

**SENIORS' HOUSING OPEN SPACE REDEVELOPMENT**  
**A CASE STUDY OF A SENIORS' HIGHRISE IN WINNIPEG**

**BY**

**RUSSELL F. OLSON**

**A Practicum submitted to the  
Faculty of Graduate Studies  
of the University of Manitoba  
in partial fulfillment of the requirements  
for the degree of**

**MASTER OF LANDSCAPE ARCHITECTURE**

**Department of Landscape Architecture  
Russell F. Olson  
(c) Winnipeg, Manitoba  
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## Abstract

This paper presents a case study of the elderly residents' views and use of the outdoor spaces at a high rise apartment building in central Winnipeg. The main objective of this study is the application of research findings to aid in the redesign of the exterior spaces. The building provides mostly independent or supported independent living.

The residents of this apartment building have the same basic needs for outdoor space as all other people, but their age warrants some additional considerations. These outdoor spaces can offer unique opportunities for fulfillment of needs for the elderly by providing diversity, interest and challenge. Encouraging participation in the outdoor environment must be a major concern for designers of space to be used by the elderly. Designs must be supportive and respond to the needs of the elderly. Available information to assist the designer is limited regarding how the elderly use the outdoors and what motivates them to use it.

Information was gathered through a literature review, a resident questionnaire, researcher observations, staff interviews as well as an analysis of the existing site conditions. The questionnaire results concurred with other studies that indicated, although actual frequency of outdoor use was low, elderly residents generally felt it was important to have a variety of outdoor opportunities. Sitting either alone or with others and getting fresh air were the most important activities to the residents.

Based upon the findings, a number of objectives were established and recommendations for the redesign are discussed. The recommendations led to the development of a design program and concept design for the outdoor spaces at the apartment building. The design concept for the outdoor spaces is presented in drawing form.



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# Part One

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# Introduction

## Introduction

**T**he elderly sector of our society is increasing dramatically in number. The older population is expected to triple in number within the next 45 years largely due to the 'baby boomers' growing older<sup>1</sup>. As this population group ages, a growing concern about an exploding senior population can also be followed. Presently there are 2.7 million Canadians over 65 years of age and by the third decade of the next century, it is projected that there will be 7.5 million people over 65 years in Canada.<sup>2</sup>

This trend in population distribution will demand greater diversity in seniors housing and especially in the provision and design of related open space. Presently, a large majority of elderly people are living in private households but, as age increases, many are moving to multi-unit housing. Diverse housing and site forms are necessary to fit the various needs of a more diverse elderly population.

Other demographic trends should also be considered as important factors in understanding the growth of this sector of society. The change in mortality rates which have shown a steady decline since the 1950's<sup>3</sup> is one of the major contributors to this changing population trend. Medical advances, a healthier lifestyle and increased technology have enabled the older segment of our society to remain productive participants much longer. Canada's popu-

lation is increasing in the older years while decreasing in the birth rate. Since the end of the baby boom, there has been a decline in the Canadian birth rate. This is due to many other social factors which are not directly relevant to this study.

Within Manitoba there were 121,820 people over 65 years of age in 1981.<sup>4</sup> Winnipeg, the capital city of Manitoba, has the highest concentration of this segment of the population. Projections suggest that this province can expect to have 146,000 people over the age of 65 by the end of this century for a real increase of 25,000 seniors.<sup>5</sup> It is imperative for designers to understand the special needs of this growing segment of society.

Designers must be aware that what they design reflects society's attitudes towards the elderly.<sup>6</sup> As baby boomers age, they are apt to redefine the role of the elderly in our society. The characteristics of this age group will be different from previous generations at this age. The oncoming sector of seniors will have greater expectations of their twilight years due to the changes in today's structure of society. As we approach the next century, 'gray' design principles will become increasingly more common. Gray power is well understood and this phenomenon of an inverse population pyramid will affect all aspects of our society as well as the design professions. With a segment of our society this large in number, they will have a great impact on planning principles for social,

economic and political needs.

The success of any new housing type is ultimately determined by the satisfaction of the people living in them. The issue is not to provide sedentary housing environments for the elderly, but to design responsive living environments sensitive to the needs of this growing sector of society.

Many of the physical and psychological needs of older persons are often overlooked by designers. Often a limiting factor to social interaction in multi-unit housing is accessibility to the shared spaces whether they are outdoors or indoors. Independence can also be encouraged by increasing accessibility which can promote community integration and social interaction.

