, and the elements that should be considered when determining garden layouts. These include microclimate, landmarks, sitting areas, pathways, and edges. Therapeutic components of gardens are also discussed including memory recall and the importance of interaction with plants, birds and animals.

TYPES OF SPACES

A garden designed for people with Alzheimer Disease should incorporate a variety of spaces, each with unique intentions. An important aspect of these spaces is that they are considered to be 'places', each with distinct characteristics and recognizable features. Places can actively cue residents' behaviour, promote activity and interaction or imply social interchange or private reflection. A selection of spaces should be provided in order to provide options for residents. For instance, is there seating available in places where groups congregate and places for a person to find solitude? As well, how the space functions under different seasons or climatic conditions should also be addressed. For example, are there seating opportunities in both sunny and shaded locations?

In addition to the environment being home-like (refer to Chapter Three), spaces should be comfortable and should provide a sense of security for both residents and staff. If residents are confident that spaces and features are safe, supportive and well maintained, they are more likely to trust and utilize the garden.

Types of spaces include socialization spaces, private spaces, and garden types. There should be an ordering system, which implies a hierarchy of spaces within the garden from public spaces to semi-private to private spaces. Christopher Alexander (1977) refers to this concept as an 'intimacy gradient' in which there is a sequence of spaces as one moves away from the building. (Public areas are close to the building, leading to more private areas and then further to the most private areas.)

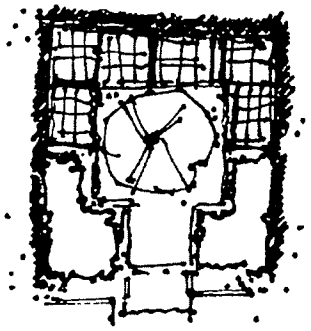


Figure 36: Sequence of Spaces

Socialization Spaces

Spaces should be provided to accommodate group activities as well as places for residents to visit with family members. Places that accommodate activities or group gatherings include flat hard surfaces such as patios, porches and terraces. Activities and special events such as birthday celebrations, national holidays, barbecues, picnics, concerts, tea parties, games, and plays may take place on a patio and even disperse onto an open lawn area. Social gathering spaces should consider programmed as well as impromptu events and activities. Tables and chairs should be provided that are movable and can change their arrangements to accommodate dinning outdoors, gardening or other activities. Weather permitting, many activities can take place outdoors such as crafts, horticultural, physical or occupational therapy, or storytelling.

Spaces should be provided for residents to visit or engage in activity with family members. Administrators at the Alzheimer's Care Centre (Gariner, Maine), Sunset Haven (Welland, Ontario), and Minna Murra Lodge (Queenland, Australia) found that family members and residents prefer to visit outdoors rather than alternative indoor locations (Cohen and Day 1993). Spaces for families are important features for residents, as facilities become their home and hosting loved ones can encourage a sense of belonging. Areas for use by grandchildren are often incorporated into the garden and may include playstructures. These provide residents with the opportunity to observe children at play. Features such as basketball hoops (see Figure 37) provide activity for residents and visiting grandchildren.

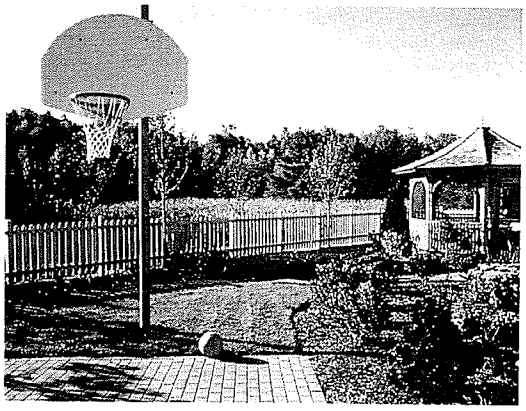


Figure 37: Sedgeworth Commons, ME

Private Spaces

In addition to socialization spaces, places for residents to be alone should be incorporated in the garden. These spaces can accommodate passive activities and promote a sense of intimacy. These spaces can also encourage contemplation. Privacy spaces can be incorporated into the garden for use by individuals, couples or small groups. They are places for users to feel that they are 'away' and removed from activity areas or social spaces. For example, a garden seat located in a comfortable microclimate can allow for privacy.

Figure 38: A quiet place to rest

The most important feature of private spaces is that they should promote feelings of intimacy, yet they should still be visible for staff to monitor. The key to the success of surveillance by staff is that residents are not aware that they are being monitored. Depending on the size and configuration of the garden, staff may be able to monitor residents from other areas of the garden or from inside the facility.

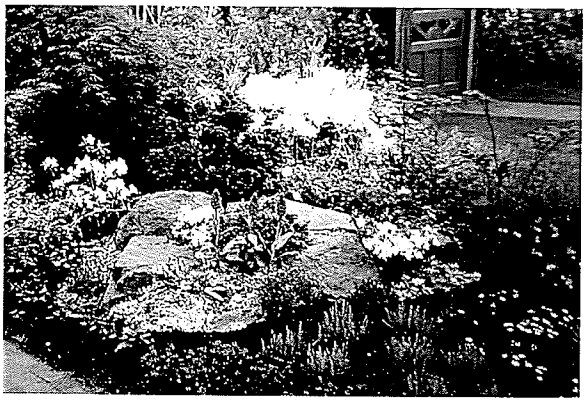


Figure 39: Forget Me Not Garden, heather and rock garden

Types of Gardens

Plant material can be artfully arranged and organized into a variety of types of gardens. Different types of gardens include: cutting, perennial, annual, vegetable, herb, edible plants, theme garden such as water gardens, rock gardens or native species.

Pollock (2001) suggests selecting plant materials that reflect a particular theme based on geographical location, microclimate or local culture. The Forget Me Not garden features a heather and rock garden (see Figure 39). A distinct and familiar character allows for gardens to become symbolic places that reflect context. These elements help to evoke long-term memories in residents.

Growing and harvesting vegetables can be therapeutic for residents. At the Lac du Bonnet Personal Care Home, residents are involved with planting and caring for tomato and cucumber plants. Together with staff, they harvest the vegetables, wash, peel and taste the product of their efforts. Horticultural therapy activities may also include planting seeds or seedlings, watering and pruning plants, and plant propagation. Garden materials may also be used for creating crafts. More challenging activities include: weeding, hoeing, digging, and raking.

At the Clotide Irving Sensory Garden located at the Minneapolis Arboretum, a variety of herbs are grown. Each plant is labeled and visitors are encouraged to feel the varied textures of the foliage and flowers or to taste the leaves. The scents easily transfer to the fingertips and are enjoyed.

GARDEN LAYOUT

Garden layout involves the ordering of spaces and places within the garden. The structure, composition, or framework of garden design encompasses defining spaces, layering spaces and creating transition spaces in between. How spaces relate to one another can assist with orienting a resident within the garden. Major planting elements can serve as the foundation for the garden as they provide definition and a reflection of character within the garden.

Ordering of spaces within the garden can assist with wayfinding through providing a clear sense of direction within the garden as well as a distinct starting point or home location. Often, the starting point is a transition space from the interior to the exterior of the building. Gardens function through the arrangement of features and elements within the different areas of the garden. The mobility of residents must be considered, allowing for features or elements placed at shorter distances.

Microclimate

Garden layout is often determined by microclimate. According to Lovering (1990) the four external environmental factors that are crucial to the use of a personal care home's outdoor space are: protection from wind, availability of shade, protection from glare, and absence of temperature extremes. Gardens must be able to adapt to the extremes in temperature provided by the changes in season. An area that might be too warm in summer might have an ideal microclimate in spring and fall. In the Winnipeg region, the northwest wind is prevalent during fall and winter and protection must therefore be provided. Coniferous plantings, walls and other mechanisms may be used to block or dissipate the wind. Seating areas should take advantage of windblocks.

Varying amount of shade should be provided for residents in outdoor environments. Shade as well as protection from the rain can be supplied by overhead structures, awnings, and porches. Partial shade and filtered light can be achieved though planting of trees or using adjustable umbrellas. Adjustable umbrellas are successful in controlling light conditions through the flexibility of angles, their ease of relocation and their ranges of translucency.

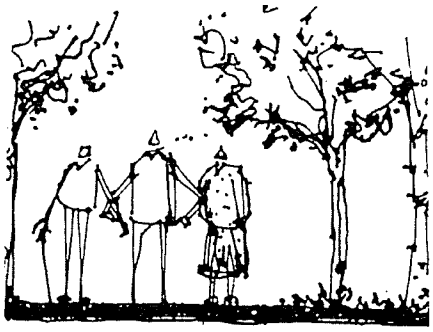


Figure 40: Trees provide shade

Trellises and arbours can provide partial shade and shelter as well as areas of intimacy. Climbing plants and vines can add texture, colour and further protection from the elements. Wood, free of rough or sharp edges is recommended for structures.

In the Winnipeg region, accommodations should also be made to provide certain areas that are free from insect pests, especially mosquitoes. Enclosed transition areas, porches and gazebos can provide refuge for residents in the seasons where insects may be a problem.

Winter use is a difficult subject in the Winnipeg region. Most facilities do not take residents outside during the winter months since outdoor paths are not usually cleared of snow and ice. At the Bethania Behaviour Treatment Unit in Winnipeg, however, the outdoor wandering loop is often cleared for residents who enjoy walking in winter. Views to the exterior are important to capture

and highlight in the winter months, when residents are least likely to have physical contact with the outdoors. Snow and ice sculptures, animals and birds feeding on berries and from feeders provide interest for residents.

At the Charlestown Senior Campus Living Community Care Centre in Cantonsville, Maryland in the winter months, residents bundle up in outerwear and use the tables and chairs in the facility's courtyard.

Figure 41: Ice Wall in Hesttoniemi, Finland

Landmarks

Landmarks in the garden can be spaces, destinations or elements/artifacts. They are reference points that cue residents and create incentive for people to move about and explore. Landmarks and the views towards them provide orientation within the garden. If a landmark that is familiar is located at the start/returning point along a path, it will help a person know that they have returned to their point of origin. According to Zeisel and Tyson (1999), a critical landmark in a garden designed for people with Alzheimer Disease is the door to get back inside the building. If there is more than one door, the main door should be more prominent than the other(s).

Figure 42: Potting Shed, Chemanius

Landmarks may be large in scale and highly visible throughout entire garden spaces. Landmark items may include arbors, gazebos, or garden structures. Landmarks should be distinctive and for people with Alzheimer Disease, relevant or from their past. A potting shed (Figure 42) may be considered to be a typical backyard feature of prairie provinces and is found in the Prairie Garden at the Chemanius Health Care Centre in Chemanius.

Trees and shrubs can be used as landmarks and can assist in wayfinding. The effects of plant material must be considered during each season. Landmarks can also be site furnishings, sculptures, gardens, trellises, fountains, trees, and seating alcoves.

Figure 43: Bear Sculpture, Boston Children's Hospital, MA

Landmarks can also be outdoor rooms. Christopher Alexander (1977), describes outdoor rooms as places that are partially enclosed by elements such as a roof, columns, or a trellis.

Smaller scale landmarks serve as successful focal points in the garden. Focal points can provide diversion, destination goals and relief from the interior environment and motivate residents to go outside. Examples of focal points include bird feeders, garden ornaments, weather vanes, and flower and fragrant gardens (Lovering 1990). At the Villa Guadalupe in Gallup, New Mexico a wooden wagon is a historical artifact tha adds interest assists with memory recall (see Figure 44).

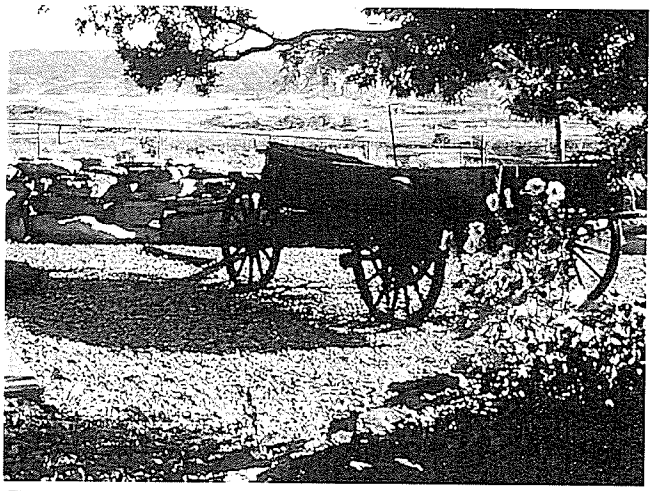


Figure 44: Villa Guadalupe, New Mexico

Sitting Areas

Various types of sitting areas should be provided for residents in diverse locations within the garden. Cohen and Weisman (1991) suggest locating seating areas near entranceways, near planned activity nodes, in tranquil and private sections, and along circulation routes. One of the most critical seating areas is found very near the entranceway in the transition area from the interior of the building. Here, residents who are not comfortable with venturing too far from the security of the building, can enjoy the garden. The patio area of the Forget Me Not garden is the first space encountered as they enter the garden. It is a social setting where recreational activities, barbecues, gardening with potted plants and group activities take place. Seating is provided for residents to participate or watch the activities.

Figure 45: Forget Me Not Garden - patio

Seating should be provided that accommodates social interaction as well as a quiet rest. Seasonal changes as well as climatic conditions should be considered when locating seating. Some residents will prefer sun, but many will choose a shady place to sit.

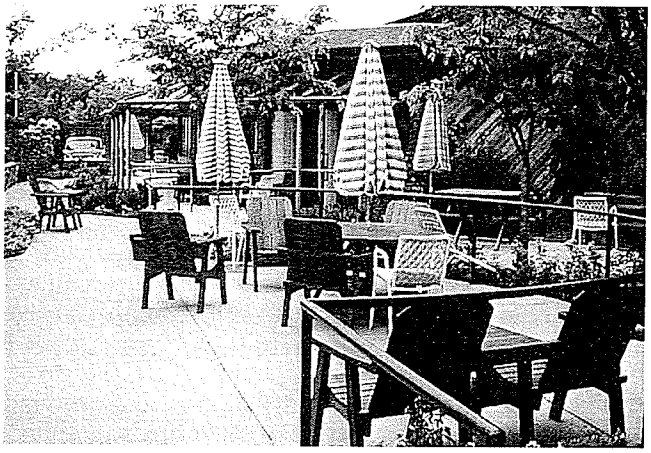


Figure 46: Movable seating at the Oak Bay Kiwanis Pavilion, BC

Figure 47: Bird Feeder at Forget Me Not Garden

Seating may be fixed such as anchored benches, seat walls, edges of planters or movable chairs. Adequate space should be provided beside fixed benches for wheelchairs. In addition to providing a variety of seat styles for comfort, flexibility of seating should also be considered. Elements such as chairs, can be moved within an environment to accommodate various needs. Particular activities and climatic conditions need to be accommodated and seating arrangements should be easily transformed to meet the residents' needs.

The views from seating areas should be considered. Providing a landmark or focal point can provide interest. In the Forget Me Not Garden residents view a bird feeder from an adjacent bench (see Figure 47). Other amenities should be considered when designing seating areas such as the opportunity to sit and touch the plant material, especially stimulating textures.

Arranging furniture is crucial to social interaction. According to Lovering (1990), side by side seating in not conducive to social interaction and makes eye contact and hearing difficult, face to face seating makes some people anxious by forcing eye contact while seating placed at 90 degree angles is more comfortable for interaction.

Pathways

Pathways can serve as places unto themselves and can provide linkages and circulation to and from spaces within the garden. Paths encourage walking and are used to move from destination to destination within a series of spaces, nodes, or alcoves along the way. Paths can divide two spaces and provide separation between areas. Pathways may also assist with wayfinding through providing contrast from other hard surfaces, lawns or planting areas. For example, at

the Forget Me Not garden, the colour of paving materials is used to differentiate a pathway from a sitting area. In addition to colour contrast, pathway textures or materials can also assist with wayfinding.

According to Pollock (2001), when designing a path for people with Alzheimer Disease, paths should lead back to their point of origin and abrupt changes in direction and dead ends should be avoided. Paths that circle back to starting point have a distinct beginning and end, and promote a feeling of returning home. This assists with orienting a resident within the garden. Where space allows, paths should include short cuts that provide a clear choice for residents and an easier route to return to the starting point. Secondary routes should be narrower than primary pathways. According to Zeisel and Tyson (1999), shortcuts should be placed at 90 degrees to walking paths in order to present the greatest choice for residents as well as the least amount of confusion.

Pathways can include areas of socialization or lead to places of privacy. They may offer locations that shelter residents from the sun and wind. Pathways often take the form of an informal or formal loop with familiar objects and plantings helping to assist with wayfinding. Pathways can also encircle landmarks, with the landmark serving as a defining feature of a particular circulation route. When designing pathways, Alexander (1977) suggests to define points of interest first, then connect one another to form the paths.

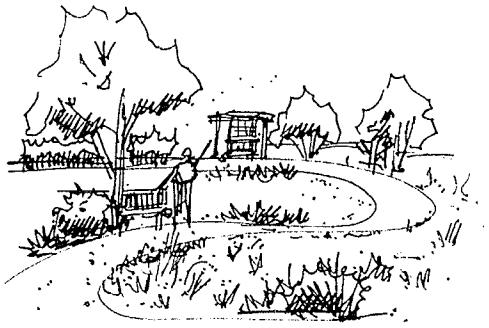


Figure 48: Strolling path

Pathways should incorporate nodes, which include rest areas or seating areas along the way. According to Zeisel and Tyson (1999), nodes are hubs of activity or places for gathering or stopping along circulation routes. Nodes may be destinations or areas where paths cross or converge. Alcoves (see Figure 49) are more significant nodes that become small places along a circulation route. Here residents may sit and relax with one or more other people.

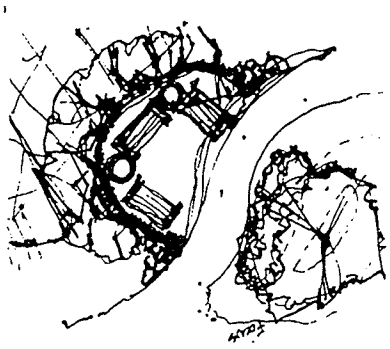


Figure 49: Alcoves are places to visit

Edges

Edges can be implied boundaries or physical barriers and help to spatially define spaces or enclose the entire garden area. They may be fences or walls that are necessary for security. The heights of fences vary for different or distinct levels of security. Edges can delineate changes in vertical and horizontal surfaces. Walls, hedges, structures and planting can act as an edge to define spaces.

Figure 50: Raised Edging

Curbs are edges that are used to define paths and planting areas. The Forget Me Not garden (Figure 50) has implemented a raised edge to distinguish planting area from pathway, which assists with wheelchair use by stopping the tires from slipping into the planting bed. The edge also helps to contain soil within planting beds. Edges can also deny access to certain areas by providing a barrier in order to discourage rather than encourage use. Curbs located along pathways may inhibit residents especially those in wheelchairs to access an adjacent lawn area. In order to encourage residents to explore lawn areas, no physical edge or level/grade change is recommended. These edges should be well defined through colour, contrast or texture in order to signal to residents that a change in surface occurs.

THERAPEUTIC COMPONENTS

Memory Recall

Figure 51: ADARDS, Tasmania, Australia

Essential functions of symbolic cues in the garden include orientation to time and place as well as memory recall (Zeisel and Tyson 1999). Symbolic cues include elements that are familiar to residents through visual, auditory, or olfactory connection. Planting can be successful for orienting a resident to the season or time of year.

Figure 52: Alzheimer's Care Unit, Chemanius Health Care Centre, BC

The benefits of memory recall were discussed in the Goals of Outdoor Space in Chapter Two. According to Pollock (2001), since people with Alzheimer Disease retain their long-term memory, items may be placed in the garden that trigger memories from the past. These items should relate to the context of the facility including local culture and background of the residents. Other memorabilia suggestions by Pollock include: post box and a bus stop as well as rabbit hutches, aviaries, chickens, ducks, cats and dogs. Areas and features that aid in residents' ability to reminisce should be provided in the garden and should reflect past culture or common activities Stimulating cultural memories can be achieved through features such as porches, hand pumps, and clotheslines.

Interaction with Plants

"Plants create living dimensions of gardens far beyond any other elements."

(Zeisel and Tyson 1999:454)

An important feature of gardens is the opportunity for residents to interact with and observe plant material. Plants provide sensory stimulation as they change with the seasons. They have distinct life cycles and their appearance transforms as they grow, change, produce leaves, flowers, fruit and berries, and undergo dormancy or demise. Gardens provide a medium for interaction where residents, families and staff can all participate in the care of plants.

Figure 53: Montreal Botanical Garden, PQ

A rich palette of plant material is available for most climatic zones. Varieties of shrubs, perennials, annuals, grasses and herbs can be selected to thrive in each particular geographical location. Plant material can be grown in beds, raised planters, or potted as well as on trellis, espaliers or walls.

Potted plants are extremely flexible and can be moved to tables or even indoors for residents to care for them. All plant material in a garden for people with Alzheimer Disease should be non-toxic, including the leaves, stems, bark, flowers and fruit. Maintenance of plants should always be considered when selecting plant materials such as requirements for frequent pruning or watering. The litter provided by plants should also be considered. Plants that drop fruit or leaves in a location where they will decompose and provide a slippery surface should be avoided as well as fruit that may stain paving. As well, no harmful chemicals and pesticides should be used in the garden to avoid the danger of possible ingestion by residents. Other safety issues include the proper storage and supervision of use of pruning shears, scissors, and other sharp implements.

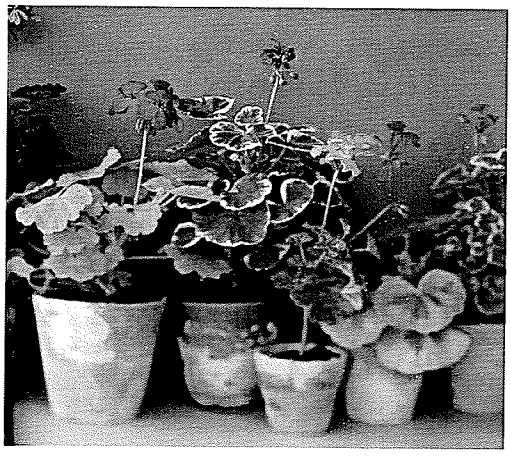


Figure 54

Interaction with Birds & Animals

Important features of healthcare gardens are opportunities to view or interact with birds and other animals. Facilities can also house a resident domestic pet such as a dog, cat or rabbit or incorporate 'wild' nature into their gardens. Sometimes, as with the ADARDS Garden in Australia, species that reflect local culture such as chickens are incorporated into the garden (see Figure 55). Particular species of plants can be selected that attract specific animal species. Trees and shrubs can provide habitat for rooting or nesting birds and meadow species can attract certain species of butterflies. In Manitoba, the Monarch Butterfly is drawn to milkweed. In the winter months visual interest can be provided for residents through brightly coloured berries on trees and shrubs which attract birds and squirrels. Other features can be included such as bird feeders, birdbaths, and birdhouses.

Many existing personal care homes and dementia treatment units have resident pets to provide comfort and companionship. Research has proven that the presence of animals helps people with Alzheimer Disease through reducing depression and increasing self-esteem (The Pet Connection 1995).

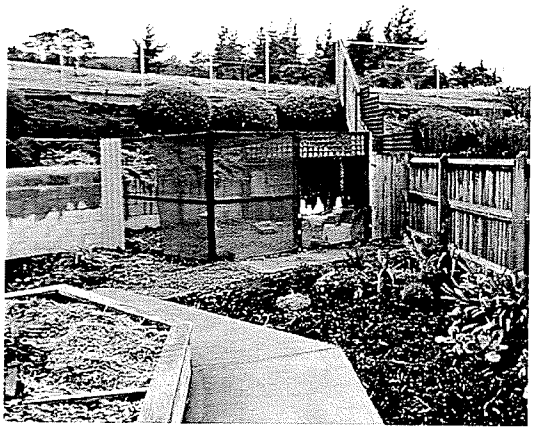


Figure 55: Chicken Coop at ADARDS, Tasmania

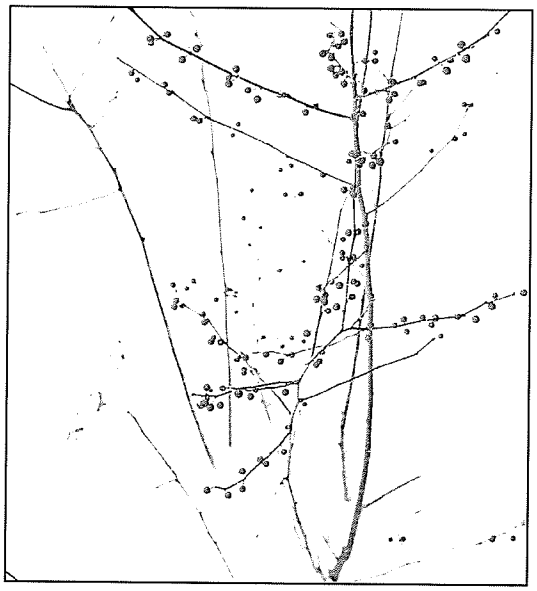


Figure 56: Winterberry

Figure 57: Alzheimer's Care Centre, Gardiner, ME

SECTION THREE

MICRO STRATEGIES

The micro strategies focus on functional information such as design guidelines for sensory perception. These strategies address design elements that people with Alzheimer Disease have difficulty perceiving visually. They also describe olfactory and auditory stimulation as well as the stimulation qualities provided by plant material. The detailing of garden spaces such as building materials and site features and furniture are also specified.

SENSORY PERCEPTION

Patterns & Texture

People with dementia have difficulty perceiving patterns. Patterns on the ground may even appear to move which causes confusion and disorientation. According to Brawley (1997), the unsettling effects of patterns can contribute to a feeling of imbalance and will result in immobilization.

When selecting patterns for paving and site furniture, some patterns can stimulate responses varying from uneasiness and nausea to unsteadiness. The most detrimental are complicated geometric or undulating patterns as well as bold stripes. Some unit paving patterns may appear to undulate and should be avoided. Paving with as little pattern as possible, while avoiding surfaces that may be too smooth, is recommended. Textures such as granular materials, textured concrete or asphalt are acceptable options. Patterns of other elements within the garden can interfere with a resident's concentration needed to perform activities. For example, table clothes and placemats for outdoor eating, activity tables or planting tables should have no pattern.

Texture can provide valuable stimulation in a long-term care environment and may stimulate thinking, responsiveness and memory recall (Brawley 1997). Providing texture for residents can be achieved through visual means or touchable surfaces. Some examples of textured elements include: paving materials, foliage, leaves, flowers, bark, berries, grasses, site furniture finishes, cushions and fabrics, and wood details. Lawns provide texture and residents can be encouraged to experience the feel of the grass when barefoot. Animals can also provide texture and stimulation through visual and therapeutic touch.

Sun Reflectivity & Glare

As the eye ages, glare affects both vision and balance. Two types of glare that affect the functioning of people with Alzheimer Disease are 'direct' and 'reflected'. Direct glare usually occurs indoors and is the result of bright light entering through a window. Reflected glare occurs both indoors and outdoors from bright light rebounding off a smooth reflective surface. These areas of reflection may be so intense that they are almost blinding and include highly polished metal surfaces, plastics or high gloss finishes.

Reducing glare promotes comfort, which helps to decrease incidence of falls and increase attention span. The negative effects of glare can lead to behaviours such as confusion, agitation and anger. Outdoor activity may be inhibited by glare.

Shadows

Shadows may be perceived of as frightening and can lead to agitation and confusion. Consistent lighting helps to eliminate shadows. When shadows and bright light converge, an illusion of steps or edges is created. Disturbing shadows patterns can be created from trellises or lattice and should be avoided, especially over pathways.

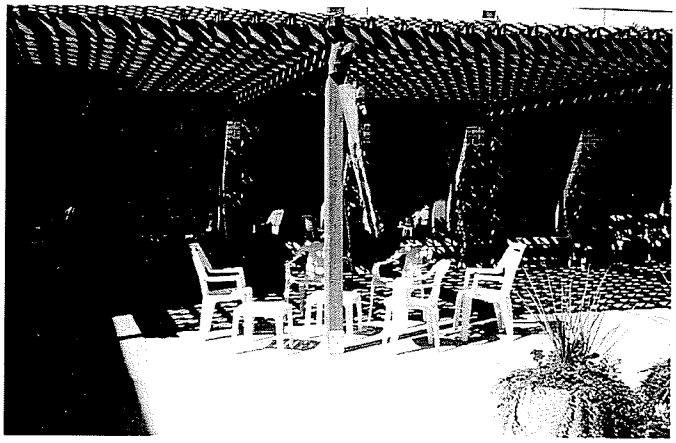


Figure 58: Donwood Manor, Southeast Courtyard, Winnipeg, MB

Contrast & Colour

According to Birren (1983), green is the colour most often identified with plants and nature and symbolizes growth and life and is analogous with pleasant odors and tastes.