Mobility decreases with age and increases the importance of barrier-free access, enhancing spatial perceptions, and the availability and proximity to necessary services. The architectural detailing of entrance doors, drop off areas, and paving materials are vital to the comfort and psychological security of the elderly, particularly in a winter climate. These are critical areas affecting seniors' mobility and subsequently their sense of independence. Unfortunately, a poorly designed detail may be the difference as to whether or not an older person ventures outdoors at all. Barrier-free design principles must be combined with a clear understanding of the user in order to

provide pleasant and meaningful environments.

While the establishment of design guidelines is important to provide a minimum standard of information to designers, the ultimate measure of success lies in the satisfaction of the user. This practicum is intended to add to the existing body of knowledge as it applies to landscape architecture.

## Defining the Problem

The purpose of this study is to explore the process by which we design outdoor spaces associated with multi-unit seniors housing. Research was undertaken to better understand the problem of designing meaningful spaces for the elderly which was then applied to the design process. The residents of a high-rise apartment building located in Winnipeg were surveyed by questionnaire to help develop a responsive design program for renovating the existing outdoor spaces on-site. The outdoor spaces being considered were developed in the early 1970's at the time the building was constructed and have since fallen into disrepair.

## Scope and Objectives of the Research

The scope of this study is to examine the redevelopment potential of the outdoor spaces located at 185 Smith Street, a seniors high rise apartment building. The primary objective is the exploration of a design process driven by residents' wishes to achieve a high level of

resident acceptance which responds to their social and physical needs. The role of the designer in this process is more that of a facilitator or editor of the user's ideas.

The design program for redevelopment was derived specifically from the results of a questionnaire given to residents, interviews with staff and consideration of relevant design principles. The program was then used to produce a design concept for the redevelopment of the outdoor spaces.

## Limitations of the Study

There are several limitations to the study. First, and most important is that the research was conducted as a case study and is specific to a resident population of an existing high rise apartment building located in downtown Winnipeg. The design process used may apply to the renovation of other existing facilities but may have limited application in different circumstances. Second, the site examined in this study is managed by a publicly funded housing authority providing subsidized housing to qualified persons. Implicit in this study is a limited budget for redevelopment which would not be recovered from the resident or consumer. Third, the study was conducted as an academic exercise and therefore cannot be completed to a logical end which would involve additional steps including implementation of the redesign and a post-occupancy evaluation of

user satisfaction.

## Methodology

This practicum examines the possibilities for redevelopment of the outdoor spaces of a seniors high rise apartment building using the methodology illustrated in Figure 1. The role of the user is fundamental in the design process used for this study. The findings of the research and subsequent design concept are presented in this document.

The following is a brief description of the process used for this study. A literature review was undertaken to examine issues regarding accessibility and use of outdoor spaces in and around seniors housing environments. To date, the research that has been done incorporating seniors' housing and related outdoor areas has been limited. There has been significant research done on the growing elderly population itself and on necessary architectural considerations but very little associating the elderly's enjoyment or use of an outdoor space with the design of that space. Further research is necessary to determine the relationship between the design and the use of the space.

The exterior environment is generally accepted as being equally important to the health and well being of residents yet limited information is available.<sup>7</sup> There are presently two general paths being researched, one stresses the importance of social and personal needs while the



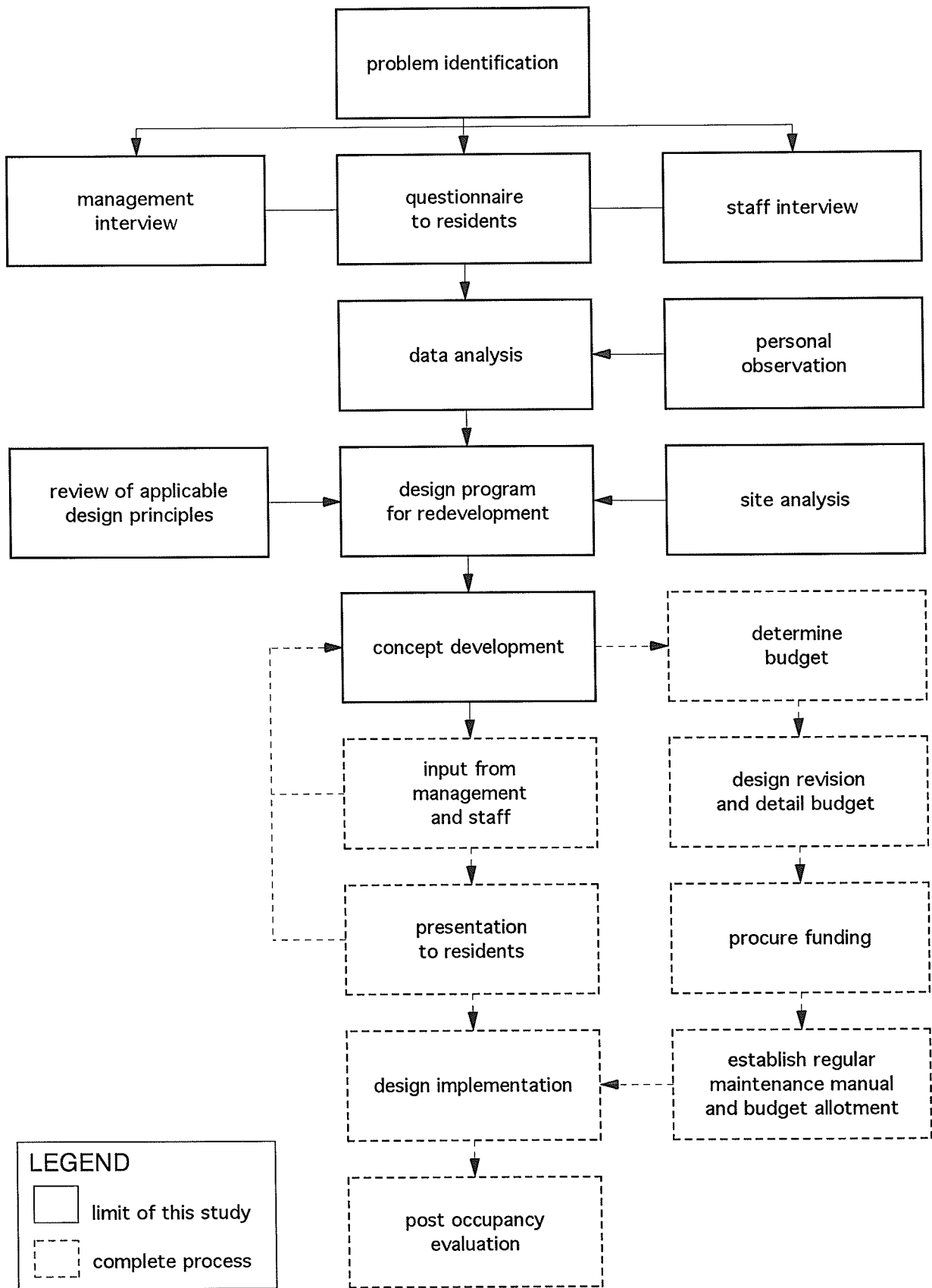


Figure 1. Flowchart illustrating methodology used for this study.

other emphasizes physical issues such as landscape design, maintenance, and administrator's needs.<sup>8</sup> Further post-occupancy evaluation needs to be conducted to determine what are the influencing factors or elements affecting use of outdoor spaces. This field of discussion is beginning to attract many interested researchers from a variety of backgrounds.

The study also included the design and administration of a survey questionnaire to solicit response from the residents regarding their opinion and use of the outdoor spaces of their high rise building and selected neighborhood locations. Interviews with staff were also conducted regarding resident use of the same spaces. The researcher then determined which design elements or spatial characteristics are more appropriate in responding to their expressed needs while concurrently promoting social interaction. Informal site observations by the researcher and conversations with residents were also part of the investigation.

The research and analysis was then synthesized and implemented through the redesign of the outdoor spaces of the site. Although the study space was not newly built, post-occupancy evaluation of a planned environment is an incredibly valuable tool in aiding designers to be more responsive to the users of the environment. The satisfaction of the user is in the best interest of everyone involved and should be consulted wherever and whenever possible.