People with Alzheimer Disease require high contrast (between light and dark) in order to differentiate surfaces, objects and planes. Clear distinction is needed between vertical and horizontal planes. This can have an effect on the treatment of walls, ground surfaces, edges of site furniture, planters, retaining walls and pathways. According to Brawley (1997), balance is adversely affected when the distinction between planes is not clear and results in a fear of falling. This can, in turn, immobilize residents.

Figure 59

Colour and contrast can assist residents with orientation and wayfinding. High contrast is most effective in increasing residents' visual function (Brawley 1997). According to Arditi (1995), some guidelines for using colour include: exaggerating contrast between foreground and background, selecting dark colours (blue, purple and red) against light colours (blue-green, yellow and orange) and avoid contrasting hues from adjacent parts of a colour wheel. Black against white has the highest amount of contrast but other successful choices for good contrast include: light colour against black, dark colour against white, light yellow against dark blue and dark red against light green (Brawley 1997).

Like shadows, sharp contrast between colours on the ground plane can be perceived as a hole, trench, step or change in elevation and should be avoided.

Olfactory

Smells advance to a person's brain more quickly that sight and sound (Brawley 1997). Emotion and memory processes are part of the limbic system, which is immediately related to olfactory system. Therefore smells are directly linked to emotion and can trigger memories from the past.

Pleasant smells can be soothing and can help to promote relaxation. In the garden, residents can enjoy the fragrances of flowers, grass, coniferous needles, rain, or soil. Overstimulation can occur where too many fragrances compete and dominate in a particular area. Consequently, designers should be cautious when selecting plant material. One solution is to select plant material that is very fragrant in combination with plants without any scent while providing other stimulation through features such as colour, form or texture.

Acoustics

A garden can provide a multitude of acoustical experiences that residents can enjoy. The sound of a gentle wind, for example, can be therapeutic and soothing as it rustles leaves and foliage. In the Winnipeg region, Trembling Aspen provide a familiar sound and if heard in a garden, can stimulate long-term memories for residents. In the hottest months of summer, the sound of a breeze can instill a refreshing feeling associated with cooling off in the heat. The sound of children playing as well as bird and squirrel calls can also provide interest and entertainment for residents.

Some people with Alzheimer Disease are unable to make distinctions as to the location of a noise and understand its meaning and are unable to find an appropriate response (Brawley 1997). Limiting the amount of background traffic noise from nearby streets is important for creating a relaxing setting in the garden. Garden location should be considered when planning a facility in order to determine the most suitable site. The building mass that surrounds interior courtyards provides an ideal buffer. If a garden is already located in an area with an abundance of noise, then

planting can help to reduce or filter noise pollution. Mechanical sounds and air conditioners in the garden can also be disturbing for residents and placement should be limited to viewing gardens (where they can be screened) rather than in accessible gardens.

Water Features

With careful attention to detail, the use of water features in the garden can be a successful multi-sensory feature. According to McBride (1999), fountains act as focal points to help with orientation and wayfinding. They also promote visual, auditory, kinesthetic and tactile stimulation. The natural sounds created by fountains and other water features may have more positive benefits than negative side effects (Zeisel and Tyson 1999)

Resident safety is the most important issue when selecting a garden water feature for people with Alzheimer Disease. Water features such streams, fishponds and brooks are most often avoided, but if desired, they should be shallow and have a distinct edge providing a barrier for access. Standing water has a reflective surface that may be confusing for residents since it can contribute to glare. Water that moves slowly, just covering its fountain or waterfall setting, can be a successful sensory stimulation feature.

Although the dripping sounds of a water feature may contribute to problems with incontinence, simulating the light sound of rain is an effective alternative feature (Cardenas Ruga 1996).

Plant Material

Plant material is valuable for sensory stimulation through its visual, tactile, and olfactory qualities. According to Pollock (2001) seasonal planting should be rich in familiar fragrances and colours to visually soothe rather than over-stimulate. A palette of plant material should be selected that links to the generation which the garden is being designed for. The designer must consider the plants that were popular approximately forty years ago.

Figure 60: Petunias

Edible plant varieties should be incorporated as well as non-toxic planting. The Corinne Dolan Alzheimer's Centre in Ohio is a fenced 2-acre park with a garden that incorporates 90 species of non-toxic plants. All parts of the plant should be considered for the possibility of being poisonous or irritating for skin, including berries, fruit, leaves, flowers, and stems. Other potentially dangerous features of plants include the presence of thorns or spines. (Please refer to Appendix C for a list of non-toxic plant species).

Plants provide stimulation for each of the five senses. Visual stimulation is achieved through colour and plant material should contrast and employ bright colours (colour combinations discussed previously in this section). Diversity in visual texture can be achieved through leaf shape and size, bark texture, and overall plant size and form. Olfactory stimulation is provided by fragrance. Flowering fruit trees are often used for their seasonal display because they are heavily scented and display a burst of colour each spring.

Figure 61

Plants contribute towards auditory stimulation through their interplay with the rain and wind. Tactile qualities of plants occurs through the texture of leaves, bark, blossoms, and taste senses are stimulated by edible leaves, fruit and berries.

The shadow patterns provided by trees should also be carefully considered because strong patterns may appear as something to step over. In winter, visual stimulation can be provided by the colour and texture of bark or berries, branching pattern and snow clumping on and covering dormant plant material and coniferous trees and shrubs.

MATERIALS, DETAILS & SITE FURNITURE

Paths & Paving

Paving surfaces can help decrease the chances of falls. Paths should have distinct edges to provide definition between pathway and surrounding features through the use of borders, raised edges or high visual or textural contrast. Paths should be level and constructed of non-slip surfaces; texture should provide grip even during wet conditions. Garden paving surfaces get saturated from rain as well as from maintaining plant material. Surfaces should be graded 1.5 to 2% to allow for proper drainage. Pooling of water contributes to increased glare and decreased traction. Paths should be consistent or even and void of cracks and uneven spots. If cracks are present, weeds can grow up and affect surface texture that affects mobility. All joints should be smooth and any transition areas not too abrupt.

Figure 62: The Meadows, Hammondville, Australia

Paths should be resistant to glare. The lighter the colour, the more glare; white or light surfaces should be avoided. Mediums to dark values or warm hues are recommended. Both concrete and asphalt are commonly available in a variety of hues. Paving surfaces should have a matte rather than polished finish to reduce glare and assist with traction. Individual spaces should have a uniform texture and colour. Different materials, colours or textures can be used to define areas of circulation or rest. As well, particular colours or textures can act as deterrents for residents.

Figure 63: Oak Bay Kiwanis Pavillion, Victoria, BC

Paving materials should be residential in scale. Rough paths and abrupt changes in materials should be avoided. Pollock (2001) does not recommend loose aggregates such as crushed limestone, brick, gravel, or bark mulch for walking as people with dementia often have a shuffling gait. If using pavers, a broken bond pattern minimizes intersections and joints more than a grid pattern. Catch basins and manhole grates should be carefully integrated into paving.

Trees that drop fruit may cause staining and are hazardous for slipping, especially after they begin to decompose. The decomposing fruit may also attract bess and wasps. Therefore, their use or placement should be carefully considered and evaluated.

Pathways should be conducive to both walkers and wheelchairs. According to Pollock (2001) steps or sudden changes in level should be avoided as they are not universally accessible and can be disorientating. Ramps should be no steeper than 1:15 and handrails are imperative. Places to lean or stop to rest should be integrated.

Handrails

Handrails provide the support necessary for some residents to utilize outdoor spaces. They can assist with balance, support movement, and reduce anxiety of falling and should be comfortable to grip and designed to accommodate arthritic hands. Handrails may be placed so they do not inhibit interaction with plant material.

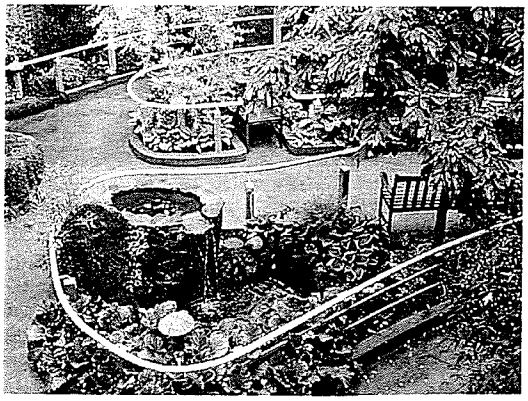


Figure 64: The Lodge at Broadmead, Victoria, BC

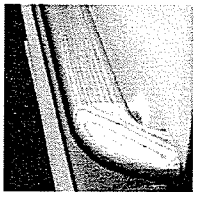


Figure 65

Brawley (1997) recommends handrails with an oval shape and a broad flat surface to provide a surface conducive to grasping (see Figure 65).

Appropriate Seating

According to Cohen and Weisman (1991), the type of seating provided in an outdoor space is a primary determinant of use and success. Gardens should provide a variety of seating and styles and sizes that may be fixed or flexible to accommodate activities, gatherings, or climatic factors. Brawley (1997) suggests grouping chairs at right angles because it is psychologically more comfortable than sitting face to face.

Anthropometrics should be considered and benches and chairs should have backs and arms for support. As well, armrests also help to achieve a sense of territoriality and separation from others (McBride 1999). The arms of appropriately designed chairs should extend beyond the seat. Research conducted by Finlay et al (1983) found that 77 % of residents who normally require assistance to get out of a chair, were able to do so independently if the chair had arms 10 inches (255 mm) above the seat and the height of the seat was between 16 and 17 inches (400 and 430 mm). Seating should also allow residents to place their feet underneath to gain balance when rising.

Stability is a significant issue with seating and therefore, casters should be avoided on chairs. Swinging or rocking furniture can be successful, if designed to adequately support residents. The swinging or rocking motion can have a calming effect for residents. Seating can be double functioning such as ledges found on planters and walls.

Figure 66: Clotilde Irvine Sensory Garden, Minnesota

Texture can be provided for residents through the use of a variety of materials including wood or wicker although all site furnishings should have smooth edges, rounded corners and non-reflective surfaces. The character of site furniture should be residential rather than commercial. Site furniture must also be wheelchair accessible. For example, wheelchair arms should fit easily under tables.

Raised Planters & Movable Containers

Figure 67: Clotilde Irvine Sensory Garden, Minnesota

Figure 68: The Forget Me Not Garden

Raising plant material through the use of planters and movable containers is the most common way to make plant material accessible. Having plant material raised makes it easier to see, touch, smell and interact with.

Elevated gardens are accessible for residents in wheelchairs or for people who have difficulty bending. Raised planters should be raised from the ground plane 24"-36" (600-850 mm). In order for residents to work with plants directly in front of them, planters should be designed for chair or wheelchair arms to fit underneath. The 'work area' within a raised planter should be close to the perimeter for residents, in order for them to reach the plant material. Planters with edges for sitting or leaning on are also interesting features in a garden. Planters should be constructed of materials that can withstand a variety of conditions including strong sunlight and wetness from watering. Deterioration of materials through age must also be taken into account (i.e. the cracking and splintering of wood).

Tables can provide flexible work surfaces for activities with potted plants. Movable planters can also be convenient for the changing needs of resident groups as well as climatic conditions.

Fences

Fencing can provide protected enclosures without the feeling of being confined. Residential scale materials that reflect the local context and that are familiar are recommended. Fencing can be used to frame views to the neighbourhood or other interesting features such as groves of trees, forest, water, or mountains. Obscuring a fence with planting and other features can provide double protection for residents who are inclined to climb fences. Other ways to discourage climbing include the use of vertical members without any horizontal members facing inside the garden. Trees, trellises and other structures may be used as climbing aids to assist a resident with

getting over a fence and should be distanced from fencing. Gates, locks, and latches should be camouflaged in order to prevent residents from trying to exit the space. Gates within a garden space that are not a barrier can provide interest by allowing residents to open and close it at their own will. They should be simple to use and swing from either side.

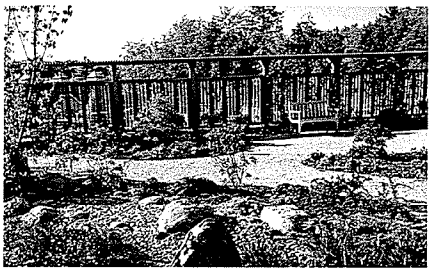


Figure 69: Millay Garden, Sedgeworth Commons, ME

Fencing materials include wood, wrought iron, pvc, chain link, or combinations of each. Chain link is not recommended due to the ease which it can be climbed. Brawley (1997) recommends a fence height of 6' (1.8 m). Other options for enclosures include hedges and stone or brick walls, which can be combined with plantings or climbing plants.

Lighting

Lighting should be provided in gardens to encourage evening use. Adequate levels of night lighting not only contribute to the perception of safety, but allow residents to see each other and provide an informal monitoring system (McBride 1999). Drama or effect lighting can be used to highlight focal points or features which may be appreciated from either the building interior or the garden.

Signage

Signage can be used in the garden for cues, guides, interpretation, identification or direction. The sign finish should be non-glare and it should be placed 60" (1.5 m) from the ground plane. Text size should be large and font colour should contrast with background colour.

The information provided by the Spatial Strategies encompasses many important topics from relationships of the building, garden, user, programming and care philosophy to garden types and layout. Therapeutic and sensory components and details such as materials and site furnishings are also presented. The strategies intend to define the factors necessary to consider when designing gardens for people with Alzheimer Disease. The strategies are also helpful to consider when evaluating an existing garden. They provide a starting point for analysis of relationships, design elements, features and details of the garden.

"Remember: be positive ..... people matter ..... design is about 'enabling'"

(Pollock 2001:36)

CHAPTER FIVE *Site Visits*

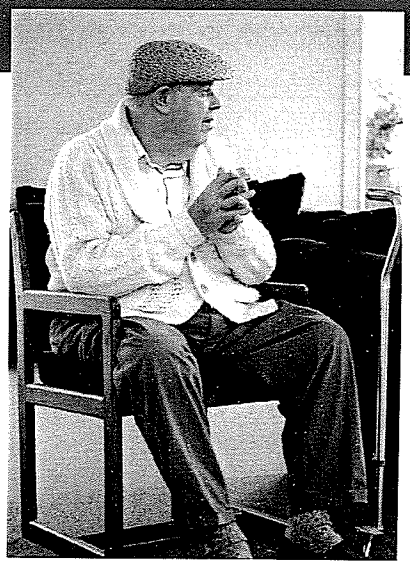


Figure 70

This chapter describes the existing greenspaces at seven personal care homes in Manitoba. The purpose of the site visits was to determine potential outdoor space(s) to illustrate the application of the spatial strategies. The facilities visited include: Riverview Health Centre, Rosewood Village, Donwood Manor, Lions Personal Care Centre, Bethania Mennonite Personal Care Home, East Gate Lodge, and Lac du Bonnet Personal Care Home. Each expressed interest in participating in this practicum and has a desire to improve their outdoor space(s). The facilities were visited in September of 2001. The documentation presented in the following site descriptions is based on findings made during the visit to each site. Although many of the observations are intuitive, this document aspires to report the design strengths and weaknesses of each facility as objectively as is possible. The opinions presented are those solely of the researcher and are for academic purposes only.

RIVERVIEW HEALTH CENTRE

1 MORLEY AVENUE, WINNIPEG, MANITOBA

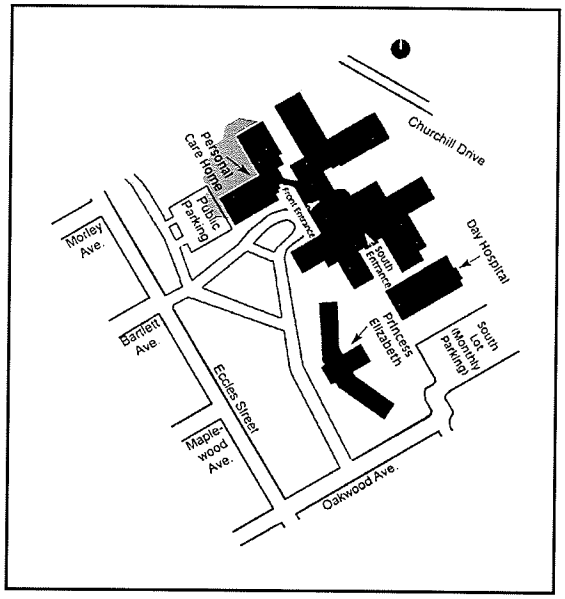


Figure 71: Riverview Health Centre Site Plan NTS

Riverview Health Centre is a 388 bed facility with 228 beds available for personal care home residents and 160 hospital beds for chronic care and rehabilitation (Resident Handbook 2001). The Centre has three outdoor spaces for residents, families and staff to utilize. Within the personal care home, there are two special needs units, housing 15 residents each. The outdoor space that will be examined is located adjacent to the special needs unit and is referred to as the 'Wanderway Paths'. Riverview Health Centre describes the space as follows: "For special needs residents with dementia, the Wanderway Paths have been designed to be visually and physically accessible. Sun and wind shelters,

rest stops and continuous paths support a safe, meaningful outdoor contact to promote residents' mobility and social function" (Resident Handbook 2001:18-19).

The interior of the special needs unit can be described as a home-like environment. The interior furnishings and treatments are similar in character to those found in a residence or a hotel rather than in a hospital. The unit is a locked or closed unit in which the residents eat, sleep, bathe and recreate within the unit. The space is arranged with the bedrooms along the perimeter and the kitchen and socialization spaces in the center of the unit. This configuration allows for an uninterrupted circulation or wandering loop along the periphery of the socialization space. Each of the bedrooms has a view to an outdoor space. Half of the residents' rooms provide a view onto the Wanderway Paths while the other half view the front entry drive.

Figure 72: The Wanderway Paths

The outdoor spaces at Riverview Health Centre were well maintained at the time of the site visit. The Wanderway Paths are located within the L-shaped north and west wings of the building. The space wraps around two sides of each wing, providing opportunities for both sun and shade. A concrete patio area is located at the end of each wing with a large open space and wandering paths between them. This configuration allows for limited visibility from the two patio areas to the wandering paths and vice versa. Although this arrangement may afford a sense of privacy when the space is occupied by a number of users, the limited sightlines and blind corners make it difficult for staff to monitor all areas of the greenspace.

The primary views into the Wanderway Paths are provided by two interior spaces. The first view is from a small seating area/node along the west perimeter of the unit adjacent to the central socialization area. The seating faces the interior of the room. The second view is from a small family room located in the northwest corner of the unit. These areas act as the only interior location where staff have the opportunity to observe residents who are outside. These views are primarily of the patio area and do not allow staff to fully monitor residents who utilize the Wandering Paths or proceed further into the greenspace. There is limited opportunity for residents to view the activities occurring outdoors from the interior.

The doors to the Wanderway Paths are locked and residents cannot access the outdoor space without being accompanied by a staff or family member.

Wanderway Paths are secured and enclosed by a wood fence. The design of the fence controls vistas beyond the space through the use of alternating solid panels and panels with voids between the vertical members. The voids allow for views outward to the surrounding greenspace and residential neighbourhood beyond.

Figure 73: The Patio

To provide shaded destinations for residents, there are two wood pergolas with metal roofs in the Wanderway Paths. Within this area, there are many mature trees and some shrub and perennial planting beds. The majority of low level planting surrounds the patio areas. Raised planters are not present in the space. These would bring the plant material to a level conducive to interaction for residents.

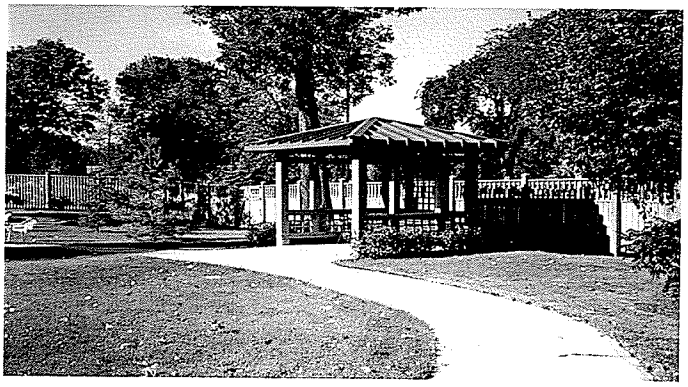


Figure 74: Pergola

The proximity of the patio space to the access doors provides residents with the opportunity for socialization without venturing too far from the security of the building. This space may also be monitored by staff through the sightlines from the interior. The entire greenspace is so large that its vastness may possibly overwhelm residents.

The concrete pathways are extensive and provide a smooth even surface for residents. Seating opportunities are provided along the way. Within the entire space, there is a diversity of tables, umbrellas, chairs and benches.

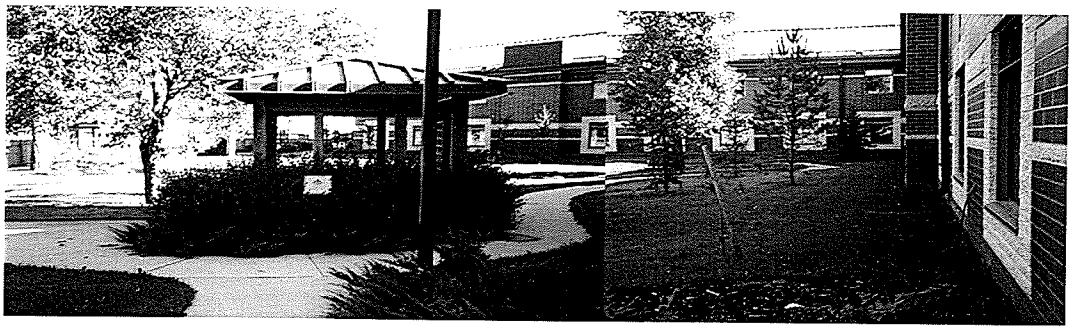


Figure 75: Pathway and Planting

According to staff, the space functions as a large gathering space, but at times, shade is not adequate for larger groups.

The fact that residents cannot access the space independently poses the greatest dilemma with regards to the success of the space. The paths act as a therapeutic way to calm residents while, at the same time, engaging them in a physical activity. However, if a resident cannot see the paths from the building or cannot access the paths at their own will, how are they cued or encouraged to use the space?

The views from the residents' rooms into Wanderway Paths lack foreground features. No specific planting area exists directly in front of the windows.

SUMMARY

Strengths:

- Well maintained
- Well furnished
- Shade structures
- Ample wandering paths
- Patio close to the access doors
- Mature trees

Weaknesses:

- Residents cannot access independently
- Poor sightlines from building interior
- Space too large, blind spots
- No raised planters or gardening opportunities

ROSEWOOD VILLAGE

857 WILKES AVENUE, WINNIPEG, MANITOBA

Rosewood Village is not a personal care home but rather a supportive housing/assisted living facility for people who need assistance with their daily activities. There are twelve separate units, referred to as 'houses'. Each house has twelve tenants. There are no nursing staff on duty, but provided on each unit is twenty-four hour support and care through a 'Tenant Companion'. Some residents at Rosewood are in the early stages of dementia.

Rosewood Village is a two storey building attached to the Waverley housing complex. Individual houses act independently and many houses have locked doors. Each of the twelve units differ in its relation to the exterior space. For example, houses located on the second floor have a screened balcony and do not have direct physical access to outdoor space. The first floor houses have a screened porch with access to a private outdoor space.

Each house contains a central kitchen and eating area with an adjacent family room. There is also a formal living room. The bedrooms are located along a long hallway that extends outward from the central living spaces. The atmosphere may be described as extremely home-like with many features such as wood cabinetry, kitchen appliances, gas fireplaces, laundry room and residential style furnishings.

Central Outdoor Space

An outdoor space is located off the entrance foyer to the Rosewood Village complex. This space is shared by all of the houses. The door remains unlocked during the daytime although not all tenants have access to the foyer area. The outdoor space is a large 'T' shaped space. It was designed as a multi-use area and has a large raised patio area (off the foyer). This space is used for group oriented activities and presentations (see Figure 76). A crushed limestone wandering path winds throughout the space and leads to a variety of destination nodes consisting of seating areas and planting. Some of these areas are formal circular nodes (see Figure 77) while others are intimate in character with one bench and a variety of planting. The edge of the limestone path is not well defined as grass and weed species have invaded and obscured the edge.

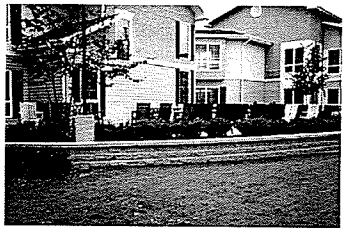


Figure 76

Figure 77

Figure 78

Most of the views into this outdoor space are from tenants' bedrooms or from interior seating nodes located at the entrance ways to the individual houses. Sightlines from any central gathering areas are limited. Among the houses, there is a high degree of variety in terms of both accessibility to the outdoor space and the views available from each of the bedrooms. Some rooms provide views of planting while others rooms provide views of lawn areas only.

The outdoor space is enclosed primarily by the building, but along the north property line there is a chain link fence as well as two short lengths of white prefabricated metal fence; both act as security barriers.

SUMMARY OF CENTRAL SPACE

Strengths:

- Home-like environment, small unit size
- Variety of planting and textures
- Ample wandering paths
- Patio is located close to doors

Weaknesses:

- Residents cannot access outdoor space from living area
- Poor sightlines from building interior
- Areas toward fence & around corner of building isolated with no visual access
- Limestone path, difficult for people with mobility issues, difficult to shovel in winter months

Private Outdoor Spaces

Figure 79: Screened-in porch

Two private outdoor spaces are located on the north side of the complex. Each is shared by two houses. This space is adjacent to the family room and is accessed by tenants through a screened-in porch (see Figure 79). The porch acts as a successful transition area and is an extension of the interior living space. It has a wood floor, potted plants and seating and provides fresh air, sun protection and refuge from insects. The porches have stairs leading down to a patio area and therefore, the outdoor space is not universally accessible. Most of the planting is concentrated around the patio area. The rest of the outdoor space is lawn with a few coniferous trees.

Figure 80

Figure 81

A chain link fence encloses the space to the north and white prefabricated metal fence separates it from the central outdoor space. No pathways or features exist to draw residents further into the outdoor space (see Figure 80). The space extends beyond the corners of the two building wings, which hinders visual access to the entire space from indoors. Thus, the tenants' activities are difficult to monitor.

Use of the space is dependent on the activities organized by staff. The door to the porch is usually locked and tenants must ask to be let outdoors. Tenants observe games on the adjacent soccer field or watch train pass by on the nearby tracks. At the time of the site visit (see Figure 81), chairs were arranged in a row showing evidence that viewing activities are a common pastime for residents.

SUMMARY OF PRIVATE SPACE

Strengths:

- Residents can access outdoors directly from living area
- Porch and patio provide transition area from interior to exterior
- Patio area has good sightlines from interior living space

Weaknesses:

- Not universally accessible (stairs)
- Furthest areas from porch (toward fence/around corner of building) are isolated and do not provide visual access
- No pathway
- Planting is limited to patio area

DONWOOD MANOR

171 DONWOOD DRIVE, WINNIPEG, MANITOBA

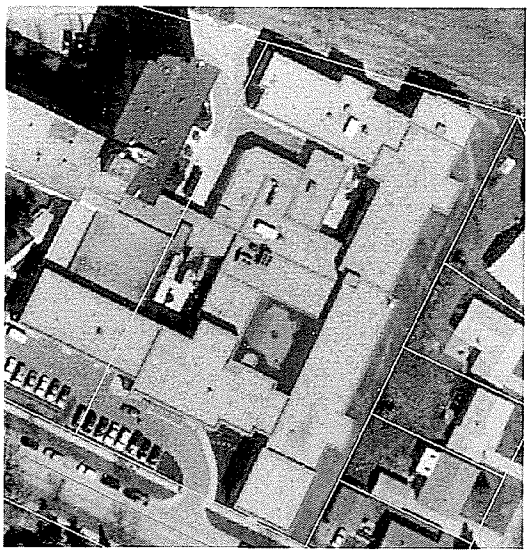


Figure 82: Courtyard (green) - Linear Space (orange)

Donwood is a Personal Care Home which houses 121 residents. At the time of the site visit, the outdoor space was very well maintained. A variety of outdoor spaces exist including the front entrance way, two courtyards and a long linear space on the east side of the building.