1. Fletcher, Susan, Stone, Leroy O., *A Profile of Canada's Older Population*, Montreal: The Institute for Research on Public Policy, 1980 p. 8.
2. Fletcher, Susan, Stone, Leroy O., *The Seniors Boom: Dramatic Increases in Longevity and Prospects for Better Health*, Minister of Supply and Services, 1986.
3. Fletcher, Susan, Stone, Leroy O., *The Seniors Boom*.
4. *Provincial Fact Book on Aging - Manitoba*, Prepared for the Fourth Manitoba Conference on Aging, May 1985, p. 12.
5. Fletcher, Susan, Stone, Leroy O., *A Profile of Canada's Older Population*, p. 20.
6. Thiessen, Ingrid, *Outdoor Space Surrounding Senior Citizen Housing Developments*, Masters thesis, Department Of Landscape Architecture, University of Manitoba, 1983 p. 43.
7. Lovering, Mary Jane, et al., *The Problems of Outdoor Spaces for the Elderly*, Canada Mortgage and Housing, Vertechs Design Inc. 1983 p. 4.
8. Lovering, Mary Jane, et al., *The Problems of Outdoor Spaces for the Elderly*, p. 4

Part Two

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**Related Issues**

## Introduction

**B**efore we can discuss any design issues or redevelopment options, we must first look at the changes that occur in the human body due to aging. The following is a description of the relevant changes that are a natural part of the aging process. Although the designer tries to accommodate the needs of all the intended users in the design process, it is very difficult to provide support and challenge for all ability levels. The design process used in this study is biased towards accommodating and challenging the users with lesser ability as their recreational opportunities are often more limited.

## Age Related Changes

The challenges that exist in designing spaces for use by the elderly are as varied as the ability level and needs of the many different users of the space. The individual goes through the aging process at different rates and levels in which these changes affect their ability. The designer must be able to use the widespread effects of the aging process as a determinant in forming design details.

A major behavioral result of the aging process is a change in the senses. Since our behavior is influenced by our perception of the environment through our sensory organs, the consequences of a loss or reduction in these senses can greatly affect the interaction with that environment. Changes in vision is common in the aging

process. Peripheral vision, depth perception, sharp images, color, light and darkness can all affect a person's behavior. The quality and quantity of light can have a bearing on participation or isolation of a possible user of the space. Hearing is another area of change which can affect the use of a space. Background noise can impede the ability for social interaction or increase the lack of involvement. High pitched sounds can be more difficult to hear. As the senses of taste and smell decrease, higher levels of stimulation are required for use of these senses as an identifier. A loss of these senses affects the quality of environmental information being relayed. The sense of touch with four different types of stimulation can provide indicators of the type of environment. Cold, heat, pain and pressure are all environment related factors which affect the perception of a space. Also, the decrease in reaction time which is triggered by the senses is a factor in the elderly's own perception of their physical capabilities. The preferences of seniors themselves and an understanding of age related changes in the sensory system are setting new criteria for design decisions.<sup>9</sup>

Other age related changes in the elderly are of a more physical nature. The skeletal system changes as bones lose elasticity, become more brittle and tolerate less stress. Arthritis and osteoporosis are two of the most common physical ailments of an aging population. The muscular system undergoes changes in muscular size, strength, endurance and ability. The

wellness of the cardiovascular system and respiratory system have a great impact on the ability of the individual to remain physically active.

It is important to note that these changes are an indication of a natural phenomenon known as aging. The atmosphere is not one of sickness and therefore, the challenge to the designer is to provide an atmosphere of comfort and negotiability.

## Needs of the Elderly

As mentioned above, the needs of an individual reflect their ability and mobility in the spectrum of the aging process. This becomes evident when a relationship exists between the dual need of providing support for the frail when needed while offering challenges for more able residents. It is important to design for appropriate levels of ability whereby the achievement of a task reinforces autonomy and independence but the evidence of support and aids does not diminish that accomplishment.

The exterior and interior communal spaces in multi-unit housing for the elderly are extremely important as they facilitate social interaction and subsequently enhance the residents' sense of well being. The design and maintenance of these spaces must provide for informal social contact and accommodate the development of friendships among the residents of the building.

Retirement from busy, productive employment brings about a sense of loss of importance and uselessness. A design goal to attain should be to allow these people to retain their sense of independence and direction for as long as possible. Various levels of stimulation from daily activities should be considered. For many older people, a move to planned housing often means a change in life routines. The provision of facilities that enable continuity with previous pastimes and contact with the natural environment is an important consideration.<sup>10</sup>

A complex relationship often exists among the type of housing, service level, and the ability level of residents.<sup>11</sup> A sense of autonomy and independence may go a long way in providing the overall well being which will aid in the confidence and desire of the elderly to continue in an active and participatory lifestyle. If the design of a space provides for easy access to facilities and comfort during use, the user's hesitation or reluctance to use the space will be reduced. The opportunity to control the setting and the opportunity to share in outdoor maintenance will increase user satisfaction. Another major reason for use of a space is the opportunity to participate in an activity. Also, the presence of other people is an attraction in the use of a space.