The design of the facility reflects a typical medical/ institutional setting.

The primary outdoor space is a courtyard located adjacent to an activity room. It is not directly accessible from the individual units. The courtyard has good sightlines from central activity areas and corridors, and the doors to the space are unlocked. Most often, residents are free to access the space at their own will. The windows onto the space are almost floor to ceiling in height and allow for a visual connection between interior and exterior space.

A wood trellis on the west side of the courtyard casts strong shadow patterns on the ground plane. Since some people with Alzheimer Disease have difficulties with perception, the pattern of dark shadows could be perceived as a barrier or a void.

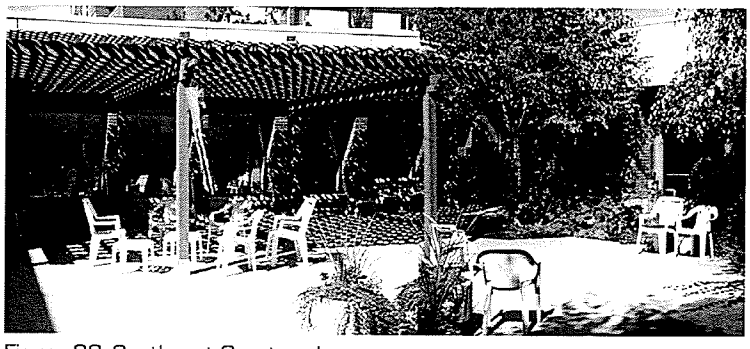


Figure 83: Southeast Courtyard

The courtyard is primarily composed of concrete paving. In times of bright sunlight, this surface contributes to increased glare in the space. Planting beds are located around the periphery of the space. The shrubs and perennials provide a variety of textures. There are four mature birch trees also found in the space. There is one raised wood planter that is not conducive to either wheelchair or chair use. The planter holds tomato plants and other annuals. The residents are active in the planting and harvesting of the fruit and vegetables. Although no formal pathways are provided, informal circulation is defined through the placement of concrete planters filled with annuals and white plastic patio chairs.

The courtyard space is enclosed by building structure on all four sides. This configuration, along with the trees found in the space, allows for a mixture of areas of sun and shade. The space is disorienting because the building facades look similar and there is a lack of wayfinding and distinguishing features.

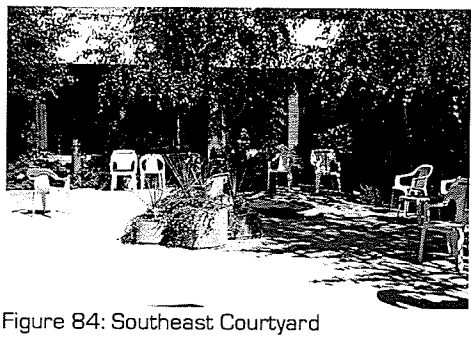


Figure 84: Southeast Courtyard

Donwood has an advantage in the care of its outdoor spaces. One maintenance staff member has an enthusiastic passion towards gardening. Donwood supports this individual's desire to spend his time during the warmer months maintaining the outdoor spaces. In fact, this individual has made it his personal mission to provide every resident in the facility with something interesting and beautiful to look at from their bedroom window. Even if residents are unable to go outside, they still can maintain a visual connection to the outdoors. Different forms of visual stimulation include edible plant materials such as strawberries, arrangements of vintage gardening equipment as well as a dry riverbed scheme. These elements are located in the long linear space (Figures 85, 86, 87) on the east side of the property. This space is not accessible to the residents and is not visible from common or staff areas, only from the residents' rooms. Occasionally, the space is used for staff functions such as barbecues.

Figure 85

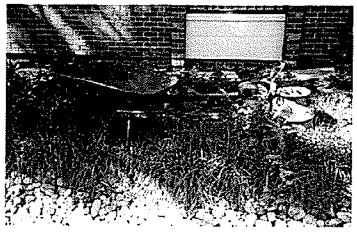


Figure 86

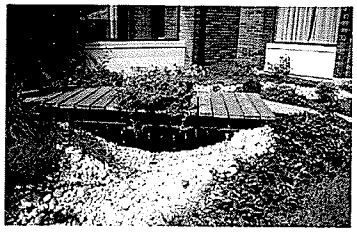


Figure 87

SUMMARY

Strengths:

- Greenspace is exceptionally well maintained and cared for
- Courtyard space – doors unlocked / is accessible
- Courtyard has good sightlines from interior common space and corridors
- Staff support – growing edible plants, informal horticultural therapy
- Stimulating views from bedrooms provided for residents

Weaknesses:

- Main courtyard off central gathering space rather than individual units
- Space is disorienting
- Overhead trellis in main courtyard creates a complex shadow pattern
- Concrete surface contributes to glare
- Planter is not accessible from seated position

LIONS PERSONAL CARE CENTRE

320 SHERBROOK STREET, WINNIPEG, MANITOBA

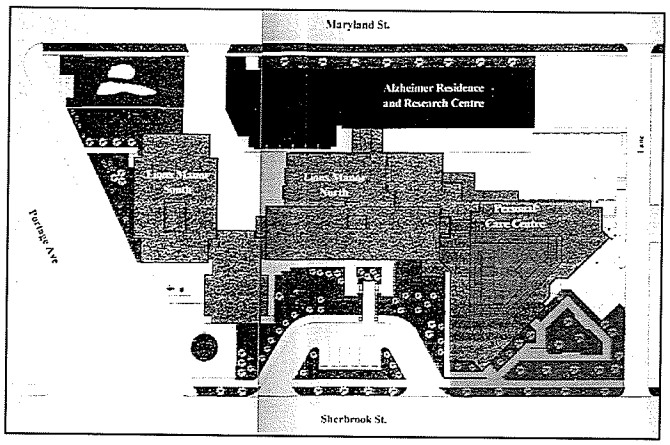


Figure 88: Sherbrook Greenspace (green) - Roof Garden (orange)

Lions Personal Care Home houses 116 residents and is located on the periphery of Winnipeg's downtown at the corner of Sherbrook Street and Portage Avenue. This urban setting is layered with intense vehicular traffic and is immediately adjacent to a core area neighbourhood.

Lions has three outdoor spaces including: an area located adjacent to the front entrance facing Sherbrook Street, a courtyard located within a narrow linear space between two sections of the building and a rooftop garden. The courtyard was under construction at the time of the site visit.

Sherbrook Street Greenspace

This outdoor space is accessed from a meeting room which is located adjacent to a common gathering area. When the room is occupied, the space is not accessible. The outdoor space faces east and is enclosed by a wrought iron fence that is interspersed with masonry posts. The threshold to the space is a linear covered porch. It consists of concrete paving, masonry columns and guard rail made from a re-cycled wrought iron fence. Windows from the interior meeting and gathering spaces provide views onto the porch area. A mixture of fixed turquoise metal benches and plastic chairs face toward Sherbrook Street. Although the residents have the opportunity to observe pedestrian and vehicular traffic on the street, they must do so by looking through the guard rail and vegetation.

Figure 89: Porch

The porch extends and links to a concrete pathway. It ramps downward and continues along the perimeter of the space encircling a lawn area. The ramped sections have turquoise metal handrails on both sides and every section of path is accompanied by the metal handrails. Additional metal benches and matching waste receptacles are located along the pathway, each with its back to the lawn area. Lights standards are located throughout the lawn area. There is no

planting located within the lawn area, rather, shrubs and trees are found adjacent to the path on the other side of the handrail. The lawn area appears quite sterile with merely the light standards and outward facing benches occupying the space. There is nothing interesting or inviting to draw people into the space (see Figure 90).

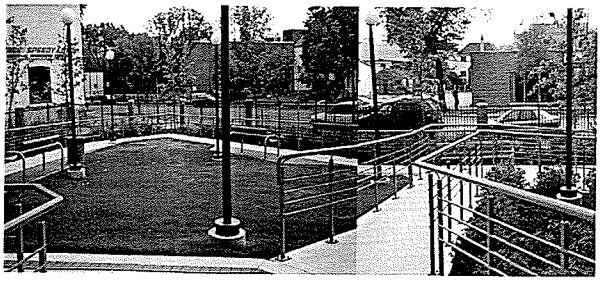


Figure 90

The combination of the fence, a strip of planting followed by a hand rail allows the area to be quite secure from the street. While the handrails assist residents with mobility, they obstruct access to the planting beds. At every occasion where planting occurs, a handrail acts as a barrier between the vegetation and resident (see Figure 91). This, in combination with the abundance of metal handrails conveys a feeling that lacks comfort and intimacy. The user is physically removed from the plant material by the handrail, allowing a visual connection but eliminating any opportunity for interaction through touch. The space appears like a labyrinth of circulation that has a museum-like quality which is observational rather than contact oriented.


Figure 91

Roof Garden

At the time of the site visit, the roof garden space (see Figures 92, 93, 94) was well maintained. It is surrounded by a turquoise metal guard rail. It has square concrete pavers and raised planters made from sandstone coloured pre-cast concrete blocks. The planters are filled with shrubs, perennials and annuals resulting in a variety of textures and colours. The planters are not accessible for wheelchairs and the edge is not quite wide enough to act as a seating ledge. The arrangement of the planters provides an informal circulation path along the perimeter of the space.

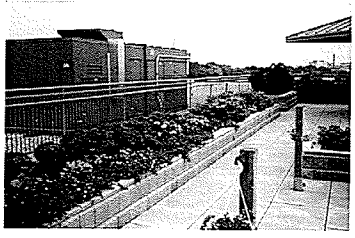


Figure 92

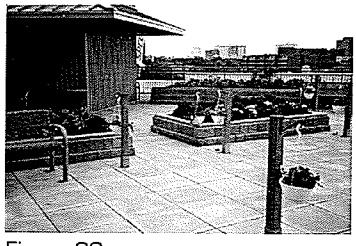


Figure 93


Figure 94

Other features in the space include turquoise metal benches, waste receptacles and a grid of wood posts that facilitate hanging baskets of annuals. Shade is provided by the overhang of the mechanical building located at the northwest corner of the space.

Although staff and residents' families help to maintain the space, it is not currently utilized to any great extent. One possible reason is the lack of shelter from nature elements. The space is very open and little shelter from the sun and wind is provided. As well, the light coloured concrete paving contributes to glare within the space. Since the space extends visually outward over the neighbourhood and commercial buildings around it, there is a feeling of vastness to the space. The space lacks feelings of enclosure and intimacy and may be overwhelming for residents. Additionally, the space is isolated. It is not adjacent to any of the residents' living spaces. There is no visual access to the space from common areas that would allow staff to monitor its use. Residents do not have direct access into the space and must be accompanied by a staff or family member.

SUMMARY

Strengths:

- Sherbrook greenspace - handrails provide continuous support for residents who use path
- Roof Garden – variety of planting colours and textures

Weaknesses:

- None of the greenspaces are located close to residents' bedrooms or living areas
- Sherbrook greenspace – not accessible if meeting room is occupied
- Sherbrook greenspace – residents cannot physically come in contact with plant material
- Roof garden – access to space is limited through its location and lack of sightlines
- Roof garden – space does not provide shelter from the elements (sun and wind)
- Roof garden – space is not comforting, too vast in scale

BETHANIA MENNONITE PERSONAL CARE HOME

1045 CONCORDIA AVENUE, WINNIPEG, MANITOBA

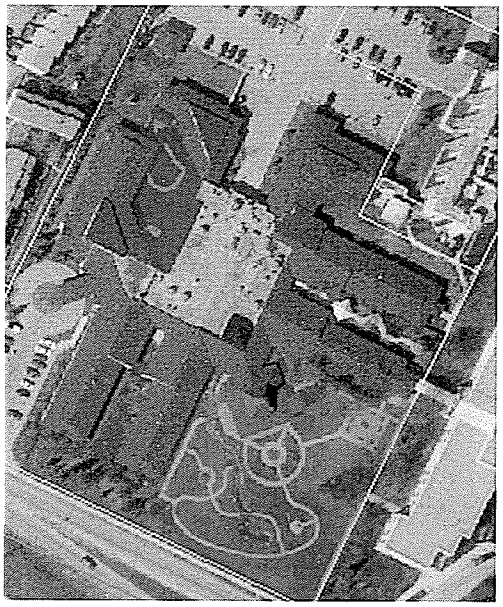


Figure 95: BTU (green) - Southeast space (orange)

Bethania Mennonite Personal Care Home has 147 beds. The complex is linked to Concordia Hospital and Bethaniahaus, a 55 plus apartment unit.

Spaces within the single storey building footprint of Bethania include a central hub and seven arms that extend outward from it. The kitchen, dining room, indoor park area and other central services are located within the hub and each of the arms house resident wings. This configuration allows for a number of outdoor spaces to exist between the wings. The front entrance drive includes a circular planting bed that displays vibrantly coloured annuals and perennials. The largest outdoor space (see Figures 96, 97, 98), located on the southeast side of the building is extensively developed. This space has a formal circular perennial and shrub bed, a water feature and wetland area, patio, a shade garden and a concrete pathway system. Another developed outdoor space is located outside the Oak Room (a room for families to visit). It has a gazebo, a shade structure and various planting beds. Bethania also plans to develop the area adjacent to the 500 Wing in conjunction with Bethaniahaus into kitchen gardens. The gardens were extremely well maintained at the time of the site visit. The enthusiasm for, and care of, the outdoor space is motivated by an individual who works as a baker in the facility. This person has helped to instill a sense of ownership of the gardens among the other staff, residents and family members. They help to maintain the plant materials.

Figure 96

Figure 97

Figure 98

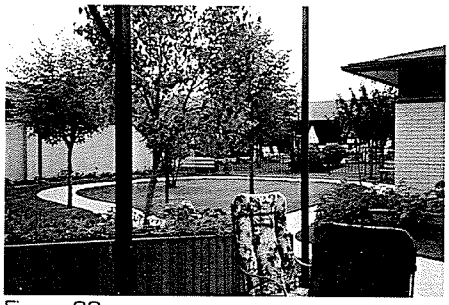


Figure 99

Within the Personal Care Home there is a nine bed Bevavioural Treatment Centre (BTC). According to Bethania, "the BTC exists to provide special services to elderly persons in or awaiting personal care home placements who are experiencing behaviours which are disturbing to themselves or others" (BTC 2001). Most of the residents within the unit have dementia.


Figure 100

The BTC unit is a closed or locked unit. It is triangular in shape with bedrooms located around the perimeter of two sides. In between the two sides, located at the apex of the triangle, is the nursing station. The central gathering space is located along the third side of the triangle. This arrangement allows for an informal interior wandering loop. The gathering space has plenty of windows that provide views into the BTU outdoor space. These windows allow for excellent sightlines from the gathering space as well as from the nursing station (for staff to monitor residents). The residents can access this area independently. This outdoor area has been identified by the administration as a potential design project.


Figure 101

The entrance to the BTU outdoor space has a covered structure and concrete patio with cushioned patio chairs and a table. A raised wood planter defines one edge of the patio. This planter is not wheelchair accessible and potted annuals rest inside the planter. The patio leads to a concrete pathway which acts a wandering loop. The pathway has two wood benches located along its south end. The space is primarily lawn with five trees located around the path. The trees are not large enough yet to act as a source of shade. A small number of plants and shrubs are located along the three different building facades.

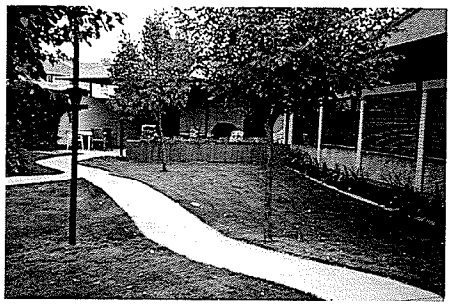


Figure 102

Other features include a bird feeder and a second raised planter containing some edible plants. The staff maintain an informal horticultural therapy program using the vegetables and annuals. The residents are encouraged to participate in the planting, care and maintenance of the plant material.

The BTU outdoor space links to another outdoor space which serves the central hub of the facility as well as the residents from the 100 Wing. The two spaces are divided by a wrought iron fence which allows a visual connection between the spaces.

SUMMARY

Strengths:

- Greenspaces are well maintained, high level of staff initiative
- BTU – space is accessible to residents independently
- BTU – good connection from interior to exterior, good sightlines for staff
- BTU – exterior space is a comfortable size, not overwhelming for residents, easy for staff to monitor
- BTU – residents encouraged to interact with plant material

Weaknesses: (BTU)

- Planters are not wheelchair accessible
- Little shade found in the greenspace other than the covered structure
- Wandering path lacks interesting features along the way
- Planting is minimal next to building
- Lack of sensory stimulation
- Low spots in lawn area – potential hazard

EAST GATE LODGE

BEAUSEJOUR, MANITOBA

East Gate Lodge is an eighty bed facility located in Beausejour, Manitoba.

The front entrance to the facility has concrete paving with planting beds composed of crushed rock with newly planted trees, juniper shrubs, and annuals. Residents prefer to congregate in this area to observe people arriving and departing. Other outdoor spaces include a courtyard, centrally located within the building, and two large exterior spaces found in the 'U' shape space formed by the building unit's wings.

Courtyard

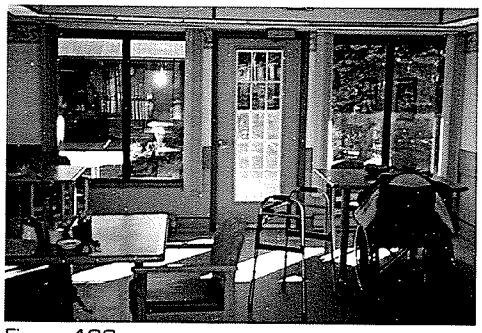


Figure 103

Figure 104

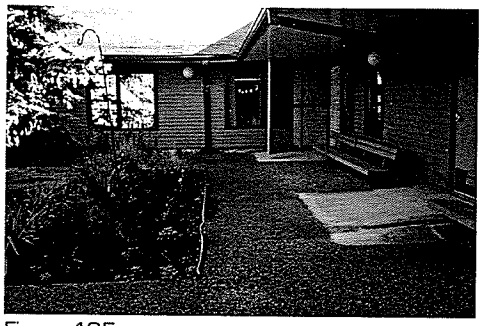


Figure 105

The courtyard space is accessible from two common areas of the facility, a dining area and a group activity area. It has many windows that view onto it resulting in a highly visible greenspace from the interior. At the time of the site visit, the plant material was not well maintained.

The paving surface is a patchwork of smooth and exposed aggregate concrete. It undulates and is damaged from the ground shifting. The joints between the various paving materials are also uneven making the paving unsafe. Planting beds are interspersed along the periphery. A large planting bed is located within the centre of the space that contains several mature spruce trees. Wood benches and plastic patio furniture provide seating. There are ample opportunities for sun and shade as the courtyard configuration naturally lends itself to a multitude of conditions throughout the day. In addition, the roof overhang extends into the space and coniferous trees add to the amount of shade available.

In the corners of the courtyard are glass wind deflection devices. Not only do these awkward devices render the corner unusable, but the reflected sunlight they generate contributes to the amount of glare and refection in the space.

Memory Garden

The Memory Garden is located on the south side of the building, within the 'U' shape space formed by two of the facility's wings. The space is secured by a chain link fence. A design and plan were produced in 1997 for the Memory Garden by Landscape Architect Ruth Rita Rob. Only portions of the design were implemented. The theme for the design involved a front yard, backyard and farm yard concept. Many of the key elements were not built such as: mail boxes, grain/crop planting, garden boxes, wishing well, clotheslines, sand box, children's play house, and activity shed. As well, plans for a dogwood hedge, wildflower planting areas and six seating benches were not implemented.

There are two entrances into the space, each from different units. The easterly entrance is accessible from the dementia unit. Upon entering this large greenspace, residents may be overwhelmed by the size and sense of openness. The greenspace is primarily viewed from residents' rooms and there is limited visual access from central gathering areas.

With only a limited amount of Ruth Rob's plan being implemented, the space cannot function as intended. The main components that were built include a standard gray concrete sidewalk (not the coloured concrete specified by Rob) which extends out into the space in a 'U' shaped configuration and includes a secondary path that forms a wandering loop. As built, the circulation loop is lacking the amenities intended to provide interest along the way. Therefore, the journey is rather uneventful. Two overhead wood trellis structures define a patio area (see Figure 106). This area is surrounded with maple trees, shrubs and perennials. Wood adirondak chairs and plastic patio tables and chairs occupy the patio.

Figure 106

Figure 107

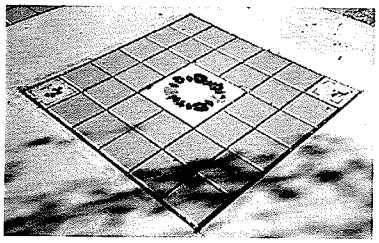


Figure 108

The patio area serves as the main node or gathering space for the scheme. This draws residents a great distance from the building and the comforts of the interior environment. Although the patio creates a destination for the residents, the sense of security may be compromised by the physical distance one must travel in order to arrive at the patio. The lack of seating opportunities along the way for residents to rest also contributes to this dilemma.

To the south of the Memory Garden, an agricultural property exists where residents enjoy monitoring the activity or admiring the collection of equipment and derelict vehicles.

A successful detail utilized in the Memory Garden is the 8" and 16" square pavers inset with stained glass designs (see Figure 108). The pavers are used as a memorial or sponsorship item and provide visual interest on the ground plane.

SUMMARY

Strengths:

- Courtyard – accessible from two entrances, excellent sightlines into the space (for cueing residents and staff to monitor)
- Courtyard – ample opportunity for shade
- Memory Garden – stained glass paving detail provides interest, personal expression, investment

Weaknesses:

- Courtyard – no raised planters, plant material not accessible
- Courtyard – space not well maintained
- Courtyard – uneven paving surface is a safety concern
- Memory Garden – space difficult to monitor due to its large size, blind corners and limited sightlines for staff from interior
- Memory Garden – patio/seating located too far from entry ways
- Memory Garden – limited seating amenities in space and along wandering path

LAC DU BONNET PERSONAL CARE HOME

LAC DU BONNET, MANITOBA

Lac du Bonnet Personal Care Home is a 30 bed facility in a community that is experiencing growth. Due to its location in the Interlake region of the province and its proximity to many lakes, the town is a popular retirement destination.

The facility is located at the end of a residential street and resembles a condominium development or residential apartment block rather than a personal care home (see Figure 109). A parking lot is located at the front of the property and the front façade of the building is filtered by mature vegetation.

Figure 109

A pathway leads to the entrance of the building. It is bounded on the east by a dense juniper bed with birch trees rising from within. To the west is a stone filled bed with timber edging and exposed aggregate planters, annuals and a row of shubert chokecherry trees.

Figure 110

The primary greenspace is a patio located adjacent to the front entrance of the building. This patio area is accessible via a gate at the threshold of the building as well as through an indoor central activity area. This configuration allows residents to observe people coming and going from the facility and provides a passive activity. The patio is primarily hard surface with concrete paving and islands of planting.

Figure 111

The greenspace is enclosed and secured by a white fabricated metal modular fence. The fence consists of a top and bottom horizontal rail with vertical members between. This type of fence is difficult to climb.

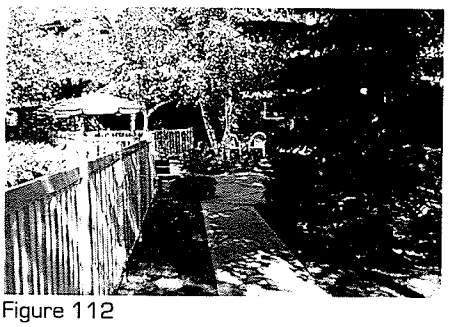


Figure 112

The patio is located adjacent to an indoor activity area and has many windows. This relationship reinforces a connection with the interior and exterior. Residents may access the space independently and are accompanied outdoors twice daily during appropriate weather conditions. The patio provides ample seating types for residents

including plastic patio chairs, wood benches and wood chairs with cushions and umbrellas (see Figure 111). All of the seating is located in close proximity to the entrances. This encourages residents who do not want to venture far from the building to access the outdoors. The seating is also located around the periphery of the patio, strengthening the inward focus of the space.

The space exudes a feeling of intimacy. There is a sense of enclosure through the small scale of the space combined with the clearly defined edge provided by the fence. Ample shade is provided by the building, trees and umbrellas. Mature birch trees are located in two planting beds which provide a successful canopy over the space. The planting beds are surrounded by timber edging and filled with crushed stone. Inside these beds, as well as throughout the space, are potted annuals. Many of the potted plants are edible varieties. The staff involve the residents with the planting, care, harvesting and consuming of the vegetables and fruit. The pots are occasionally moved from outdoors to indoors to accommodate this therapeutic activity.

A concrete wandering path extends beyond the patio towards a gazebo structure. The gazebo is rarely used. The pathway edge is defined through a hedgerow consisting of coniferous trees.

SUMMARY

Strengths:

- Residents may access space independently
- Patio area is highly visible from the interior
- Ample seating is provided adjacent to the entrance and street which provides activity for residents
- Vegetation is mature and well maintained
- Residents participate in informal horticultural therapy

Weaknesses:

- Concrete paving slopes away from building at a steep slope – may prove to be hazardous
- Lack of space for families or residents to have privacy – all seating is sociably arranged (group oriented)
- Destination of wandering path i.e. gazebo does not draw residents to that area

CONCLUSION

The three greenspaces selected to illustrate the application of the spatial strategies are Donwood Manor, Bethania Behaviour Treatment Unit and Rosewood Village. These sites were chosen to represent an adequate cross section or sampling of facility/greenspace types. Selection was also based on the facility user group, the current maintenance and the accessibility or potential for accessibility for residents. Chapter Six describes the conceptual designs for each site.

CHAPTER SIX *Conceptual Designs*

Figure 113

Chapter Five documented the greenspaces of seven facilities, of which three were selected to illustrate the application of the Spatial Strategies (presented in Chapter Four). The facilities chosen were Donwood Manor, Bethania Behavioural Treatment Unit and Rosewood Village. The strategies are applied through conceptual garden designs. This chapter describes the care philosophy of each facility and reviews the site analysis. It also describes the design issues to be addressed, design intentions and conceptual design solutions. A detailed design scheme including experiential sketches, planting, materials and layout and grading plans is also included for Rosewood Village.

The application of the Spatial Strategies supports the goals of outdoor space described in Chapter Three. The goals are to provide: safety and security, accessibility and outdoor freedom, independence, places for privacy, socialization and activities as well as encourage memory recall and provide wayfinding orientation.

SITE ONE

DONWOOD MANOR

171 DONWOOD DRIVE, WINNIPEG, MANITOBA

Donwood Manor's Mission Statement is "to uphold personal dignity through compassionate service and Christian love" (Donwood 2001). Donwood's Vision Statement is entitled: A Place to Call Home and is stated as follows: "To be an integrated facility that allows the elderly to age with dignity and grace,

- a place that enables the elderly to make the transition from their home to a caring community,
- a place where residents and their families know there is a commitment to continually improve the care, the services and the facilities,
- a place where comfort is extended to all,
- a place where the participation of families and volunteers is encouraged and welcomed, and
- a place where 'end of life' issues are addressed" (Donwood 2001).

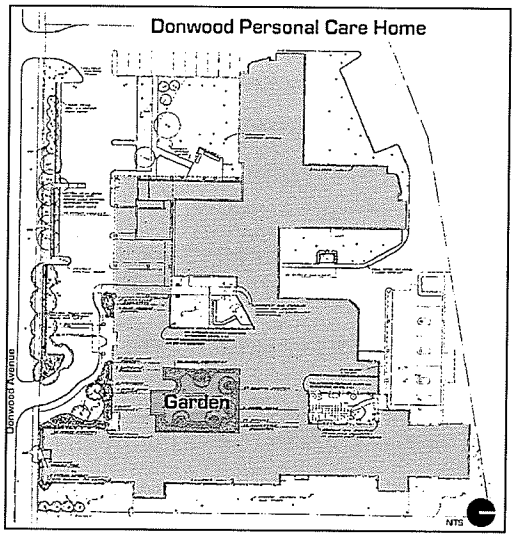


Figure 114: Site Plan

Donwood was selected as a site because its design and layout reflect a typical personal care home environment with a medical model for care. The dementia treatment unit houses 44 residents and is an open or unlocked unit. The Southeast Courtyard was selected as the greenspace for development due to its proximity to the treatment unit and the fact that residents with dementia can access the courtyard independently.

DESIGN ISSUES TO BE ADDRESSED

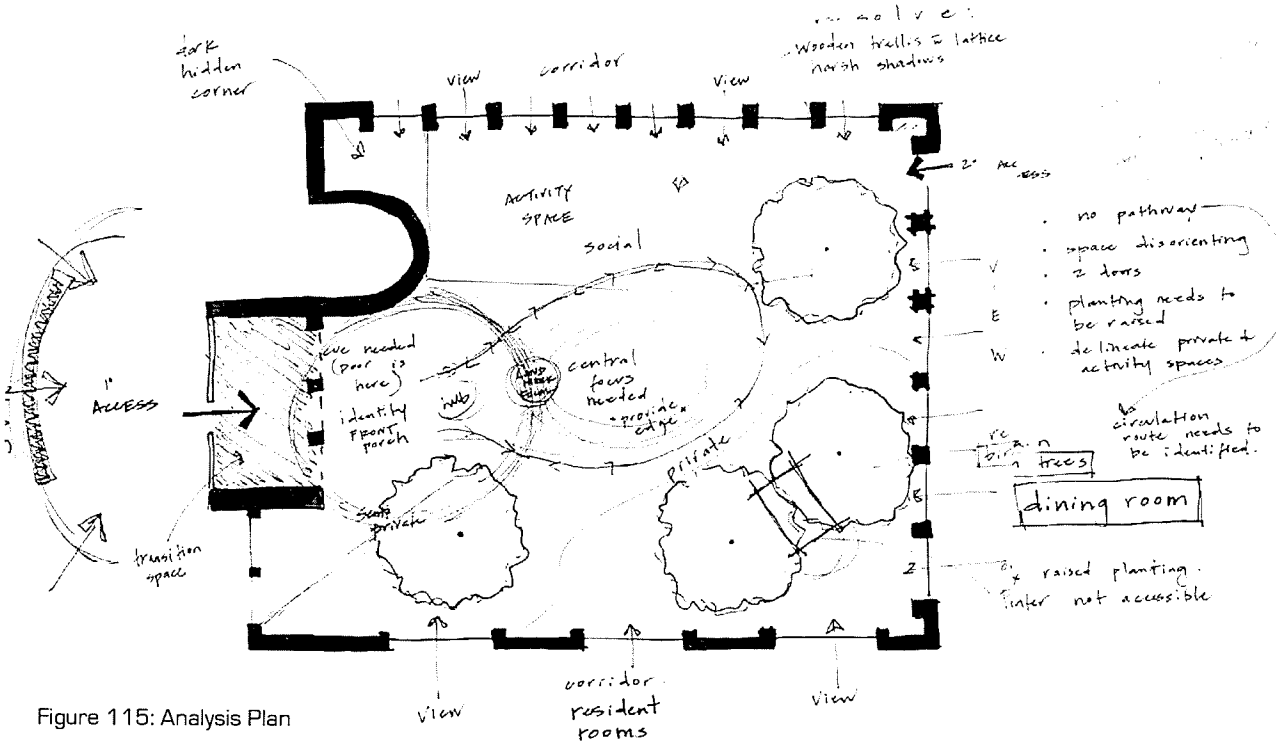


Figure 115: Analysis Plan

Within the courtyard, the primary challenge is to orient residents within the space. The courtyard is rectilinear and is enclosed by the building on all four sides. All of the facades are similar in appearance including the size, placement and geometry of windows as well as the use of brick as an exterior finish.

Two entrances exist to the courtyard. The primary door is on the south façade and the secondary door is on the north façade. The primary entrance is recessed under the second storey of the building. Although this provides a transition space for residents' eyes to adjust to sunlight and acts as a sheltered area in inclement weather, the door appears hidden. A hierarchy needs to be established between the two entrances. The primary entrance requires further definition and needs to evoke a sense of prominence within the space.

Once residents are inside the courtyard, wayfinding is difficult. The lack of visual and sensory cues through landmarks and focal points contributes to the sense of disorientation within the space.

Currently, the most dominant feature in the courtyard is a wood trellis located on the west side of the space. This feature is covered with lattice and is an unsuccessful attempt to provide shade. The trellis casts strong shadow patterns that may be disturbing to residents with dementia. The orientation of the trellis in relation to the entrances does not help residents with wayfinding. As one enters the courtyard from either door, the trellis is either to the right or to the left, depending on the door one uses. The visual connection of remembering which side the trellis appears on is not adequate for orienting oneself within the space. The courtyard would benefit from a configuration that would allow residents to associate each entrance with the space that it occupies rather than its proximity and relationship to a feature such as the trellis.

Concrete paving dominates the space, contributing to glare. No pathways exists in the space. A circulation route needs to be defined to provide residents with a journey that promotes sensory and memory recall experiences. A pathway can also promote exercise which helps to relieve tension while encouraging movement throughout the courtyard. Residents can then experience unique spaces along the way.

Spaces need to be provided in the courtyard that can encourage activity. Currently, residents have the opportunity to interact with one raised planter, however it is not accessible by wheelchair or chair. The space is void of any planters that promote interaction. Places need to be provided for residents to interact with nature and with other residents or families. The courtyard currently reads as one large space with seating, in the form of plastic patio chairs along the periphery of the space. Creation of a hierarchy of spaces is needed, each with its own sense of identity. Definition of social and semi-social spaces as well as more passive areas is required.

DESIGN INTENTIONS

Figure 116: Concept Collage

The primary design intention of the courtyard for Donwood Personal Care Home is to provide residents with greater cues for orienting themselves within the space.

The design scheme creates two distinct halves or districts to the courtyard space. By creating two separate districts - one on the south side of the courtyard linking directly with the primary entrance, and the other on the north side linking to the secondary entrance - an increased sense of identity is associated with each entrance. In order to enhance the distinction between the two districts, each space is given a unique theme.

The south side of the courtyard becomes the 'city' and uses the language of the urban landscape. The north side embodies notions of the 'country' which draws upon concepts associated within the rural landscape. Many of the residents with dementia living at Donwood are familiar with Manitoba's agricultural landscape, having lived or spent time in rural areas.

Creating two districts can also help to define spaces or places within the courtyard. For example: areas for social activity, as well as more passive areas can be delineated. A number of elements can provide definition. These elements include cues and symbols that can also assist with memory recall, sensory stimulation and provide activities for the residents. The design language associated with the urban and rural landscape is clear and simple. The elements used as cues

and symbols are recognizable for people with Alzheimer Disease and include vegetation, site furnishings, focal points and materials.

DESIGN FEATURES

As residents enter the garden from the primary entrance they encounter a path that forms a simple wandering loop (see Figure 117). Because the paving material and pattern is continuous, it assists residents with wayfinding and delineates the path from the spaces adjacent to it. Urns containing annuals assist with distinguishing the primary entrance way. In the urban garden, the primary view is of a rose garden and bird bath that act as a central focus. The planting theme for the urban garden is formal. The garden consists of a manicured landscape including a clipped cotoneaster hedge, an ornamental flowering tree, raised planters for annuals, benches and a seat wall. As residents follows the pathway, they pass under a wood archway which distinguishes the two halves of the courtyard. In the rural garden, residents encounter a planting bed used for agricultural crops such as sunflowers as a central focal point. This garden could also display different plant materials each year, providing interest and an opportunity for the residents to participate in the selection. Three of the mature birch trees are retained in their existing location and one is relocated to the northwest corner of the courtyard. The planting theme in the rural garden is naturalized. Other garden features include a limestone retaining wall, ornamental grasses, perennials, hand operated water pump and wood glider.

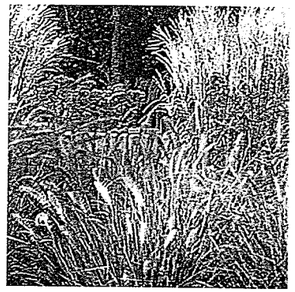
The Spatial Strategies that were most influential in improving the function, physical character and experience of the garden include:

- providing opportunities for gardening activities adjacent to indoor activity space
- defining socialization and privacy spaces
- creating landmarks and focal points to assist with wayfinding, orientation and memory recall
- creating a pathway for exercise (wandering)
- reducing glare through pathway colour
- eliminating harsh shadows by removal of trellis structure
- providing shade and sensory stimulation through plant material
- creating permanent site furnishings

Figure 117: Concept Plan and Section (inserted page to the right)

DONWOOD *Donwood*

171 Donwood Drive
Winnipeg, MB



Concept Plan

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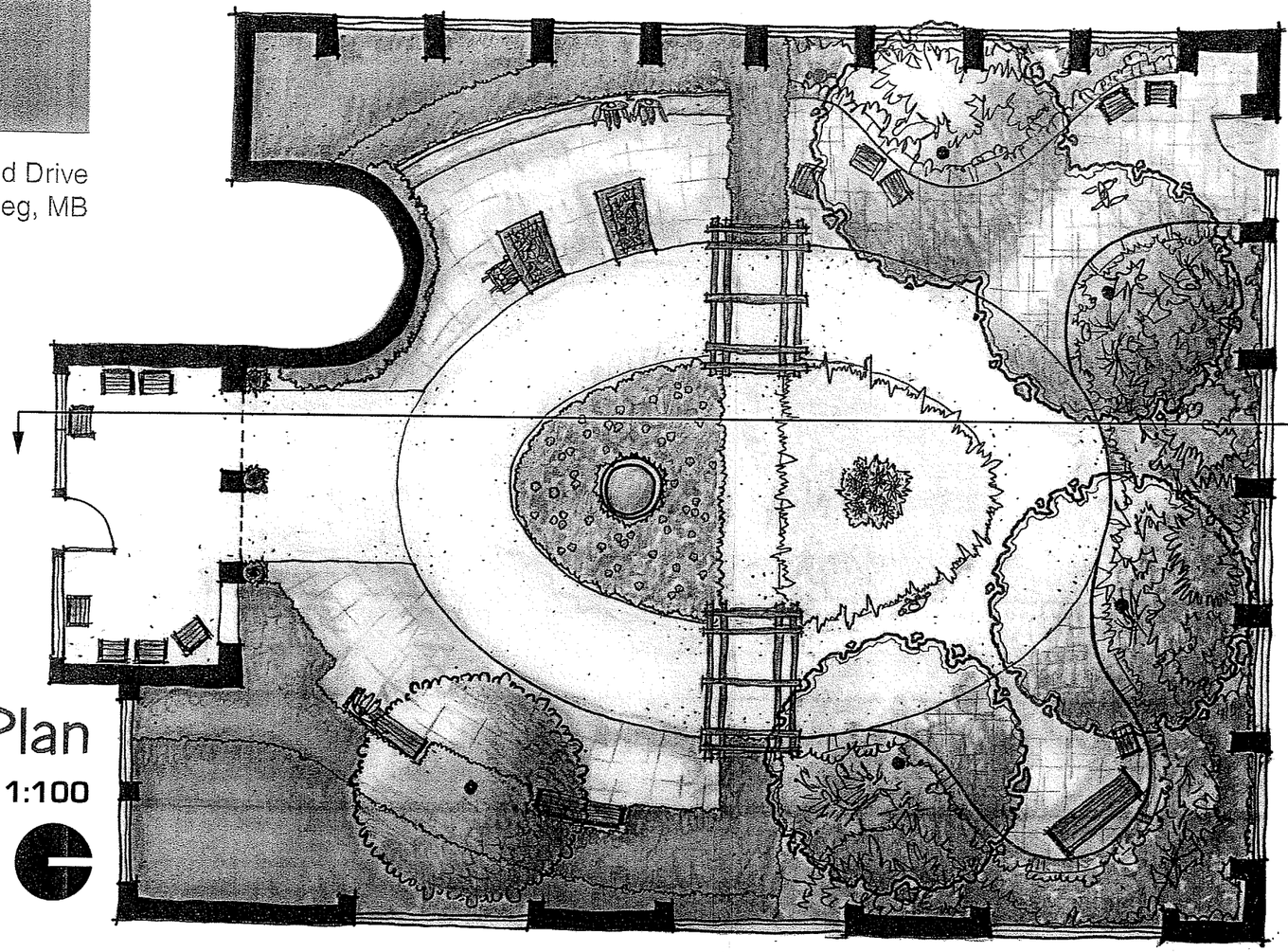

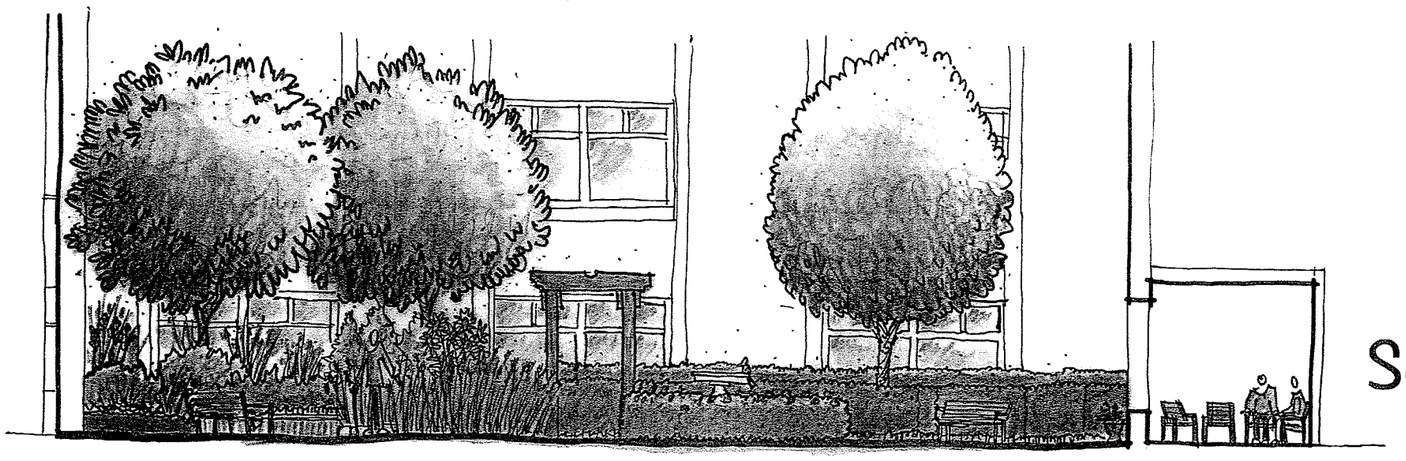

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Site 1

SITE TWO

BETHANIA BEHAVIOURAL TREATMENT UNIT

1045 CONCORDIA AVENUE, WINNIPEG, MANITOBA

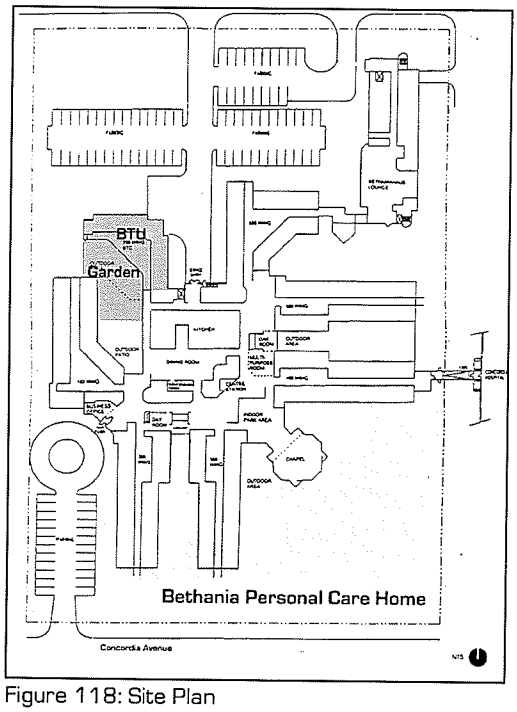


Figure 118: Site Plan

The Bethania Behavioural Treatment Unit (BTU) is part of the Bethania Mennonite Personal Care Home. The complex is linked to Concordia Hospital and Bethaniahaus, a 55 plus apartment unit. The BTU houses nine residents, each for approximately a six month period. The residents come from other personal care homes within Winnipeg for assessment and treatment. There is a high staff to resident ratio in the BTU - 1 staff to every 3 residents. Most of the residents within the unit have dementia.

The Mission Statement and Philosophy of Care of the (BTU) is: "... to provide special services to elderly persons in or awaiting personal care home placements who are experiencing behaviours which are disturbing to themselves or others" (BTU 2001)

The unit also believes:

- "in every individual's innate value, from birth to death.
- that every individual has the need and the right to strive for health, security, recognition and fulfillment.
- that the specialized environment, programs and training of the BTU staff supports each resident's dignity, independence, and self-determination through individualized care planning/ programming, assisting them to change behaviours which interfere with these goals.
- in individual freedom while at the same time addressing the need for safety and security in the least invasive/restrictive manor.
- that family members and friends play key roles in behaviour change and in the resident's sense of satisfaction and happiness. The concerns of these individuals are important to us and are addressed as completely as possible. The participation of these individuals in care and programming is encouraged.
- that each staff member offers unique gifts and a specific perspective to all aspects of work of the BTU. The BTU values all these gifts and perspectives equally, believing that the multidisciplinary team approach offers the most comprehensive service possible to our clients.
- that ongoing education and support for staff is an integral part of the service of BTU, and is necessary for the maintenance of good staff relations and continuously improving client care" (BTU 2001).

The BTU greenspace at Bethania was selected as a site for a number of reasons. Staff and administration value the potential relationship of residents and the natural environment. The existing arrangement of the interior spaces in relation to the exterior space is a successful feature. The activity space and nursing station have excellent sightlines to the outdoor space. Residents can access the space independently and are currently encouraged to interact with the plant material.

The goal of the unit is to control or change undesired behaviours. The unit acknowledges that changes in behaviour can occur as a result of new learning which takes place on a multi-sensory level (BTU 2001). A successfully designed therapeutic garden could be a valuable part of the programming of the BTU. The garden has the potential to be well utilized; as well as providing an environment where the implications and the results of residents' interactions could be monitored and perhaps even tested.

DESIGN ISSUES TO BE ADDRESSED

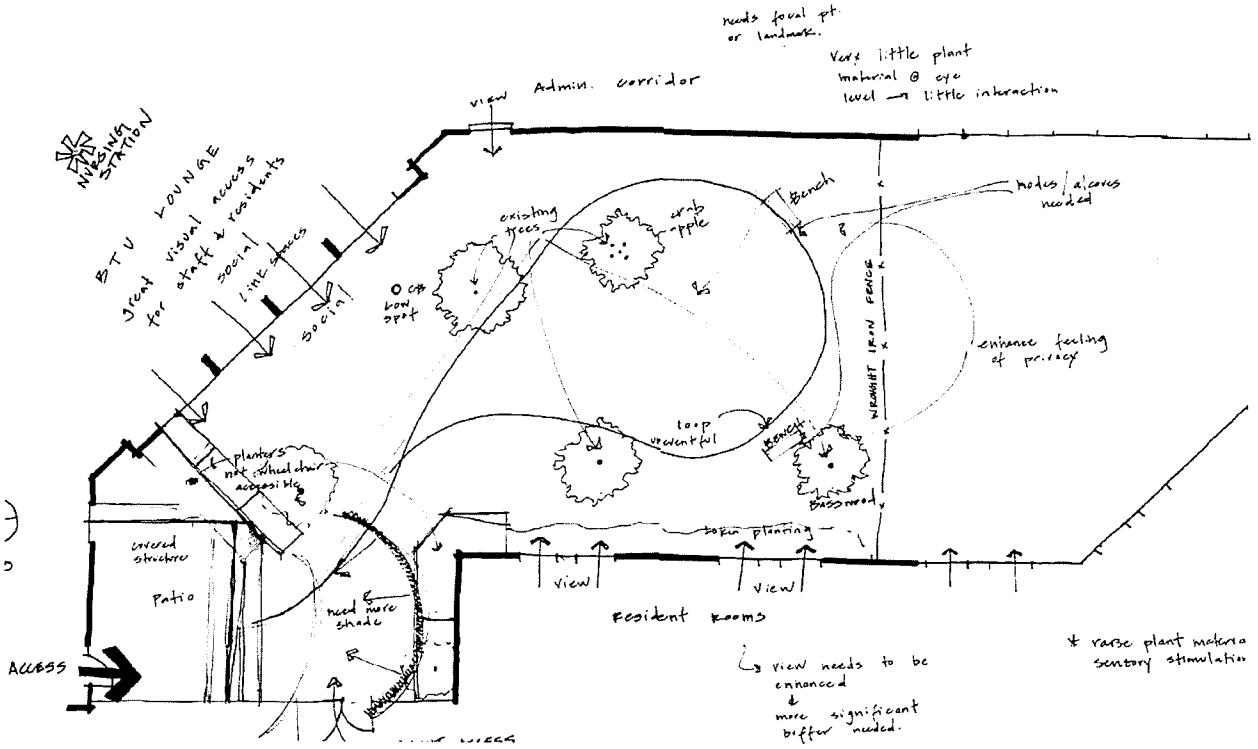


Figure 119: Analysis Plan

The BTU greenspace is currently lacking sensory stimulation. Planting is limited and the pathway is an uneventful loop with few opportunities for residents to interact with the plant material. The two raised planters are not wheelchair accessible.

The potential for experiential aspects of the garden requires exploration. Currently the space appears open and distinct areas are not well defined. Places need to be identified for passive and active use. Current sitting nodes are quite open to climatic elements and are highly visible. Places that provide a sense of privacy for residents should be included within the hierarchy of space. Areas of shade need to be increased either through the use of trees or structures.

Landmarks and focal points should be integrated into the space in order to provide residents with a sense of orientation as well as for interest and memory recall. Views into the garden from the interior of the building must not be compromised. As well, views within the garden need to be refined. Providing interesting views can encourage residents to move throughout the space.

DESIGN INTENTIONS

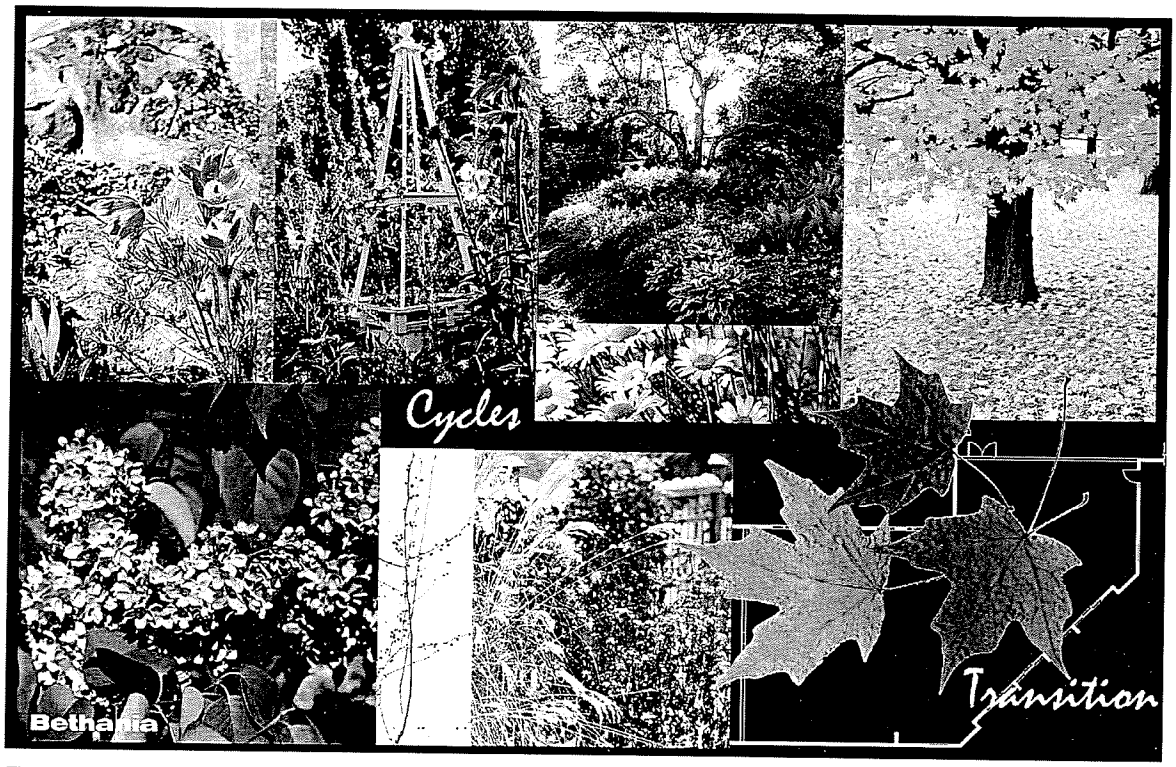


Figure 120: Concept Collage

The population of the BTU is changing continuously. The dynamics of residents entering the facility and then leaving provides a temporal environment. Residents are experiencing a time of transition.

The design intention for the garden is to provide an opportunity for residents to experience the natural environment in order to provide orientation to time and season. Since the residents are displaced from their permanent living environment for a temporary period of time, some form of

continuity is needed to ground or centre themselves within their new environment. Encouraging an awareness of the cycles of day and night as well as the seasons can help residents to connect with the larger systems of nature.

The garden will provide a therapeutic experience promoting a safe and secure environment for residents while focussing on providing a sensory experience. Through defining a number of distinct spaces within the garden, residents will have an opportunity to explore places, either to engage in social activities or to find a quiet spot to be alone. The pathway becomes a journey with meaning, allowing residents to encounter active and passive spaces that are enveloped by nature.

DESIGN FEATURES

Proposed features in the BTU garden include a 'three season' veranda which provides a transition space from interior to exterior (see Figure 121). This space provides protection from the climatic elements and insects and can be used for gatherings and various activities including horticultural therapy. The veranda door opens onto a patio which acts as a second transition space. The patio is sheltered by a vine covered trellis. This space projects into the garden, providing a visual cue for residents that signals the location of the door or the 'way home'. A wandering path provides continuous paving as residents proceed through distinct spaces within the garden. A bermed rock garden, seating nodes, and features such as planting, an obelisk and a garden sculpture provide interest and focal points along the path. The path leads to an alley of trees. Each tree is a different species: birch, lilac, amur cherry, maple and crab apple. The trees are located in wood planters, two of which incorporate seating. The planters contain annuals and provide an opportunity for residents to engage and interact with the elevated plant material as they move through the space. The tree canopy provides shade without obstructing the view of the garden from the building interior. The amount of paving is increased in the garden to accommodate activities. Raised accessible planters are located close to the veranda. The pathway leads residents back to the patio area. Planting acts as a buffer for the residents' rooms as well as provides a stimulating view. Small areas of lawn provide an opportunity for residents to walk barefoot or sit and experience the familiar texture and scent.