A feeling of security and well-being is very important to the elderly. This security is also a factor in their sense of autonomy and inde-

pendence. The elderly's interaction within an environment is relative to their sense of security and safeness. Lighting is important for physical safety as well as promoting a sense of security.

Safety is another area which has an effect on the elderly's interaction and sociability. The fear of attack or assault which could lead to long-term disability can cause a reduction in social interaction. The height of the building is a factor in the perception of safety depending on the individual's opinion. Some individuals may appreciate the security from human intrusion that a tall structure provides while others may show concern over fire safety and elevator use.

In relation to outdoor use areas, the ease of access to outdoor areas will reduce the safety worries. Dramatic changes in the physical connection between indoor and outdoor spaces should be avoided. A visual and physical transition area near central points of indoor activity will lead to higher levels of use.

In order for residents to use an outdoor space a motivation to do so is necessary. The reason is sometimes self-motivated but often encouragement can help. One way this can be accomplished is with programmed activities when weather permits. Getting out for fresh air is a top motivator as well as watching people in activities and visiting with friends or relatives.<sup>12</sup>

Due to the loss of sharpness of senses and a reduction in reaction time, certain design considerations can enhance the space and increase the frequency and use of a space. By ensuring that amenities are available and detailing of materials for use are considered, the enjoyment of an outdoor area can be increased. The availability and access to restrooms and drinking fountains can be a priority concern for the elderly. If these amenities are nearby, it is one less worry and allows the elderly person to participate with less stress. The walking surfaces should be non-slip and non-glare and suitable for wheelchairs or walkers. A decking surface of wood with spacers makes it difficult and can act as a deterrent to even venture into the outdoor space. Comfortable seating is a priority. Seating which includes arms, backrests and sturdy support will attract use of the item. Moveable chairs and tables are preferable with non-glare table tops. Lighting for evening use can provide another factor which will increase the desire to use a space. If windows are a part of the space, a non-glare glazed surface can reduce the strain on sensitive eyes. By incorporating these details and amenities into the design of an outdoor space, the user can be made to feel much more free to enjoy the space rather than concern over their personal safety.

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9. Carstens, Diane, *Site Planning and Design for the Elderly*, Van Nostrand Reinhold Co., New York. 1985 p. 163.

10. Carstens, Diane, *Site Planning and Design for the Elderly*, Van Nostrand Reinhold Co., New York. 1985 p. 81.

11. Carstens, Diane, *Site Planning and Design for the Elderly*, Van Nostrand Reinhold Co., New York. 1985 p. 7.
12. Lovering, Mary Jane, et al., *The Problems of Outdoor Spaces for the Elderly*, Canada Mortgage and Housing, Vertechs Design Inc. 1983 p. 20.

# Part Three

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# Site Analysis



## Building Context

**T**he site is located at 185 Smith Street and is one of the largest seniors high-rise dwellings in the city of Winnipeg. The site is located on a busy one way street across from a high rise apartment-hotel building. The neighborhood context includes; a pharmacy, a library, a post office, an urban park, a Canadian Legion hall, and a large mall/department store that is connected to the enclosed pedestrian walkway system in downtown Winnipeg (Figure 2).

There are 22 floors in the building with a total of 279 apartments. The main floor consists of a seating / lobby area near the front door, a cafeteria which is open to the public, several administrative offices and the mail room. There is an activity centre for the residents on the second floor which is adjacent to an outdoor roofdeck. The top floor is office space. The building is managed by the Winnipeg Regional Housing Authority.

## Outdoor Areas

This study deals with a number of outdoor areas at 185 Smith Street (Figure 3). These include; a small sitting area just off the main entrance along the sidewalk on the northwest corner of the site, a roofdeck on the second floor along the west side of the building, and a front sidewalk along the west side of the property.

The front entrance sitting area, including planting beds, measures approximately 7.6 m. (25') by 8.5 m. (28') and is set back from Smith Street by about 3 m. (10') of sidewalk. This area is very shady receiving only partial sun in the mid afternoon. As it is very near a busy street, exhaust pollution and noise become an annoyance during heavy traffic. This would undoubtedly be a health problem for anyone suffering from a respiratory illness.

The second floor roofdeck measures approximately 7.3 m. (24') by 38.1 m. (125') and is oriented north - south along the west edge of the building. This area is very exposed to the winds and mid-morning to mid-afternoon sun. Although the space is not intended for winter use, efforts can be made to prolong the usable season by creating sun catches and diverting the winds.