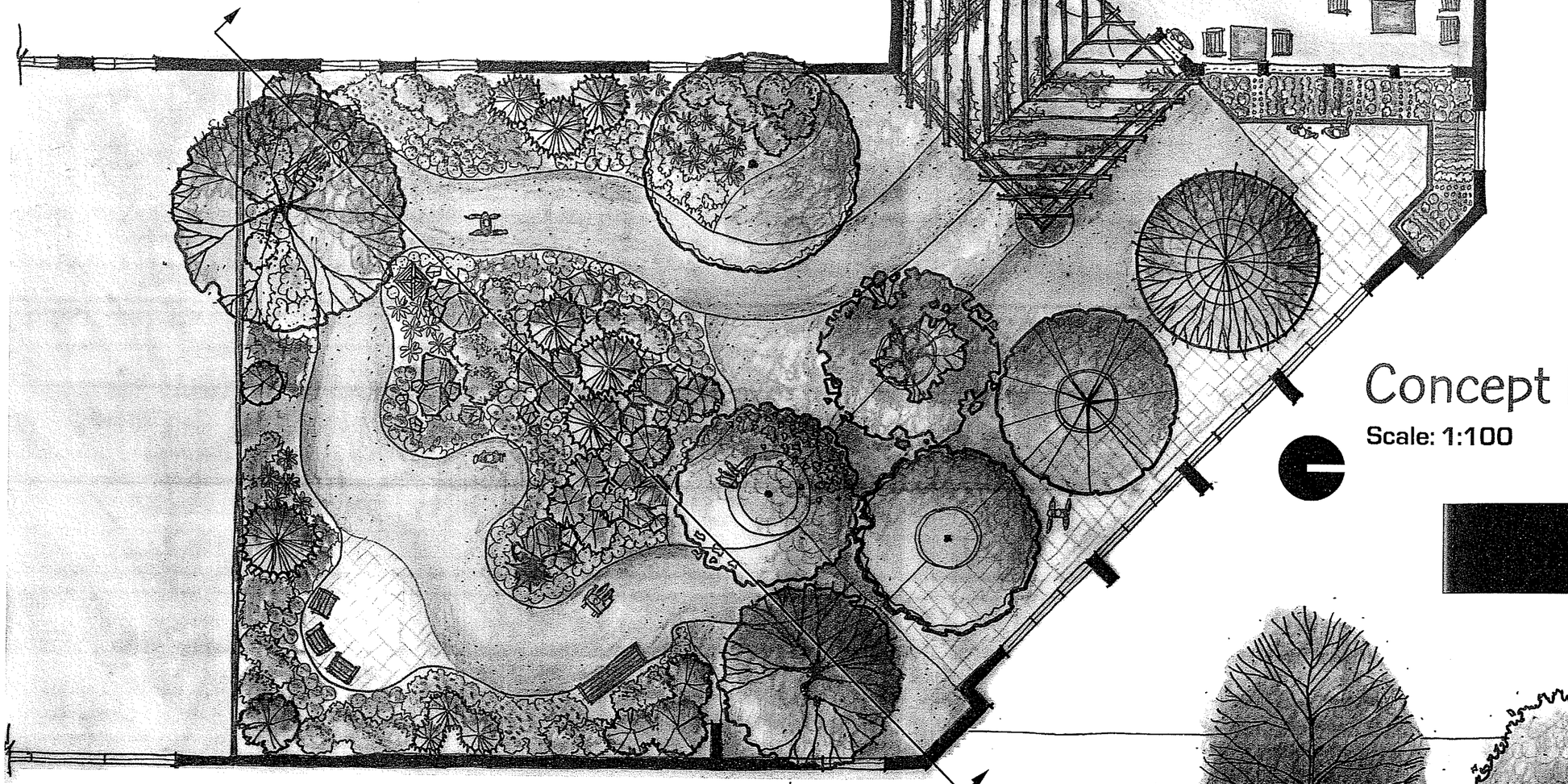
The Spatial Strategies that were most influential in improving the function, physical character and experience of the garden include:

- providing transition space(s) from interior to exterior
- linking the interior activity area to the exterior patio area
- enhancing and providing views from interior
- providing distinct types of spaces (use of a theme garden)
- elevating plant material for interaction with residents
- providing many opportunities for sensory stimulation
- providing a variety of plant materials that highlight the change of seasons
- providing a pathway with landmarks and focal points for orientation and wayfinding

Figure 121: Concept Plan and Section [inserted page to the right]

BETHANIA BTU *Bethania*

1045 Concordia Avenue
Winnipeg, MB



Concept Plan

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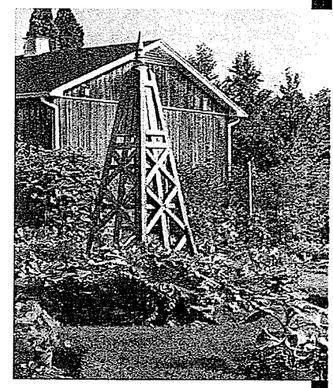

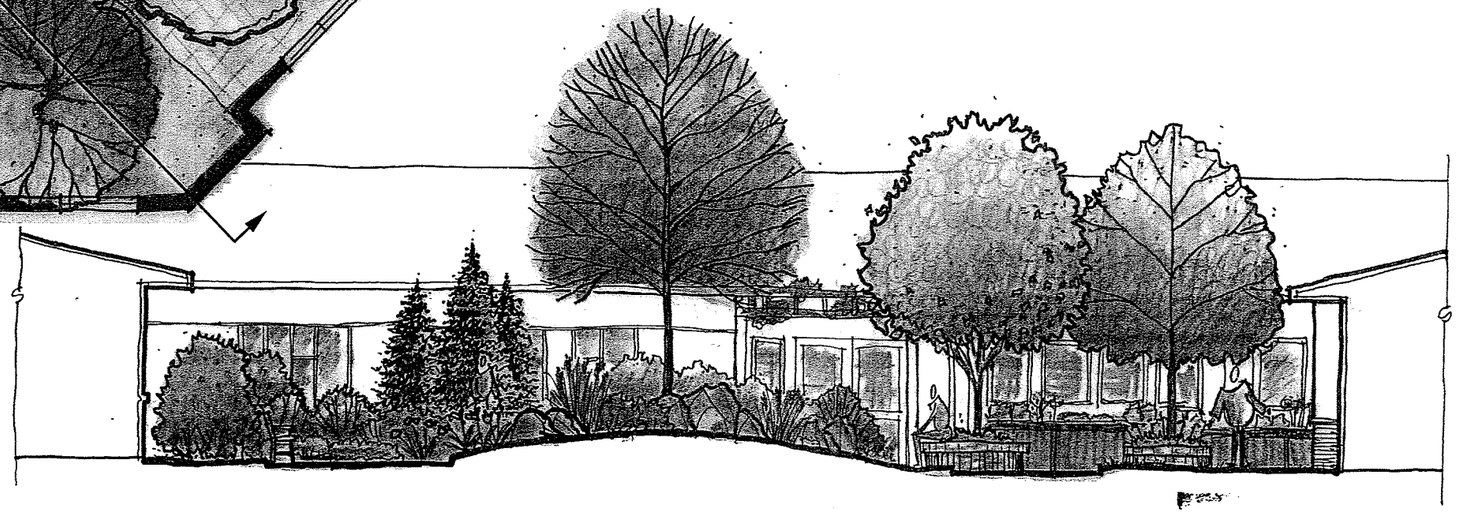

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Site 2

SITE THREE

ROSEWOOD VILLAGE

857 WILKES AVENUE WINNIPEG, MANITOBA

The Mission Statement of Rosewood Village is to be "committed to enrich the quality of life of the seniors we serve" (Independent Living and Support Care Inc 2001). The philosophy of the company is "an organization devoted to the total service of Tenants, recognizing the individual's right to respect, privacy, dignity, safety and independence (Independent Living and Support Care Inc 2001).

Management believes:

- "in mutual trust and respect that recognize the worth and dignity of the individual.
- in communication that is characterized by openness, honesty, and respect for confidentiality.
- that employees are our most valuable resource and that we have a commitment to provide the required training and development.
- that the primary role of effective leaders is to develop people to achieve autonomy and commitment to the job.
- in the interdependency of all departments working in a collaborative manner, focused on a common goal.
- that effective leaders encourage innovation and risk-taking and allow for failure recognizing that life entails risks and that failures can be opportunities for further learning and growth.
- that positive work environment is fostered by the ongoing appreciation of staff for their efforts and achievements.
- that working in a community, which promotes love, justice, service and compassion strengthens us" (Independent Living and Support Care Inc 2001).

[The information is currently under review as part of an accreditation process by Independent Living and Support Care Inc.]

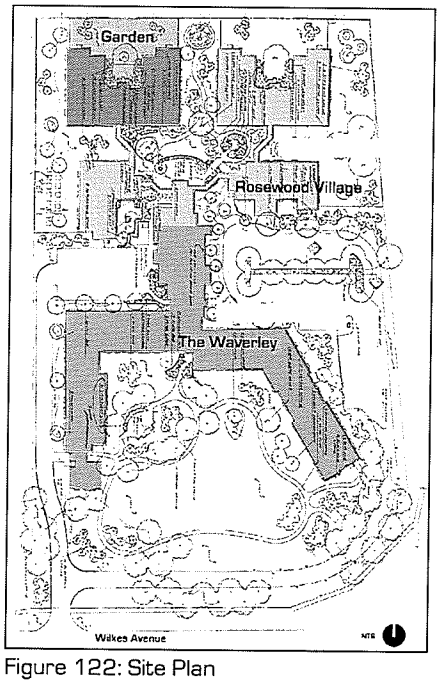


Figure 122: Site Plan

Rosewood Village is a two storey building attached to the Waverley housing complex. It is not a personal care home but rather a supportive housing/assisted living facility for people who need assistance with their daily activities. There are twelve separate units, referred to as 'houses'. There are tenants at Rosewood who are in the early stages of dementia.

Rosewood was selected as a site because: tenants are often in the early stages of Alzheimer Disease are still very active. Rosewood has integrated a successful homelike environment on the interior whereas the exterior is currently limited in development. In addition to a conceptual design scheme, a detailed design solution as been developed for the site.

In order for this design scheme to function, changes would have to be made to the current level and philosophy of care. As well, staffing levels would have to be increased. With these changes, Rosewood could be an ideal environment for people with Alzheimer Disease to live.

DESIGN ISSUES TO BE ADDRESSED

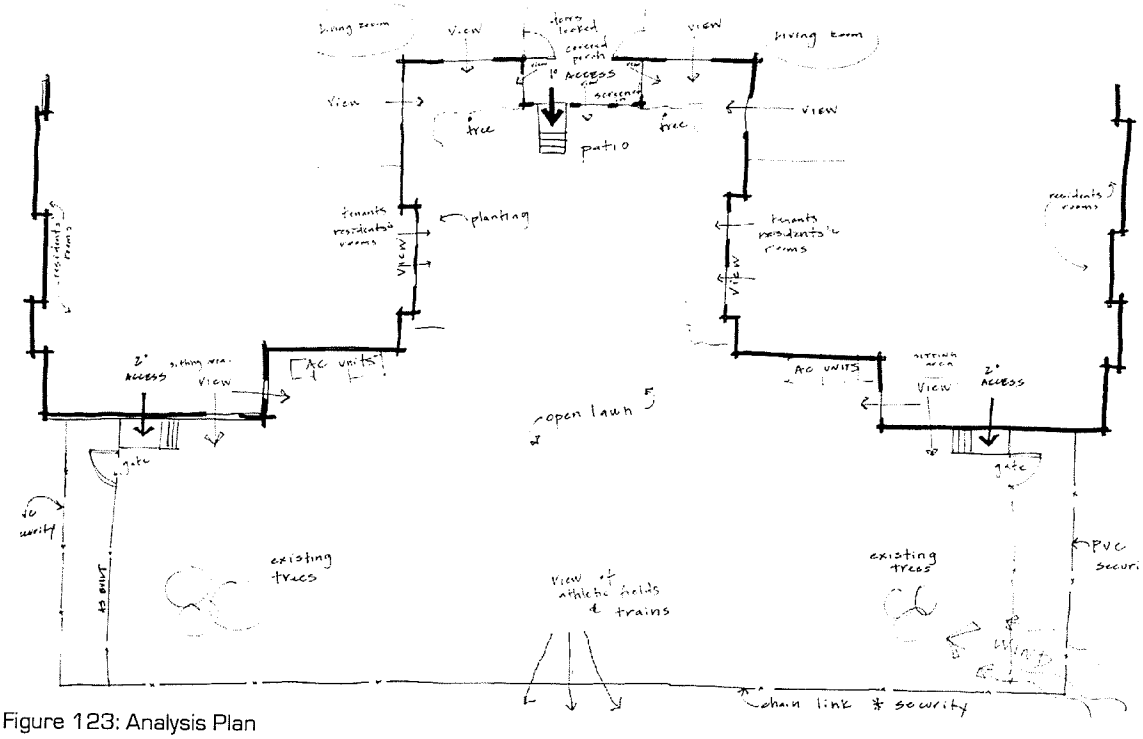


Figure 123: Analysis Plan

The primary issue at Rosewood concerns the existing greenspace which, currently, is not being used by tenants to its full potential. This is due to the fact that there is only one staff person to monitor twelve tenants. This outdoor space is difficult to monitor from the interior because of its configuration and 'blind' corners. The lack of visual access around the corners of the building warrants the development of the two secondary entrances (one from each house). On the interior spaces, these secondary entrances are seating nodes. A connection from interior to exterior needs to be established in this location. Safety and security are also concerns. The existing metal fences along the east and west sides are 4' (1.2 m) in height. This is not adequate. The 6' (1.8 m) chain link fence along the north side is adequate in height, but the chains link renders it climbable. Connections need to be strengthened from the interior social and activity spaces to the exterior spaces. Views through the garden to the nearby athletic fields and train tracks should not be compromised. Areas for activities including gardening, socializing, walking and observing nature need to be created. Separate spaces/places should be identified within the garden. The outdoor space is not currently universally accessible. Stairs are provided, but a ramp should also be integrated.

DESIGN INTENTIONS

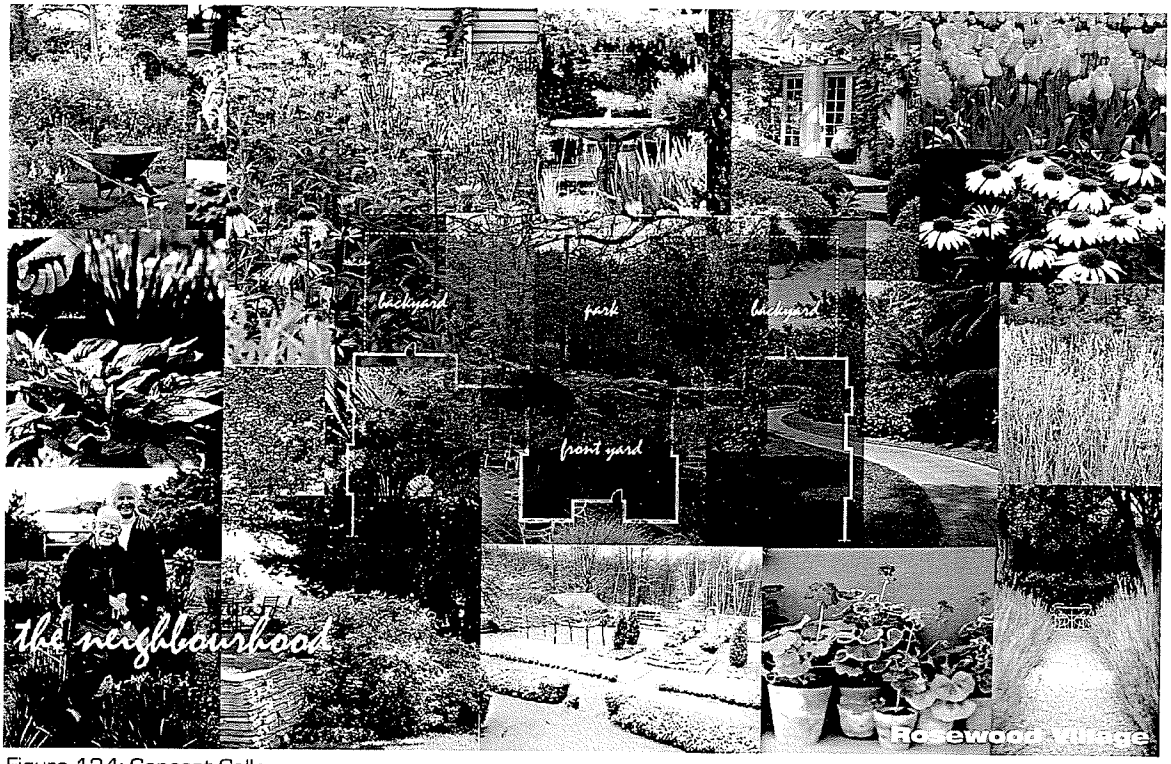


Figure 124: Concept Collage

The design intention for Rosewood Village is to promote a feeling of freedom. The tenants at Rosewood Village are experiencing a transition within their lives. Living at Rosewood is perhaps the first experience of living in a setting where residents are not in complete control of their living environment. Since Rosewood is most likely the first environment that people with Alzheimer Disease have lived in where they cannot access their residential yard and garden, it becomes a difficult transition and represents a loss of independence. The freedom to access the garden plays an important role in maintaining a degree of independence for the tenants. Freedom to explore in the garden and interact with the plant material helps to provide activities for the residents that have meaning.

The garden at Rosewood can foster a sense of pride, a vested interest for the tenants and staff. It can be a place where they can exercise their ownership and begin to bring a sense of personalization to the planting beds.

The design concept for Rosewood involves the creation of 'The Neighbourhood', including front porch, front yard and garden, the park or stroll and the back yard (see Figure 125). For the tenants, this garden represents their community. They can access the space at their own will. They can venture far from home and enjoy a destination or remain close by and enjoy the patios connected to their front or back doors.

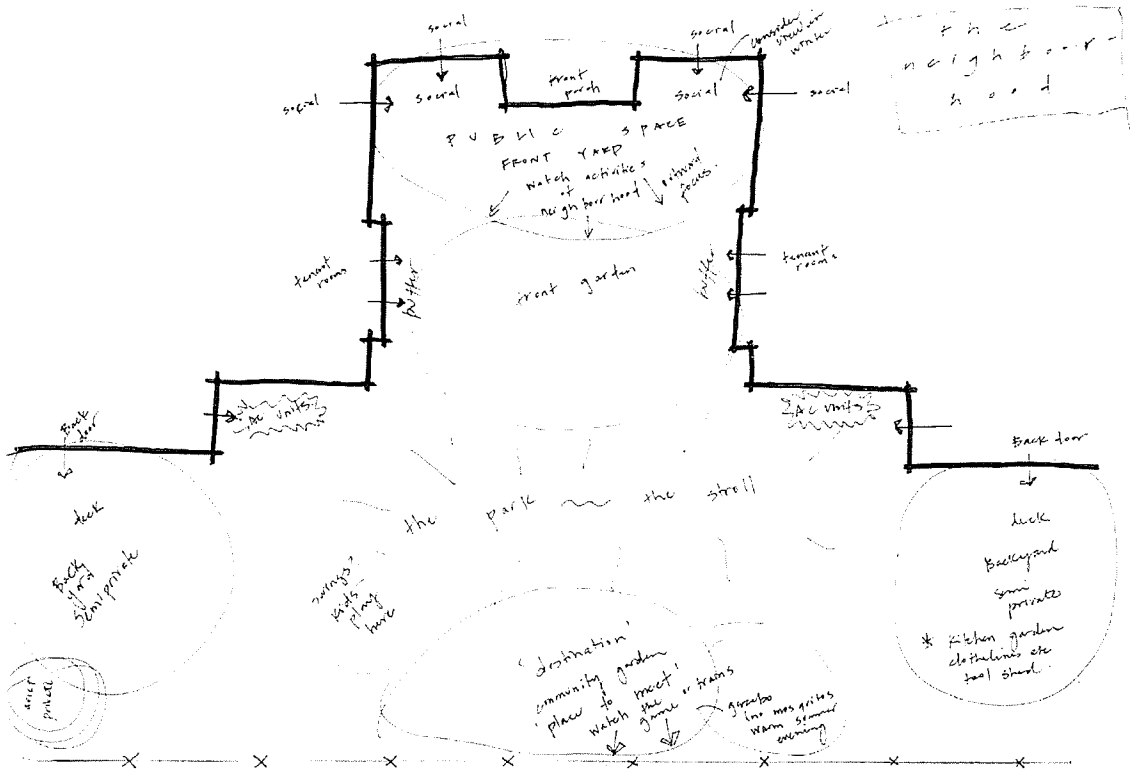


Figure 125: 'Neighbourhood' Concept

DESIGN FEATURES

As tenants enter the garden from the front porch, this primary door leads them to the 'front yard' and front garden (see Figures 125-127). This space is a patio and acts as a continuation of the social spaces through its proximity and relationship to the interior. The space also has an outward focus, to watch the activities of the neighbourhood. A choice of circulation is provided through a ramp and stairs down to another patio. Low level planting surrounds both patios and raised planters allow for tenants to care for the plant material. Moveable site furnishings allow for flexible use of the space.

The 'park' or 'stroll' is located in the central area of the garden. A crushed limestone path provides a place for exercise and interaction with other tenants. The bird bath and butterfly garden provide a stimulating central destination. A gazebo also provides a landmark and destination. It acts a place to gather and provides an insect-free space to watch the games in the nearby athletic fields. A galvanized welded wire mesh 6' (1.8 m) fence with wood posts encloses the garden. It does not obstruct the view(s) out of the garden and is difficult for tenants to climb.

'Backyards' have been created as semi-private spaces. The addition of a screened-in veranda and wood deck provide an extension of the interior spaces of the building. The veranda allows visibility to the backyard patio and gardens. The west and east backyards are each unique and have different configurations and elements that help the tenants distinguish each. Features of the west backyard include: raised planters for vegetables, shade garden, trembling aspen grove, seating area, hand water pump, tool shed and clothes line. The east backyard has window boxes for annuals, a rose garden, an edible garden including herbs, blueberries, raspberries, saskatoons and sunflowers. A sand box serves as an interactive feature. Seating areas are provided including a wood glider.

Throughout the Rosewood garden, familiar focal points and landmarks help to cue tenants. Species of trees, shrubs, annuals and perennials as well as objects such as the clothesline, water pump and shed help evoke long-term memories.

The Spatial Strategies that were most influential in improving the function, physical character and experience of the Rosewood garden include:

- providing a universally accessible greenspace
- providing and enhancing transition space(s) from interior to exterior
- creating distinct types of spaces
- providing areas for sensory stimulation and interaction with plant materials
- creating places to observe birds and animals

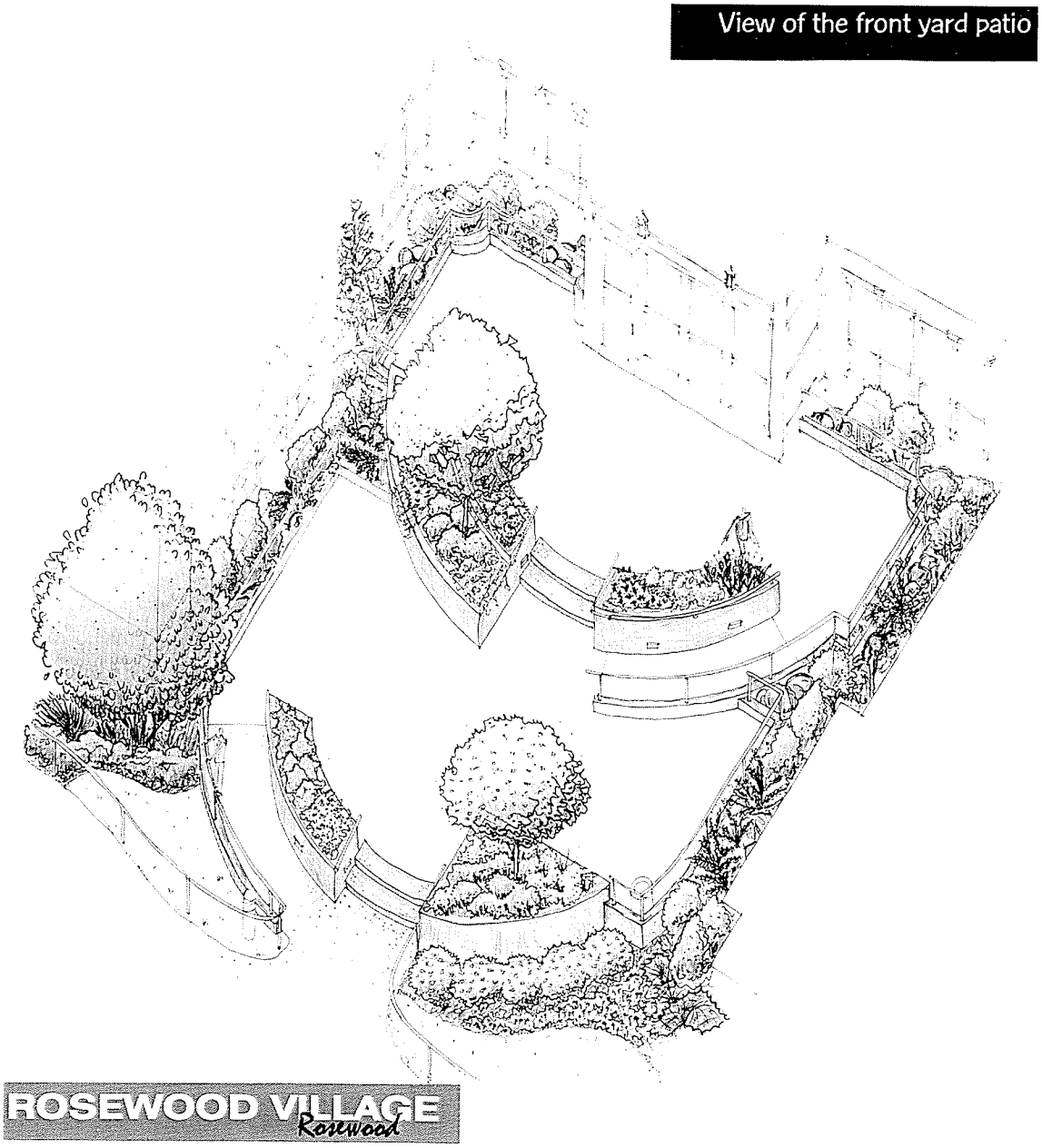


Figure 126: Axonometric Drawing of Patio

Inserted pages:

Figure 127: Concept Plan and Section

Figure 128: Materials Plan

Figure 129: Planting Plan

Figure 130: Grading Plan

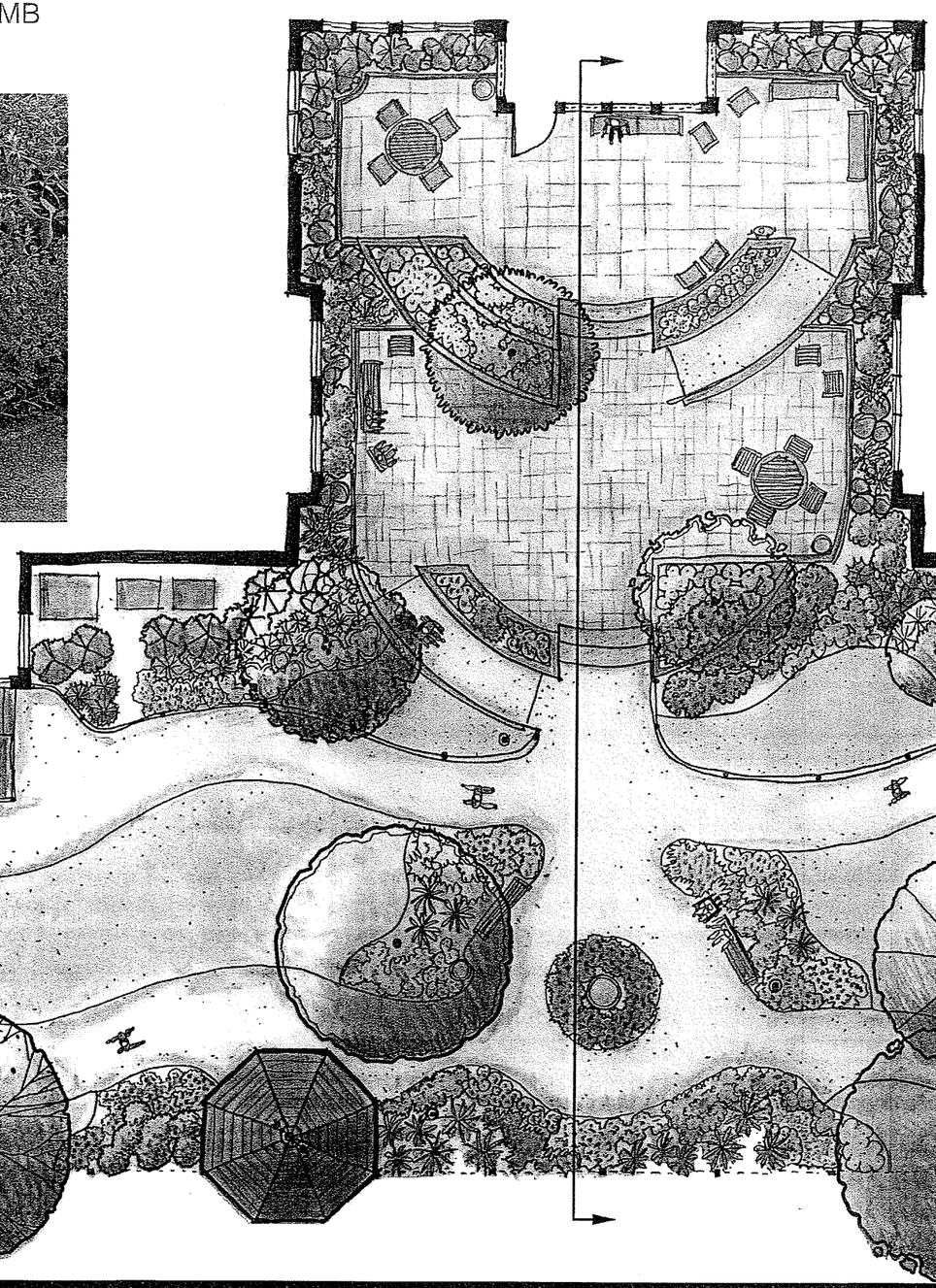
Figure 131-133: Experiential Sketches depicting some of the essentials features of the Garden at Rosewood Village

ROSEWOOD VILLAGE

Rosewood

857 Wilkes Avenue
Winnipeg, MB

Section **Scale: 1:125**



Concept Plan **1**
Scale: 1:125

Site 3

Raised Planters
Annuals

Patio Borders
See plant list at right

Patio Borders
Cornus alba 'Kesselringii' Kesselring Dogwood
Viburnum trilobum 'Compactum' Dwarf Cranberry
Matteucia Native Fern
Celastrus scandens Bittersweet

Transition/Shade Garden
Cornus alba Silver Var. Dogwood
Juniperus sabina 'Blue Danube' Blue Danube Juniper
Juniperus sabina 'Calgary Carpet' Calgary Carpet Juniper
Vinca minor Periwinkle
Viola canadensis Canadian Violet

Prunus nigra
Canada Plum

Transition/Shade Garden
Prunus tenella Flowering Almond
Juniperus sabina 'Blue Danube' Blue Danube Juniper
Juniperus sabina 'Calgary Carpet' Calgary Carpet Juniper
Veronica alpine 'Alba' Speedwell

Syringa reticulata
Japanese Tree Lilac

Raised Planters
Annuals

Shade Garden
Galium odoratum Sweet Woodruff
Hosta spp. Hosta
Astibe x arendsii Garden Astibe

Populus tremuloides
Trembling Aspen

Acer spicatum
Mountain Maple

Prunus maackii
Amur Cherry

Syringa meyeri (Palibin)
Meyer Dwarf Lilac

Window Boxes
Annuals

Acer Saccharinum
Silver Maple

Fraxinus pennsylvanica
Green Ash

Malus
Dolgo Crab Apple

Helianthus spp. Sunflower
Amelanchier alnifolia Saskatoon

Raised Vegetable Garden Plots
Carrots Tomatoes
Cuccumber Strawberries

Peas Beans

Tilia cordata
Little leaf Linden

Ulmus americana
American Elm

Picea glauca 'Densata'
Black Hills Spruce

Larix laricina Tamarack

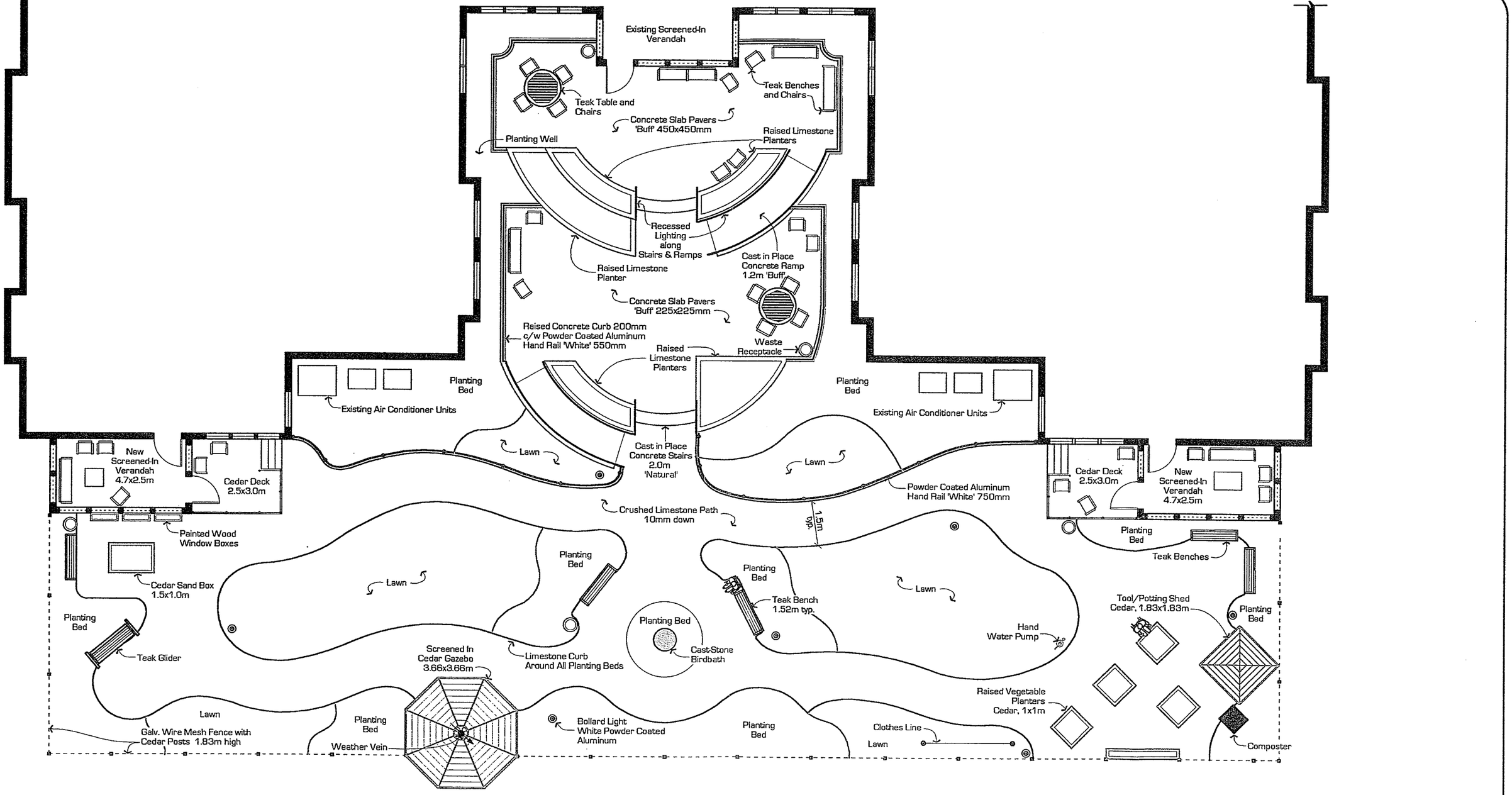
Edible Garden
Vaccinium spp. Blueberry
Rubus spp. Raspberry
Ocimus bascilicum Basil
Anethum graveolens Dill
Mentha spp. Mint
Thymus spp. Thyme

Rose Garden
Rosa arkansana Sunshine Rose
Rosa rugosa Rugosa Rose
Rosa rubrifolia Red Leaf Rose

Butterfly Garden
Aster spp. Purple Dome
Asclepias tuberosa Butterfly Weed
Arabis alpina Rockcress
Archileas millifolium Yarrow
Coreopsis lance olata Lance Leaved Coreopsis
Echinacea purperea Purple Coneflower
Solidago flexicaulis Zig Zag Goldenroc
Rabbida pinnata Yellow Coneflower
Andropogon 'gerardi Big Bluestem
Petalostemum purpureum Purple Prairie Clover

0 .5 1 2 4m

ROSEWOOD VILLAGE
Rosewood Village
Planting Plan
1:125

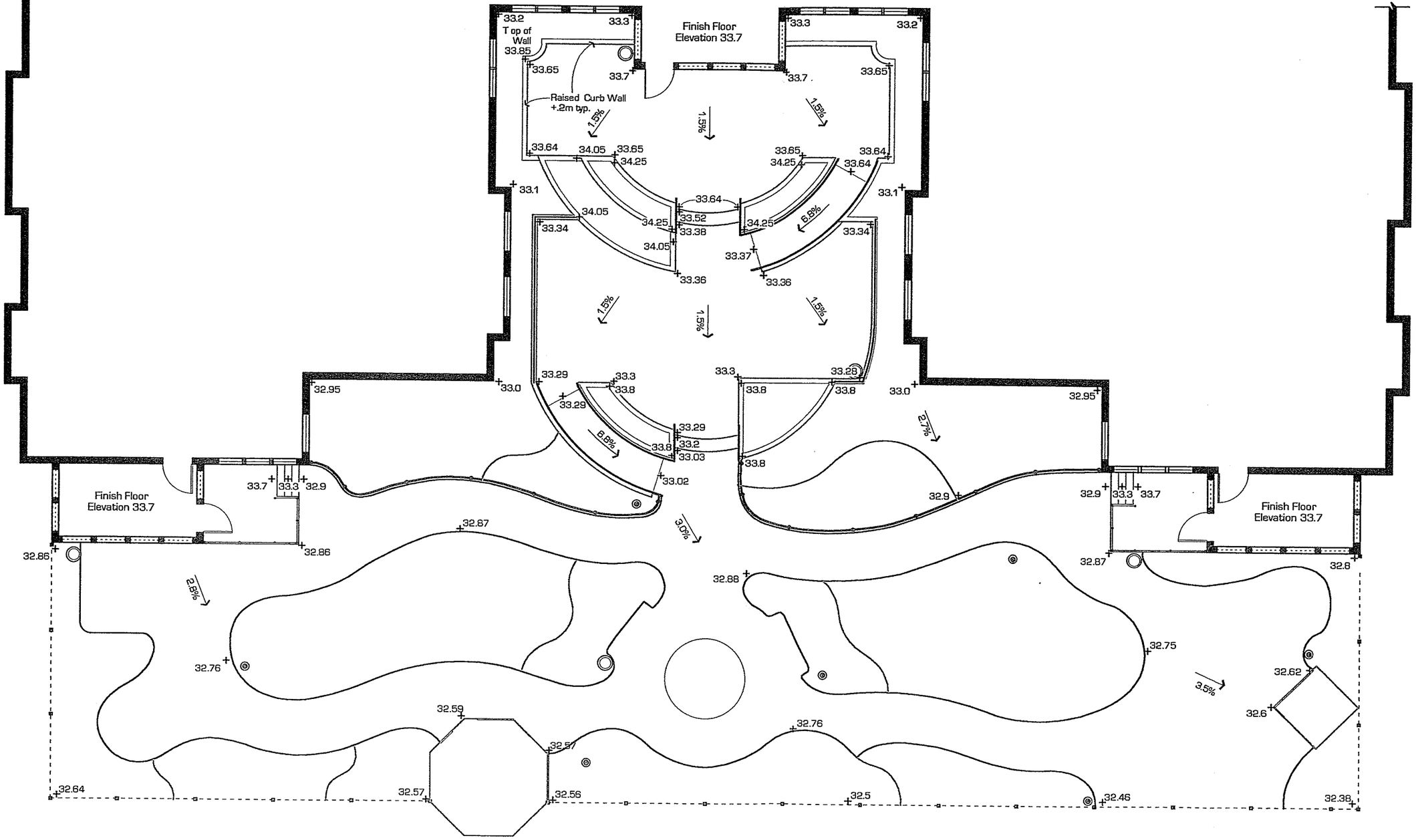


ROSEWOOD VILLAGE

Rosewood Village

Materials Plan

1:125


Finish Floor Elevation 33.7
Raised Curb Wall +.2m typ.
Top of Wall 33.85
33.2
33.3
33.65
33.7
33.64
34.05
34.25
33.1
33.52
33.38
33.37
33.36
33.34
1.5%
6.8%
33.29
33.8
33.03
33.02
32.95
33.0
32.9
32.86
2.6%
3.0%
2.7%
32.87
32.88
32.76
32.59
32.57
32.56
32.64
32.5
32.46
32.75
32.62
32.6
32.38
3.5%
32.8
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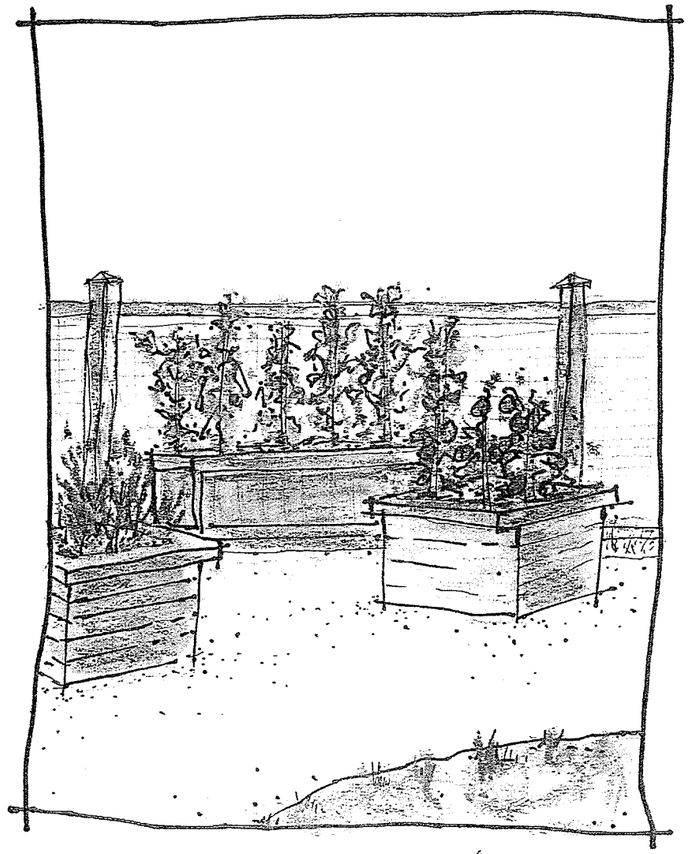
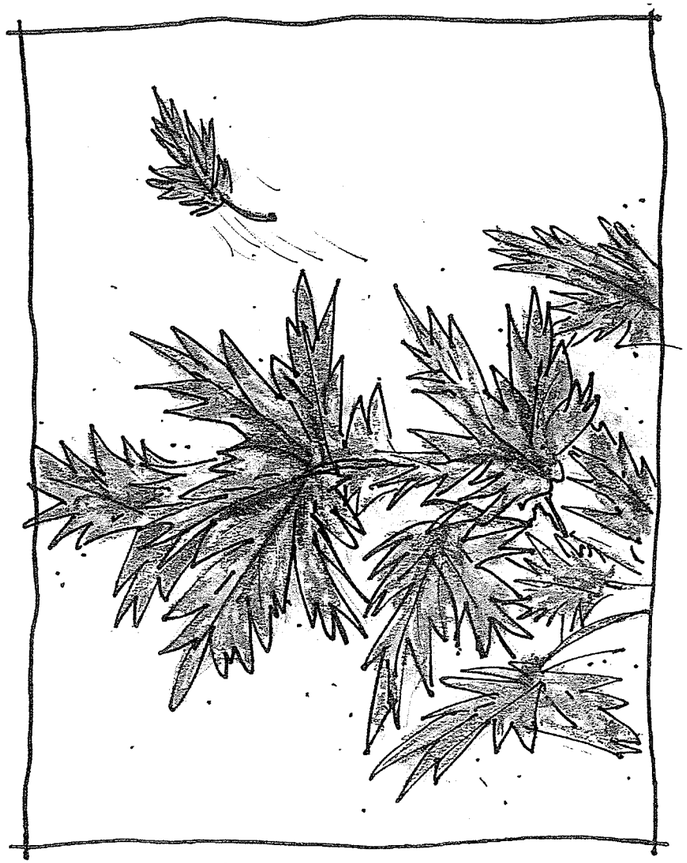
ROSEWOOD VILLAGE
Rosewood Village
Grading Plan
1:125



touch the soil,
taste the harvest

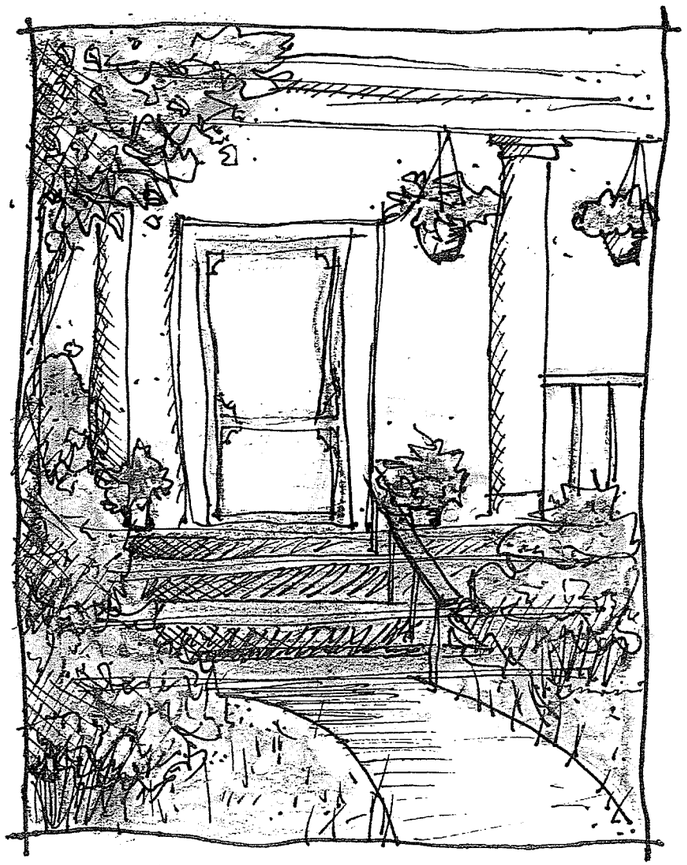


fall has arrived

watch the birds

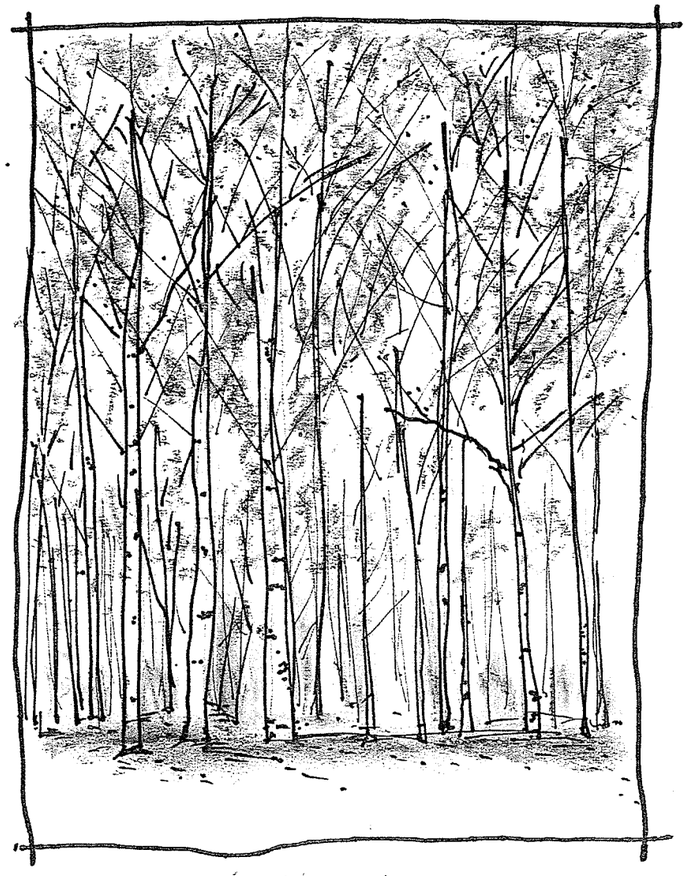
the scent of spring

sunflowers say hello



home is this way

I remember the prairie



feel the breeze,
hear the rustle

butterflies dancing
in the flowers

CHAPTER SEVEN *Conclusion*

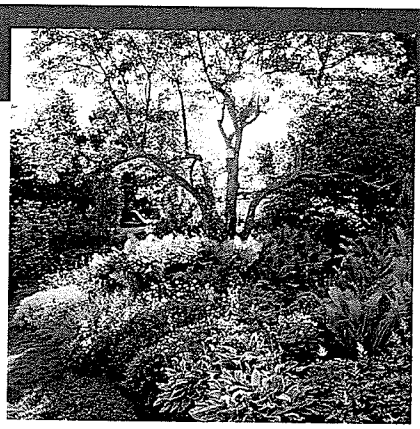


Figure 134

Alzheimer Disease is devastating; it changes peoples' lives and the lives of those around them. People with Alzheimer Disease perceive the world around them differently. They often become displaced, having to relocate to new surroundings. Ideally, this new environment resembles home, both on the inside and on the outside. They need to find a place that is restorative, a place that is familiar, where they can experience a connection to the animate world around them.

For people with Alzheimer Disease, gardens can provide a safe place for interaction with plants, a space for privacy, contemplation and solitude, and an area to socialize with others or engage in activities. Gardens are a place of beauty, growth and change. They embody the cyclical processes of nature and provide essential links to these systems.

The Spatial Strategies produced by this practicum are intended to guide the process of designing gardens for people with Alzheimer Disease. These new environments will help stimulate therapeutic responses. However, the principles and lessons revealed through this research are not restricted solely to this population. The restorative effects of nature as well as the goals for therapeutic outdoor spaces are applicable to all gardens, and to the people who experience them.

Conceptual designs were created for three care facilities: Donwood Manor, Bethania Behavioural Treatment Unit and Rosewood Village. The strategies influenced the designs by improving the function, physical character and experiential qualities of the garden. The strategies did not guide, however, the design process independently. The design process flourishes with inspiration. Design concepts are layers of intentions that converge and become a point of departure for creativity and the ordering of spaces.

The conceptual designs are idealistic. They are a pure application of the author/designer's intentions. Administrators at the three facilities were not consulted for their design input, nor was the cost of building the gardens considered. For these reasons, the designs are utopian and are meant to provide inspirational references for future designs. This research hopes to expand the awareness of the therapeutic importance of gardens for people with Alzheimer Disease as well as encourage such environments to be built. Ideally, building gardens would be the next phase for continuing this research and could subsequently be assessed for the relevance and positive and negative impacts of these environments.

Personally, this practicum has been a process of discovery. It has opened my eyes to many crucial healthcare issues and to the isolation that some people with Alzheimer Disease experience in relation to the outdoors. It has also provided me with an opportunity to be inspired. Occasionally, even the slightest gesture or intervention by one individual can have far-reaching effects on a facility's garden and its residents.

> *"I'm not sure why, but when I'm in a garden, I feel different. Let me be specific: I feel good. There's something about being around plants – particularly those that are lovingly cared for – that instantly fills me with serenity and joy. When I close my eyes and breathe the heady scent of flowers or hear the gentle rustle of leaves, I'm in heaven. When I get down close to the earth and feel the soil with my hands, there's a sense of connectedness to the living universe that opens my heart as nothing else can."* *(Goldman and Mahler 2000:1-2)*

Figure 135

ILLUSTRATIONS

Forward:

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Chapter 1: Intro:

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APPENDICES

Appendix A

10 Warning Signs of Alzheimer Disease

Courtesy of the Alzheimer Society of Manitoba, 2002

Alzheimer Disease

10 Warning Signs

Click here to return to previous page.

Alzheimer Disease is the leading cause of dementia -- a set of symptoms that includes loss of memory, judgment and reasoning, and changes in mood and behaviour.

Sometimes, people fail to recognize that these symptoms indicate that something is wrong. They may mistakenly assume that such behaviour is a normal part of aging -- it isn't. Or symptoms may develop gradually and go unnoticed for a long time.

It is important to see your doctor when you recognize these symptoms as they may be due to other treatable conditions. If the diagnosis is Alzheimer Disease, help is available.

To help you know what warning signs to look for, the Alzheimer Society has developed a checklist of common symptoms (some of them may apply to other forms of dementia). Review the list – if you notice several symptoms, the person with the symptoms should see a **doctor** for a complete examination.

1. Memory loss that affects day-to-day function

It's normal to occasionally forget appointments, colleagues' names or a friend's phone number and remember them later. A person with Alzheimer Disease may forget things more often and not remember them later, especially things that have happened more recently.

2. Difficulty performing familiar tasks

Busy people can be so distracted from time to time that they may leave the carrots on the stove and only remember to serve them at the end of the meal. A person with Alzheimer Disease may be unable to prepare any part of a meal or forget they ate it.

3. Problems with language

Everyone has trouble finding the right word sometimes, but a person with Alzheimer Disease may forget simple words or substitute inappropriate words, making his or her sentences difficult to understand.

4. Disorientation of time and place

It's normal to forget the day of the week or your destination – for a moment. But a person with Alzheimer Disease can become lost on their own street, not knowing how they got there or how to get home.

5. Poor or decreased judgment

People may sometimes put off going to a doctor if they have an infection but eventually seek medical attention. A person with Alzheimer Disease may not recognize the infection as a problem or go to the doctor at all. Or they may dress inappropriately, wearing heavy clothing on a hot day.

6. Problems with abstract thinking

From time to time, people may find balancing a cheque book difficult. Someone with Alzheimer Disease could forget completely what the numbers are and what needs to be done with them. Celebrating a birthday is something many people do, but a person with Alzheimer Disease may not understand what a birthday is.

7. Misplacing things

Anyone can temporarily misplace a wallet or keys. A person with Alzheimer Disease may put things in inappropriate places: an iron in the freezer or a wristwatch in the sugar bowl.

8. Changes in mood or behaviour

Everyone becomes sad or moody from time to time. Someone with Alzheimer Disease can exhibit rapid mood swings -- from calm to tears to anger -- for no apparent reason.

9. Changes in personality

People's personalities can change somewhat with age. But a person with Alzheimer Disease can change dramatically, becoming extremely confused, suspicious or withdrawn. Changes may also include apathy, fearfulness or acting inappropriately.

10. Loss of initiative

It's normal to tire of housework, business activities or social obligations, but most people regain their initiative. A person with Alzheimer Disease may become very passive, and require cues and prompting to become involved.

Adapted with permission from the Alzheimer's Association, U.S.

Want more information?

- Getting a Diagnosis

This page last reviewed/revised May 2002.

Appendix B

Experiential Stories

Demenita as a Journey - Dawson, Wells and Kline, 1993
The Experience of Person-Centred Care - Kitwood, 1998

Courtesy of the Alzheimer Society of Manitoba, 2002

Dementia as a Journey

We imagine that the experience of having Alzheimer Disease might be similar to a journey by train with an unknown destination:

I am going on a long journey by train. As I begin, the city skyscrapers and country landscape look familiar. As I continue my journey, the view reminds me of times gone by and I feel relaxed and comfortable. The other passengers on the train appear to be feeling the same way and I engage in pleasant conversation with them.

As the journey progresses, things begin to look different. The buildings have odd shapes and the trees don't look quite the way I remember them. I know that they are buildings and trees, but something about them is not quite right. Maybe I'm in a different country with different architecture and plant life. It feels at bit strange, even unnerving.

I decide to ask the other passengers about the strangeness I feel, but I notice that they seem unconcerned. They are barely taking notice of the passing scenery. Maybe they have been here before. I ask some questions but nothing seems different to them. I wonder if my mind is playing tricks on me. I decide to act as if everything looks all right, but because it does not, I have to be on my guard. This places some tension on me, but I believe I can tolerate it for the remainder of the trip. I do, however, find myself becoming so preoccupied with appearing all right that my attention is diverted from the passing scenery.

After some time, I look out the window again and this time I know that something is wrong. Everything looks strange and unfamiliar! There is no similarity to anything I can recall from the past. I must do something. I talk to the other passengers about the strangeness I feel. They look dumbfounded and when they answer, they talk in a new language. Why won't they talk in a language I can understand, I wonder? They look at ~~my~~ knowingly and with sympathy. I've got to get to the bottom of this so I keep after them to tell me where the train is and where it is going. The only answers I get are in this strange language, and even when I talk, my words sound strange to me. Now I am truly frightened.

At this point, I figure that I have to get off this train and find my way home, I hadn't bargained for this when I started. I get up to leave and bid a pleasant goodbye. I don't get very far, though, as the other passengers stop me and take me back to my seat. It seems they want me to stay on the train whether I want to or not. I try to explain but they just talk in that strange language.

Outside the window, the scenery is getting even more frightening. Strange, inhuman-looking beings peer into the window at me. I decide to make a run for it. The other passengers are not paying much attention to me so I slip out of my seat and quietly walk toward the back of the car. There's a door! It is difficult to push but I must. It begins to open and I push harder. Maybe now I will get away. Even though it looks pretty strange out there I know I will never find my way home if I don't get off this train. I am just ready to jump when hands suddenly appear from nowhere and grab me from behind. I try to get away. I try to fight them off, but I can feel them pulling me back onto the train. I hear the door shut. They take me back to my seat. I realize now that I will never get off this train; I will never go home.

How sad I feel. I did not say goodbye to my children or friends. As far as I know they do not know where I am. The passengers look sympathetic, but they do not know how sad I feel. Maybe if they knew they would let me off the train. I stop smiling, stop eating, stop trying to talk, and avoid looking out the window. The passengers look worried. They force me to eat. It is difficult because I am too sad to be hungry.

I have no choice now. I have to go along with the passengers because they seem to know where the journey will end. Maybe they will get me there safely. Oh, how I wish that I had never started out on this journey but I know I cannot go back.

Adapted from: Dawson, Wells & Kline: Enhancing the Abilities of Persons with Alzheimer Disease and Related Dementia

The experience of person-centred care - Tom Kitwood in Dementia Reconsidered

You are in a garden, at the start of a summer's day. The air is warm and gentle, carrying the sweet scent of flowers, and a slight mist is floating around. You can't make out the shape of everything, but you are aware of some beautiful colours, blue, orange, pink and purple; the grass is green as emerald. You don't know where you are, but this doesn't matter. You somehow feel "at home", and there is a sense of harmony and peace.

As you walk around, you become aware of other people. Several of them seem to know you; it is a joy to be greeted so warmly, and by name. There are one or two of them whom you feel sure you know well. And then there is that one special person. She seems so warm, so kind, so understanding. She must be you mother; how good it is to be back with her again. The flame of life now burns brightly and cheerfully within you. It hasn't always been like this. Somewhere, deep inside, there are dim memories of times of crushing loneliness and ice-cold fear. When that was, you do not know; perhaps it was in another life. Now there is company whenever you want it, and quietness when that is what you prefer. This is the place where you belong, with these wonderful people; they are like a kind of family.

The work that you do here is the best you have ever had. The hours are flexible, and the job is pleasant; being with people is what you have always enjoyed. You can do the work at exactly your own pace, without any rush or pressure, and you can rest whenever you need. For instance there is that kind man who often comes to see you - by a strange coincidence his name is the same as that of yourhusband. He seems to need you, and to enjoy being with you. You, for your part, are glad to give time to being with him, his presence, strangely, gives you comfort.

As you pass by a mirror you catch a glimpse of a person who looks quite old. Is it you grandmother, or that person who used to live next door? Anyway, it is good to see her too. Then you begin to feel tired; you find a chair and you sit down, alone. Soon you become aware of a chill around you heart, a sinking feeling in your stomach - the deadly fear is coming over you again. You are about to cry out, but then you see that kind mother-person, already there, sitting beside you. Her hand is held out towards you, waiting for you to grasp it. As you talk together, the fear evaporates like the morning mist, and you are again in the garden, relaxing in the golden warmth of the sun. You know it isn't heaven itself, but sometimes it feels as if it might be halfway there.

(Kitwood 1997: 84-85)

Appendix C

List of Poisonous Plants

Munro, Derek B.
Agriculture and Agri - Food Canada, 2002

Canadian Poisonous Plants Information System

by
Derek B. Munro
Biological Informatics Specialist

Introduction - Canadian poisonous plants

by
Derek B. Munro
Biological Informatics Specialist
Taxonomic Information Systems (TIS)

The CANADIAN POISONOUS PLANTS INFORMATION SYSTEM presents data on plants that cause poisoning in livestock, pets, and humans. The plants include native, introduced, and cultivated outdoor plants as well as indoor plants that are found in Canada. Some food and herbal plants are also included that may cause potential poisoning problems.

Plant poisoning is caused by chemicals in plants that have undesirable affects upon animals and humans. Some poisons must be ingested whereas others, such as chemicals in poison-ivy, only require contact to elicit response in sensitive humans. Some chemicals must be modified before they are poisonous to animals, such as prunasin and other cyanogenic glycosides. These chemicals must be hydrolyzed by plant enzymes or by rumen organisms.

Plants that cause dermatitis are discussed in this program if the reactions are severe. The more obscure dermatologic plants are not included. For more information on plant-induced dermatitis [see Mitchell, J. C., Rook, A. 1979. Botanical dermatology. Greenglass Ltd, Vancouver, B.C., Canada. 787 pp.].

Other excluded plants are those that only cause mechanical injury, poisonous blue-green algae, and plants causing hay fever.

While the Information System is oriented primarily to a Canadian audience, much of the information is useful elsewhere. Certainly the plants grown in and around homes can be grown throughout the temperate regions of the world. Indeed, many house plants are tropical in origin. Other plant species included here have been introduced to North America as well as other temperate regions of the world. The information on the native plant species is applicable wherever they grow in North America.

Information included in this program has the following limitations:

- much literature on poisonous plants is anecdotal and therefore of limited reliability
- many plants are only mildly poisonous or cause symptoms in unusual circumstances such as when prodigious quantities of material have been consumed
- the author has attempted to find the most current literature available on each included plant species (up to the 1993 publishing date of the original document). However, in many cases, current information refers to works published early in that century.

All poisonous plants

Scientific name	Common name
Abrus precatorius	precatory-pea
Acer rubrum	red maple
Aconitum napellus	monk's hood
Aesculus glabra	Ohio buckeye
Aesculus hippocastanum	horse-chestnut
Agrostemma githago	purple cockle
Ailanthus altissima	tree-of-heaven
Allamanda cathartica	golden-trumpet
Allium canadense	wild onion
Allium cepa	onion
Allium sativum	garlic
Allium schoenoprasum	chives
Aloe arborescens	candalabra aloe
Aloe barbadensis	aloe - A. barbadensis
Alstroemeria ligtu	Peruvian lily
Amaranthus blitoides	prostrate pigweed
Amaranthus hybridus	smooth pigweed
Amaranthus retroflexus	redroot pigweed
Amaryllis belladonna	amaryllis (A. belledonna)
Amaryllis vittata	amaryllis (A. vittata)
Amelanchier alnifolia	Saskatoon (a serviceberry)
Amsinckia intermedia	fiddleneck
Anagallis arvensis	scarlet pimpernel
Anthurium andraeanum	flamingo lily
Apocynum androsaemifolium	spreading dogbane
Apocynum cannabinum	hemp dogbane
Arisaema triphyllum	Jack-in-the-pulpit
Armoracia rusticana	horseradish
Asarum canadense	wild ginger
Asclepias speciosa	showy milkweed
Asclepias syriaca	common milkweed
Asclepias verticillata	eastern whorled milkweed
Asimina triloba	pawpaw
Astragalus adsurgens	Astragalus (A. adsurgens)
Astragalus bisulcatus	two-grooved milk-vetch
Astragalus canadensis	Canadian milk-vetch
Astragalus lentiginosus	Astragalus (A. lentiginosus)

Astragalus miser	timber milk-vetch
Avena sativa	oats
Baptisia leucantha	wild false indigo
Baptisia tinctoria	wild indigo
Barbarea vulgaris	yellow rocket
Bassia hyssopifolia	five-hooked bassia
Brassaia actinophylla	Australian umbrella tree
Brassica campestris	bird rape
Brassica juncea	Indian mustard
Brassica napus	rapeseed
Brassica oleracea	wild cabbage
Caladium bicolor	caladium
Calla palustris	wild calla
Cannabis sativa	marijuana
Caulophyllum thalictroides	blue cohosh
Centaurea repens	Russian knapweed
Centaurea solstitialis	yellow star-thistle
Ceratocephalus testiculatus	bur buttercup
Chelidonium majus	greater celandine
Chenopodium album	lamb's-quarters
Chrysanthemum indicum	chrysanthemum
Chrysothamnus nauseosus	stinking rabbitbrush
Cicuta douglasii	western water-hemlock
Cicuta maculata	spotted water-hemlock
Cicuta virosa	northern water-hemlock
Clivia miniata	Kaffir lily
Codiaeum variegatum	croton
Colchicum autumnale	autumn crocus
Conium maculatum	poison-hemlock
Convallaria majalis	lily-of-the-valley
Cyclamen persicum	cyclamen
Cynoglossum officinale	hound's tongue
Cypripedium acaule	pink lady's-slipper
Cypripedium calceolus	yellow lady's-slipper
Cypripedium reginae	showy lady's-slipper
Daphne cneorum	garland daphne
Daphne laureola	spurge-laurel
Daphne mezereum	February daphne
Datura innoxia	angel's trumpet
Datura stramonium	jimsonweed
Delphinium bicolor	low larkspur
Delphinium glaucum	tall larkspur
Delphinium menziesii	Menzies larkspur
Descurainia pinnata	green tansy mustard
Dicentra canadensis	squirrel-corn
Dicentra cucullaria	Dutchman's-breeches
Dicentra formosa	western bleedingheart

Dictamnus albus	gas plant
Dieffenbachia amoena	giant dumbcane
Dieffenbachia bausei	dumbcane
Dieffenbachia maculata	spotted dumbcane
Dieffenbachia seguine	mother-in-law plant
Digitalis purpurea	foxglove
Dirca palustris	leatherwood
Echium vulgare	blueweed
Equisetum arvense	field horsetail
Equisetum palustre	marsh horsetail
Erysimum cheiranthoides	wormseed mustard
Euonymus atropurpureus	burningbush
Euonymus europaeus	European spindletree
Eupatorium rugosum	white snakeroot
Euphorbia cyparissias	cypress spurge
Euphorbia esula	leafy spurge
Euphorbia helioscopia	sun spurge
Euphorbia lactea	candelabra-cactus
Euphorbia lathyris	caper spurge
Euphorbia milii	crown-of-thorns
Euphorbia peplus	petty spurge
Euphorbia pulcherrima	poinsettia
Euphorbia tirucalli	penciltree
Fagopyrum esculentum	buckwheat
Galanthus nivalis	snowdrop
Ginkgo biloba	maidenhair tree
Glechoma hederacea	ground-ivy
Gloriosa superba	glory lily
Glyceria grandis	tall manna grass
Gutierrezia sarothrae	broom snakeweed
Gymnocladus dioicus	Kentucky coffeetree
Hedera helix	English ivy
Helenium autumnale	sneezeweed
Helenium flexuosum	naked-flowered sneezeweed
Helianthus annuus	sunflower
Heliotropium curassavicum	spatulate-leaved heliotrope
Heracleum mantegazzianum	giant hogweed
Humulus lupulus	common hop
Hyacinthoides nonscripta	English bluebell
Hydrangea macrophylla	hydrangea
Hymenoxys richardsonii	Colorado rubberweed
Hyoscyamus niger	black henbane
Hypericum perforatum	St. John's-wort
Ilex aquifolium	English holly
Ilex opaca	American holly
Ipomoea tricolor	morning glory
Iris pseudacorus	yellow iris

Iris versicolor	blue flag iris
Iva xanthifolia	false ragweed
Juglans nigra	black walnut
Kalanchoe daigremontiana	Devil's-backbone
Kalmia angustifolia	sheep-laurel
Kalmia polifolia	bog-laurel
Kochia scoparia	kochia
Laburnum anagyroides	golden-chain
Lactuca scariola	prickly lettuce
Lantana camara	yellow sage
Laportea canadensis	Canada nettle
Lathyrus odoratus	sweet pea
Lathyrus sativus	grass pea
Leonurus cardiaca	motherwort
Ligustrum vulgare	common privet
Linaria vulgaris	yellow toadflax
Lobelia cardinalis	cardinalflower
Lobelia inflata	Indian-tobacco
Lobelia siphilitica	blue cardinalflower
Lonicera tatarica	Tartarian honeysuckle
Lonicera xylosteum	fly honeysuckle
Lupinus argenteus	silvery lupine
Lupinus burkei	Burke's lupine
Lupinus polyphyllus	large-leaved lupine
Lupinus pusillus	small lupine
Lupinus sericeus	silky lupine
Maclura pomifera	Osage-orange
Mangifera indica	mango
Medicago sativa	alfalfa
Melilotus alba	white sweet-clover
Melilotus officinalis	yellow sweet-clover
Menispermum canadense	moonseed
Menziesia ferruginea	western minniebush
Monstera deliciosa	Swiss-cheese plant
Narcissus poeticus	narcissus
Narcissus pseudonarcissus	daffodil
Nerium oleander	oleander
Nicotiana tabacum	tobacco
Onoclea sensibilis	sensitive fern
Ornithogalum umbellatum	star-of-Bethlehem
Oxytropis lambertii	purple locoweed
Oxytropis sericea	locoweed (Oxytropis sericea)
Papaver nudicaule	Iceland poppy
Papaver orientale	Oriental poppy
Papaver rhoeas	corn poppy
Papaver somniferum	opium poppy
Parthenocissus quinquefolia	Virginia creeper

Pastinaca sativa	wild parsnip
Persea americana	avocado
Phacelia campanularia	California bluebell
Phalaris arundinacea	reed canarygrass
Philodendron cordatum	philodendron
Philodendron scandens	heart-leaved philodendron
Phoradendron flavescens	American mistletoe
Physalis alkekengi	Chinese-lantern
Physalis peruviana	ground-cherry
Phytolacca americana	pokeweed
Pinus ponderosa	ponderosa pine
Podophyllum peltatum	May-apple
Primula obconica	primula
Prunus pensylvanica	pin cherry
Prunus serotina	black cherry
Prunus virginiana	red chokecherry
Pteridium aquilinum	bracken
Quercus alba	white oak
Quercus rubra	red oak
Quercus velutina	black oak
Ranunculus bulbosus	bulbous buttercup
Ranunculus sceleratus	celery-leaved buttercup
Raphanus raphanistrum	wild radish
Raphanus sativus	radish
Rhamnus cathartica	European buckthorn
Rhamnus frangula	alder buckthorn
Rheum rhaponticum	rhubarb
Rhododendron albiflorum	white rose-bay
Rhododendron macrophyllum	California rose-bay
Rhus diversiloba	western poison-oak
Rhus radicans	poison ivy
Rhus vernix	poison sumac
Ricinus communis	castor-bean
Robinia pseudoacacia	black locust
Rudbeckia laciniata	cut-leaved coneflower
Rudbeckia serotina	black-eyed Susan
Rumex acetosa	garden-sorrel
Rumex acetosella	sheep sorrel
Rumex venosus	veined dock
Sambucus canadensis	American elder
Sambucus nigra	European elder
Sarcobatus vermiculatus	greasewood
Scilla siberica	Siberian scilla
Senecio integerrimus	entire-leaved groundsel
Senecio jacobaea	tansy ragwort
Senecio vulgaris	common groundsel
Sinapis arvensis	wild mustard

Solanum dulcamara	climbing nightshade
Solanum nigrum	black nightshade
Solanum pseudocapsicum	Jerusalem-cherry
Solanum tuberosum	potato
Solidago mollis	velvety goldenrod
Sorghum bicolor	Sorghum
Sorghum halepense	Johnson grass
Sorghum sudanense	Sudan grass
Suckleya suckleyana	poison suckleya
Symphoricarpos albus	thin-leaved snowberry
Symphytum asperum	prickly comfrey
Symphytum officinale	common comfrey
Symplocarpus foetidus	skunk cabbage
Tanacetum vulgare	tansy
Taxus baccata	English yew
Taxus canadensis	Canada yew
Taxus cuspidata	Japanese yew
Thermopsis rhombifolia	golden-bean
Thlaspi arvense	stinkweed
Trifolium hybridum	alsike clover
Trifolium pratense	red clover
Trifolium repens	white clover
Triglochin maritima	seaside arrow-grass
Triglochin palustre	marsh arrow-grass
Tulipa gesneriana	tulip
Urtica dioica	stinging nettle
Veratrum viride	false hellebore
Viburnum opulus	Guelder-rose
Vicia faba	broad bean
Vicia sativa	common vetch
Vicia villosa	hairy vetch
Wisteria floribunda	Japanese wisteria
Xanthium strumarium	cocklebur
Zigadenus elegans	white camas
Zigadenus venenosus	death camas

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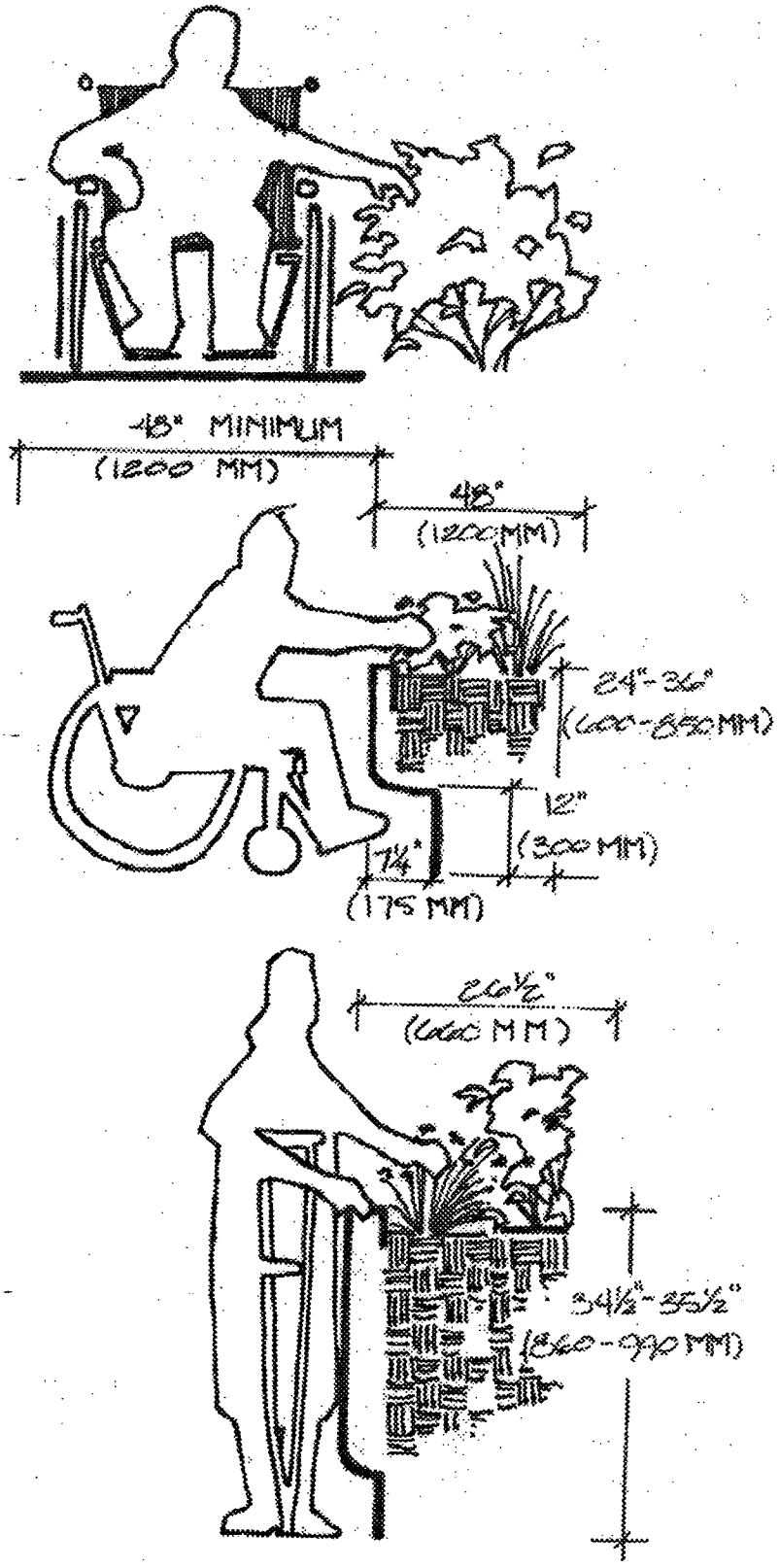
Taxonomic Information Systems (TIS)
Eastern Cereal and Oilseed Research Centre (ECORC)

Research Branch
Agriculture and Agri-Food Canada

Appendix D

Accessible Planters

Harris & Dines, 1988



Raised planters for individuals with reach limitations (Harris and Dines 1988)

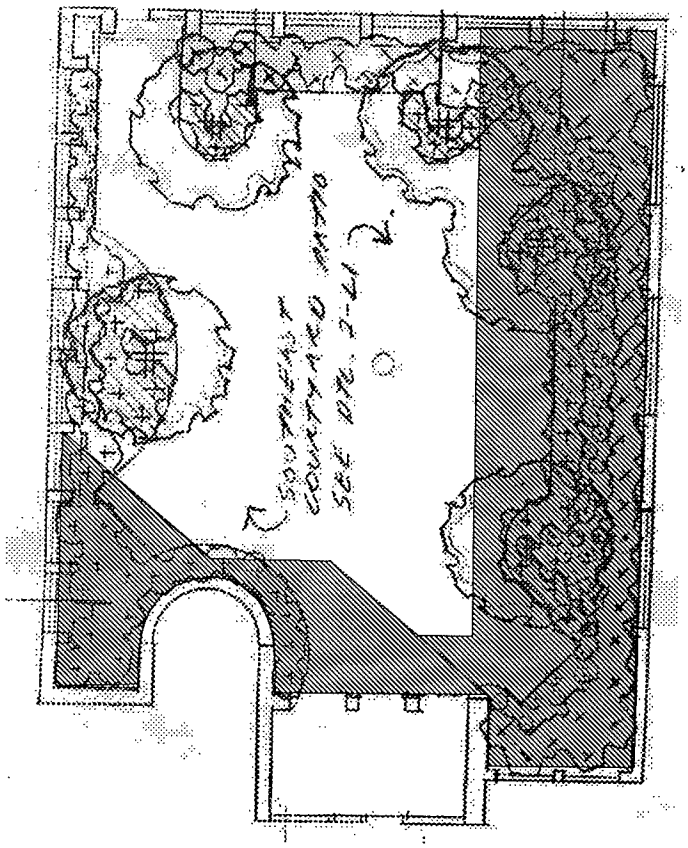
Appendix E

Solar Analysis of Conceptual Design Sites

Donwood Manor
Bethania Behavioural Treatment Unit
Rosewood Village

Author, 2002

Donwood Manor

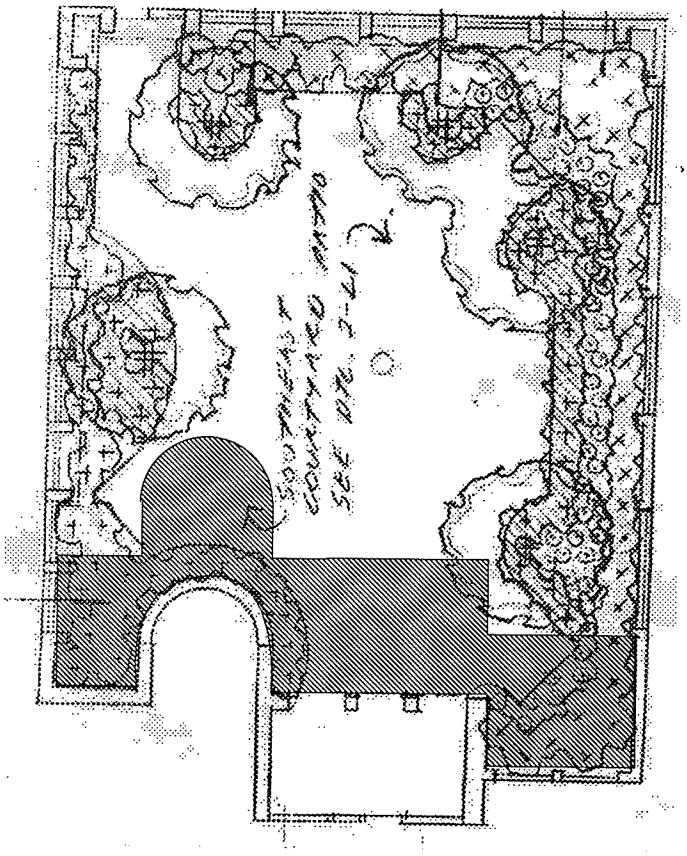


Summer - June 21

10 am

nts

Donwood Manor

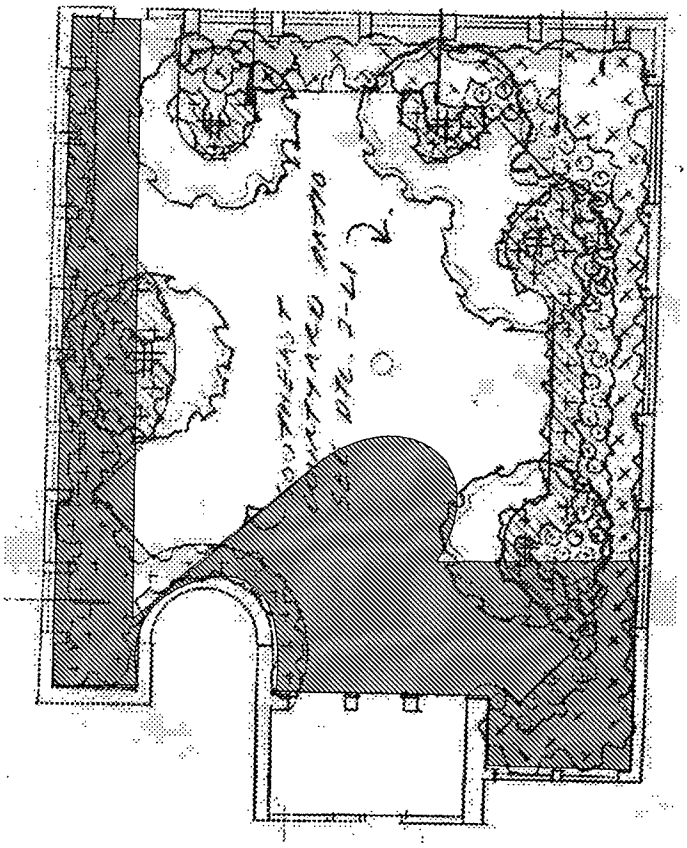


Summer

12 Noon

nts

Donwood Manor

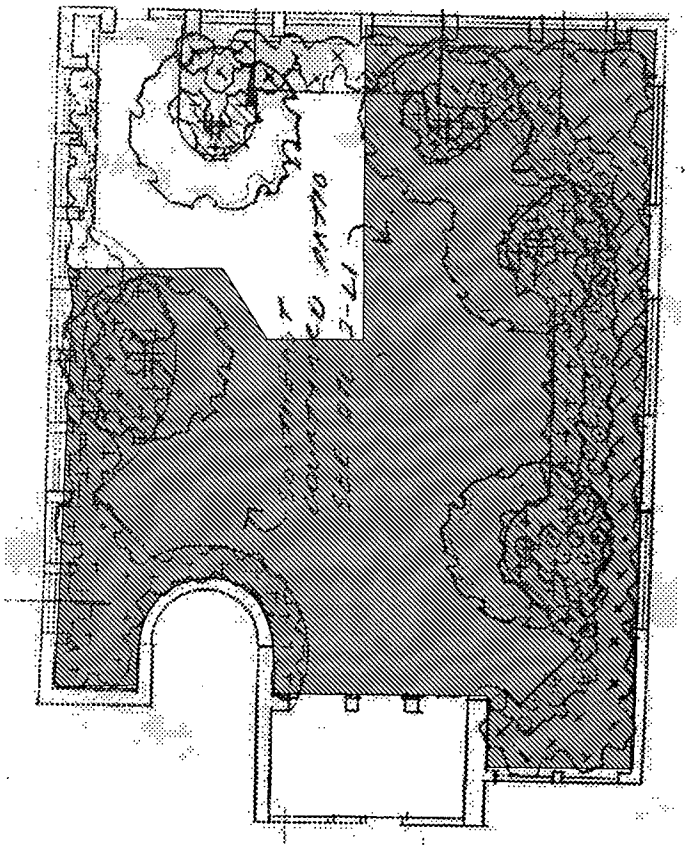


Summer

2 pm

nts

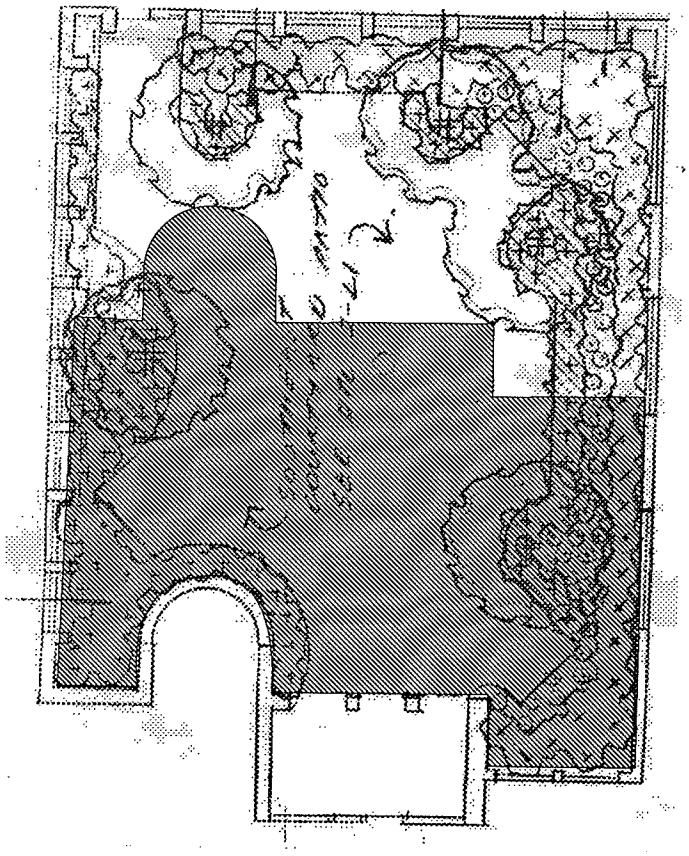
Donwood Manor



Equinox - Mar./Sept. 21
10 am

nts 1

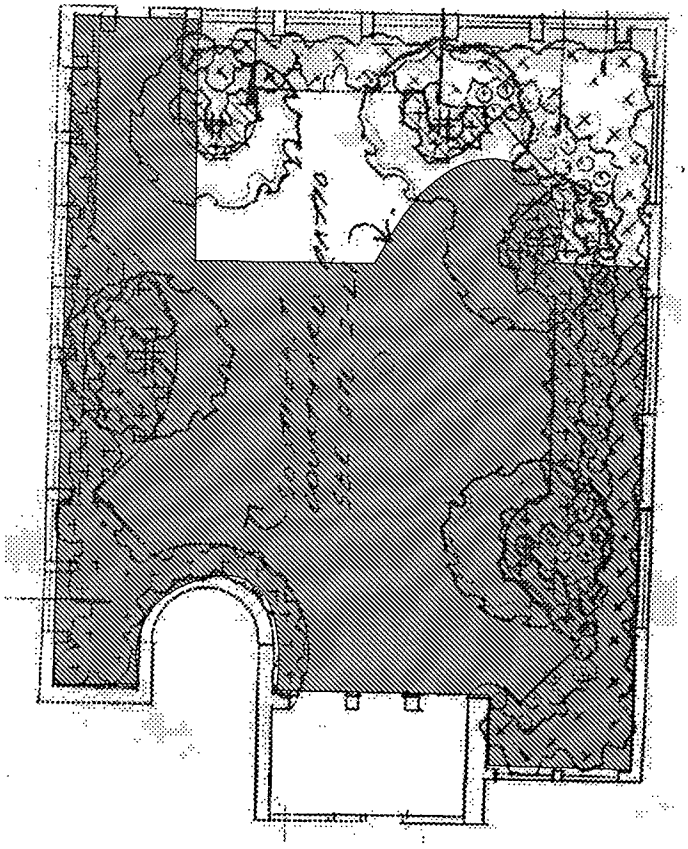
Donwood Manor



Equinox
12 Noon

nts

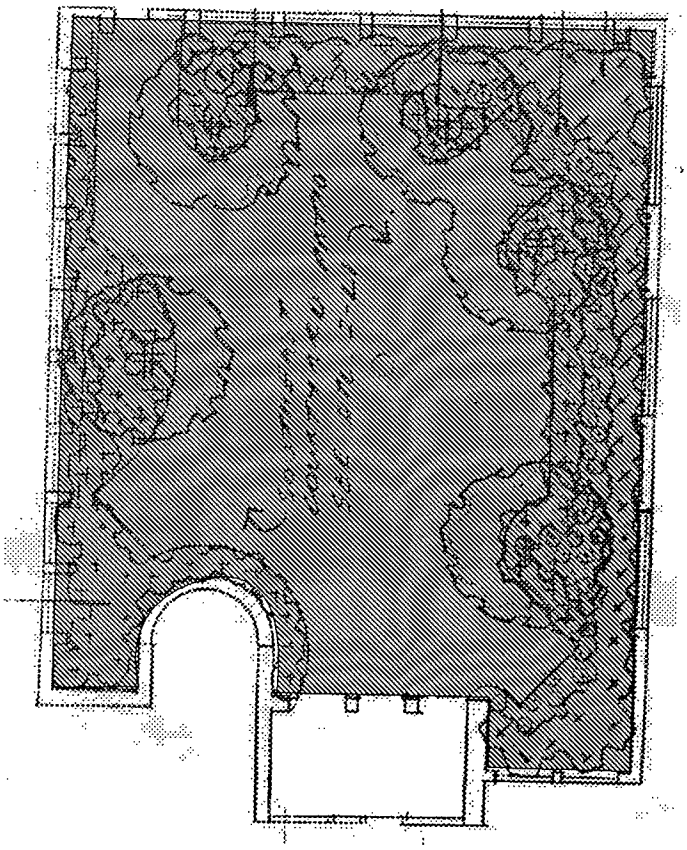
Donwood Manor



Equinox

2 pm

Donwood Manor



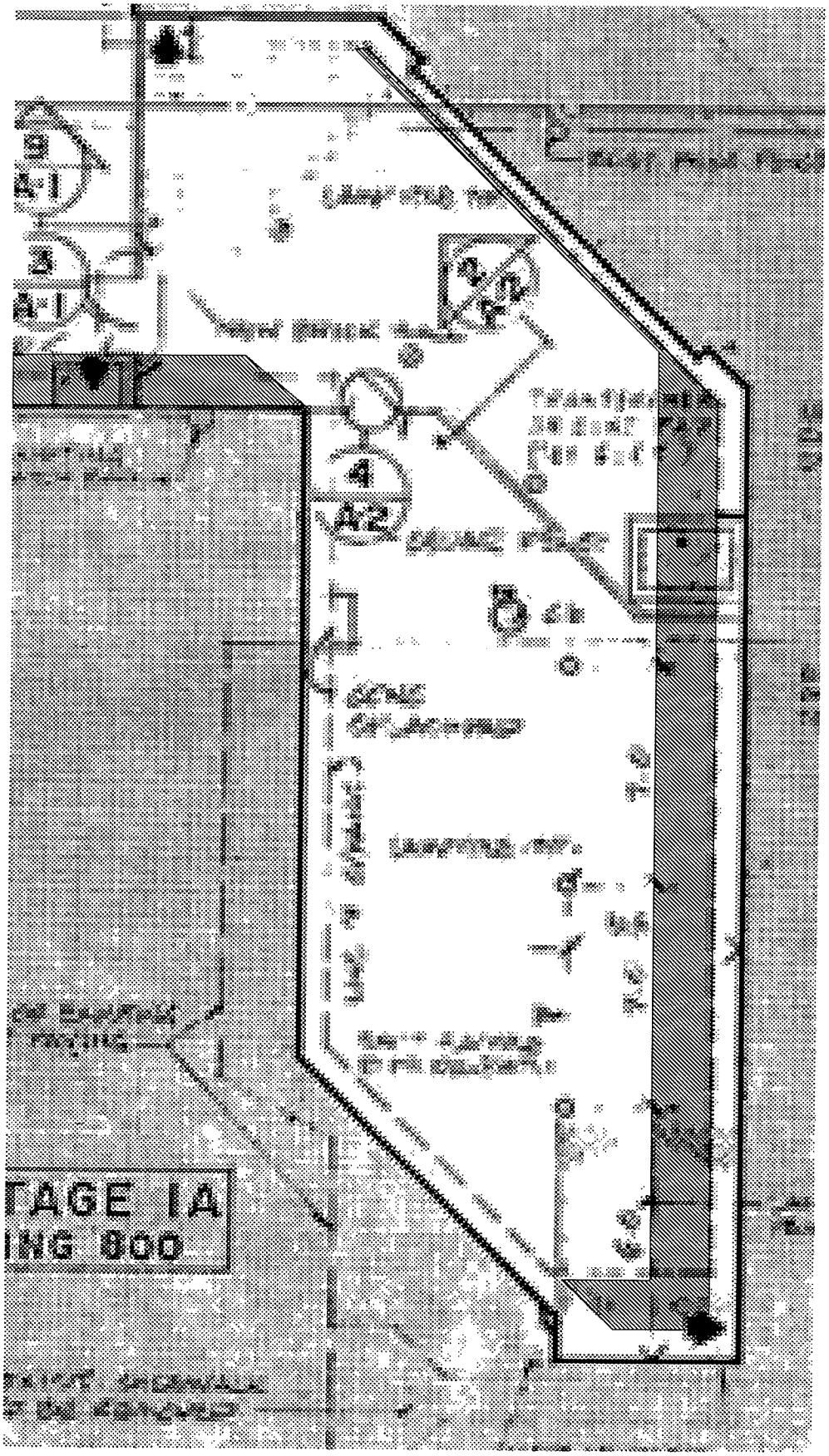
Winter - Dec. 21

10 am - 12 noon - 2 pm

nts

1

Bethania BTU

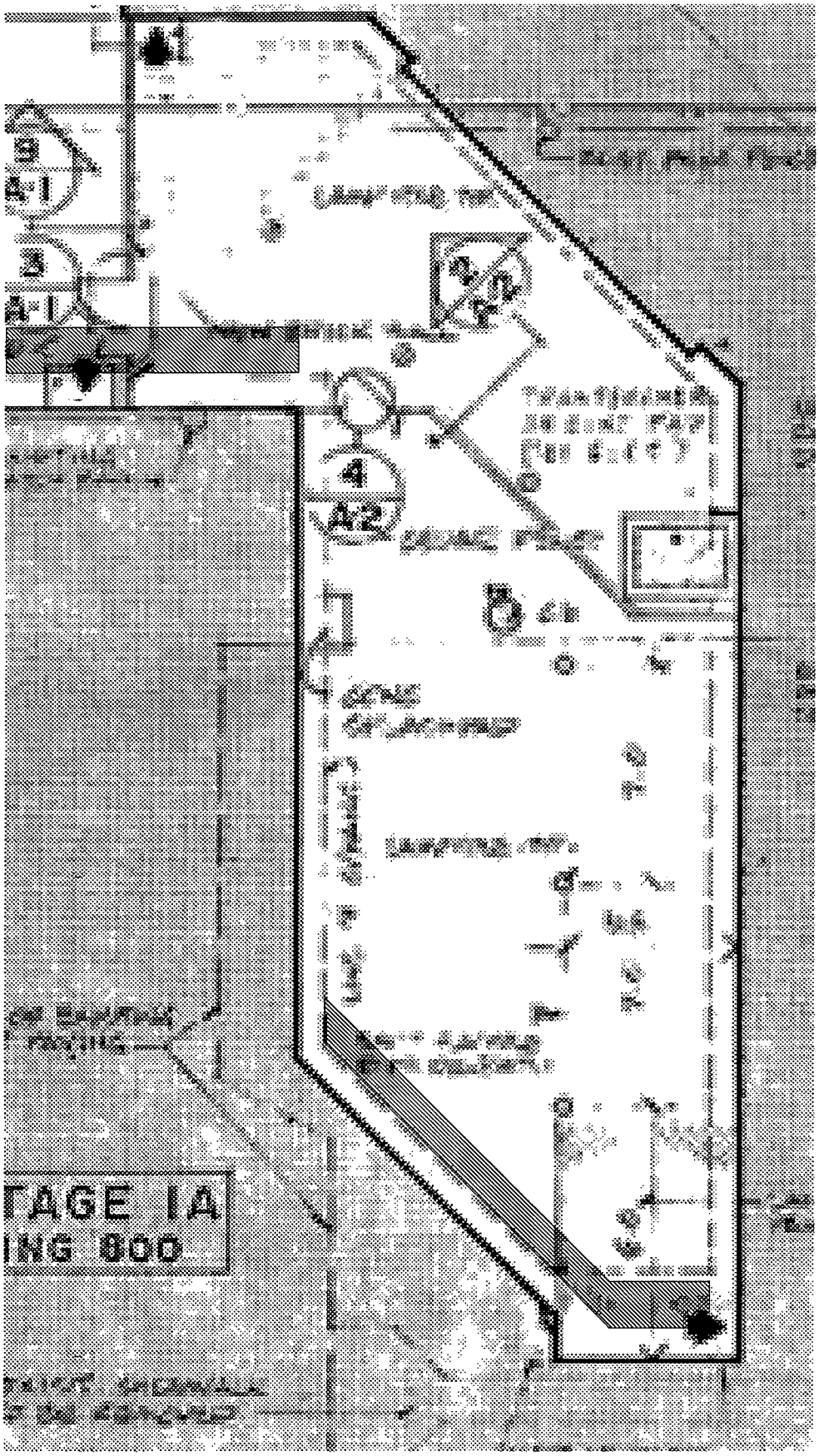


Summer - June 21

10 am

nts

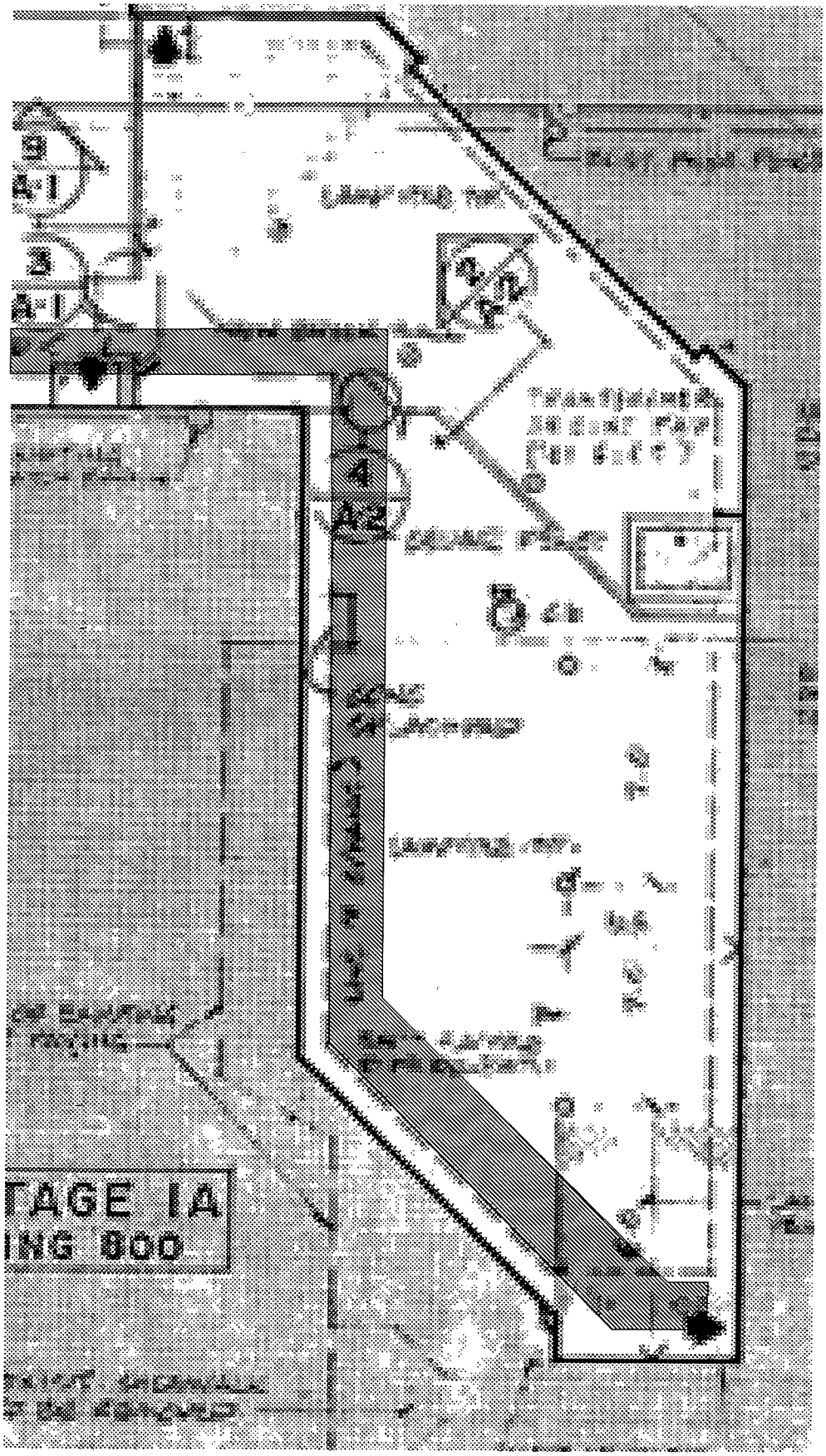
Bethania BTU



Summer

12 Noon nts

Bethania BTU

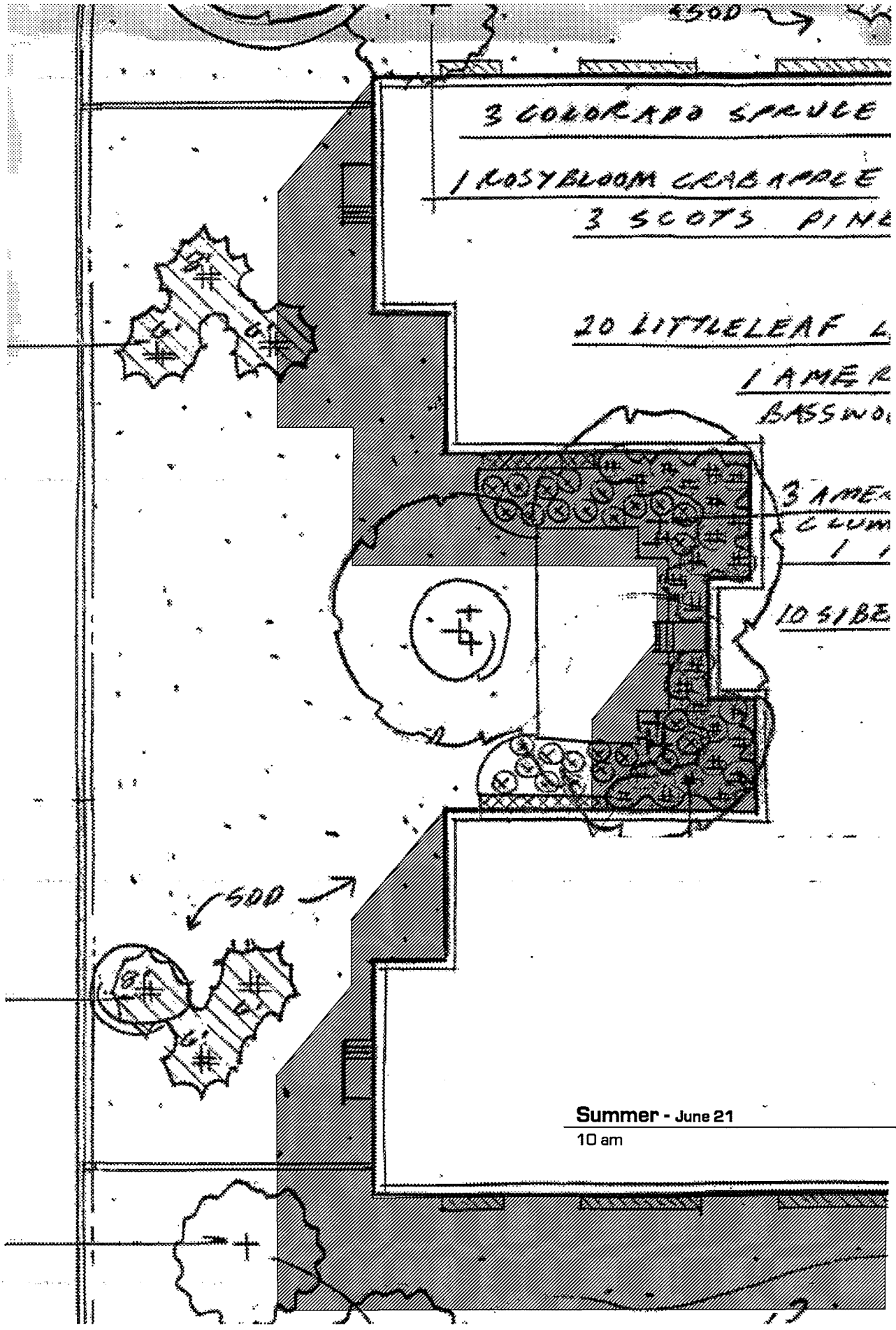


Summer

2 pm

nts

Rosewood Village

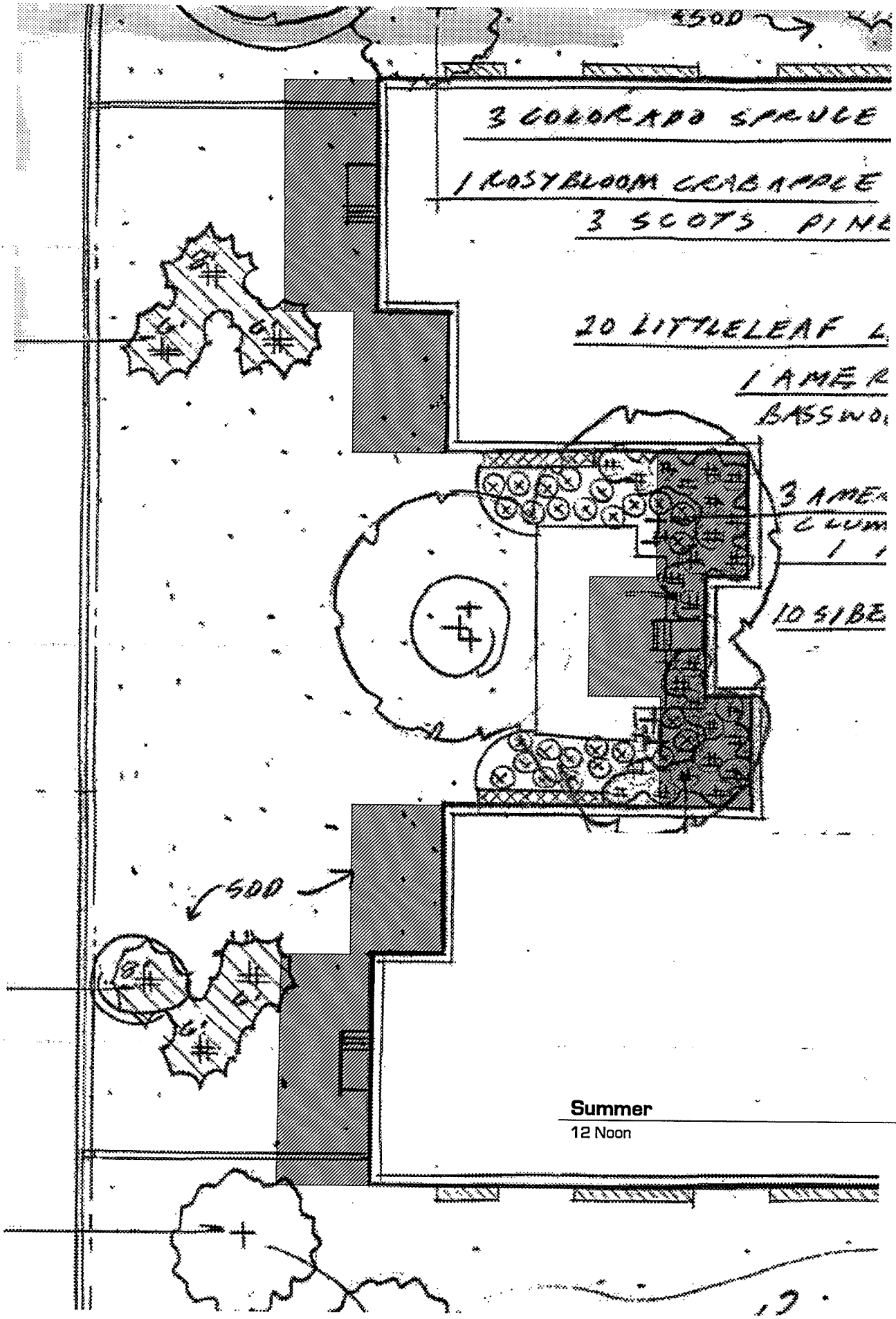


Summer - June 21

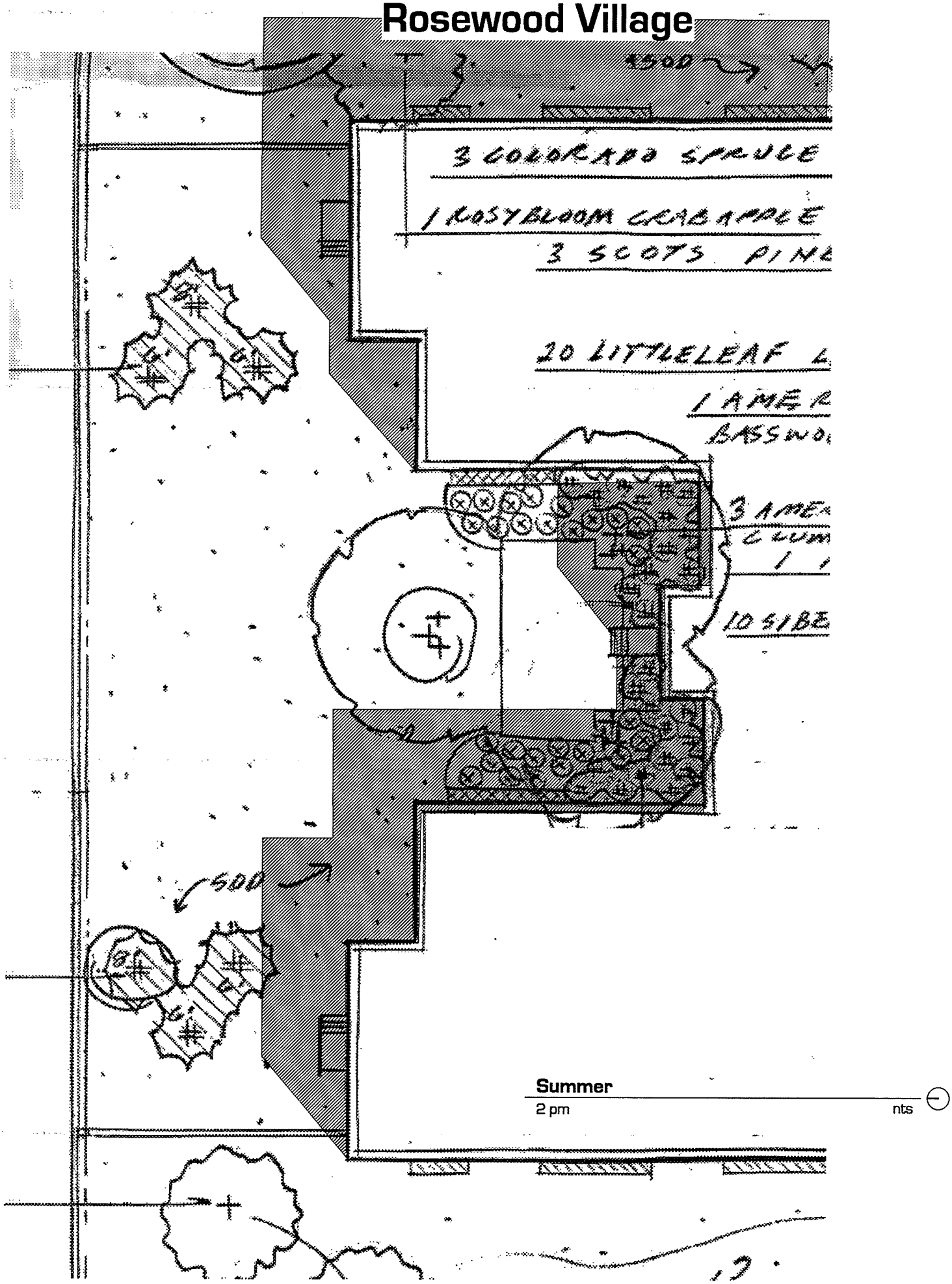
10 am

nts

Rosewood Village



Rosewood Village



Summer

2 pm

nts