The sidewalk extends along the western property boundary in front of the building. The concrete sidewalk is approximately 3 m. (10') wide.

## Sun and Shade

The front sitting area is shady most of the time while the second floor roofdeck varies from full shade to full sun (Figure 4). The front sitting area receives some filtered sun in the late morning and into the afternoon especially during the summer months.

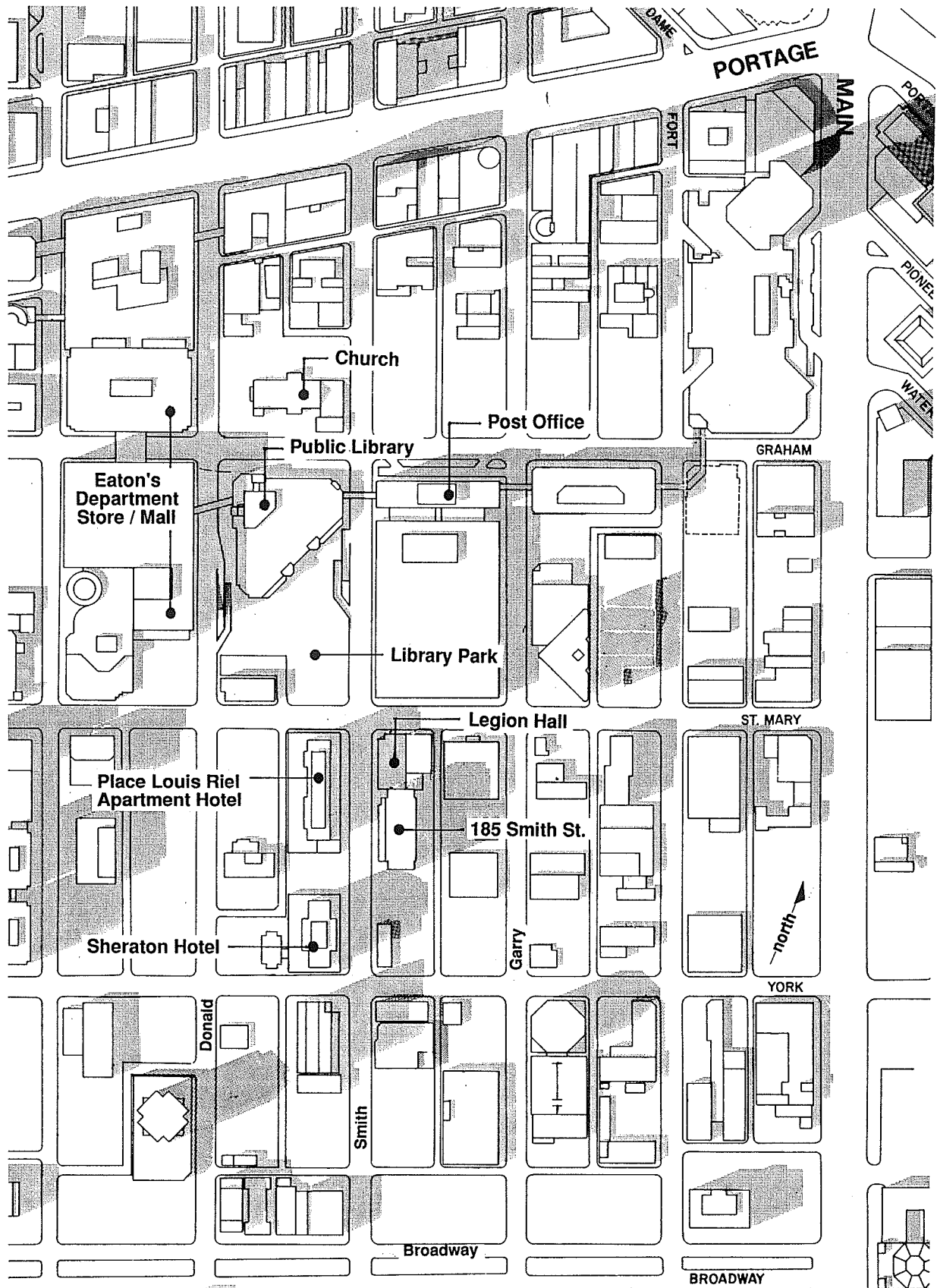


Figure 2. Site location and neighborhood context.

Source: Shadow Map, City of Winnipeg, Mapping Department.

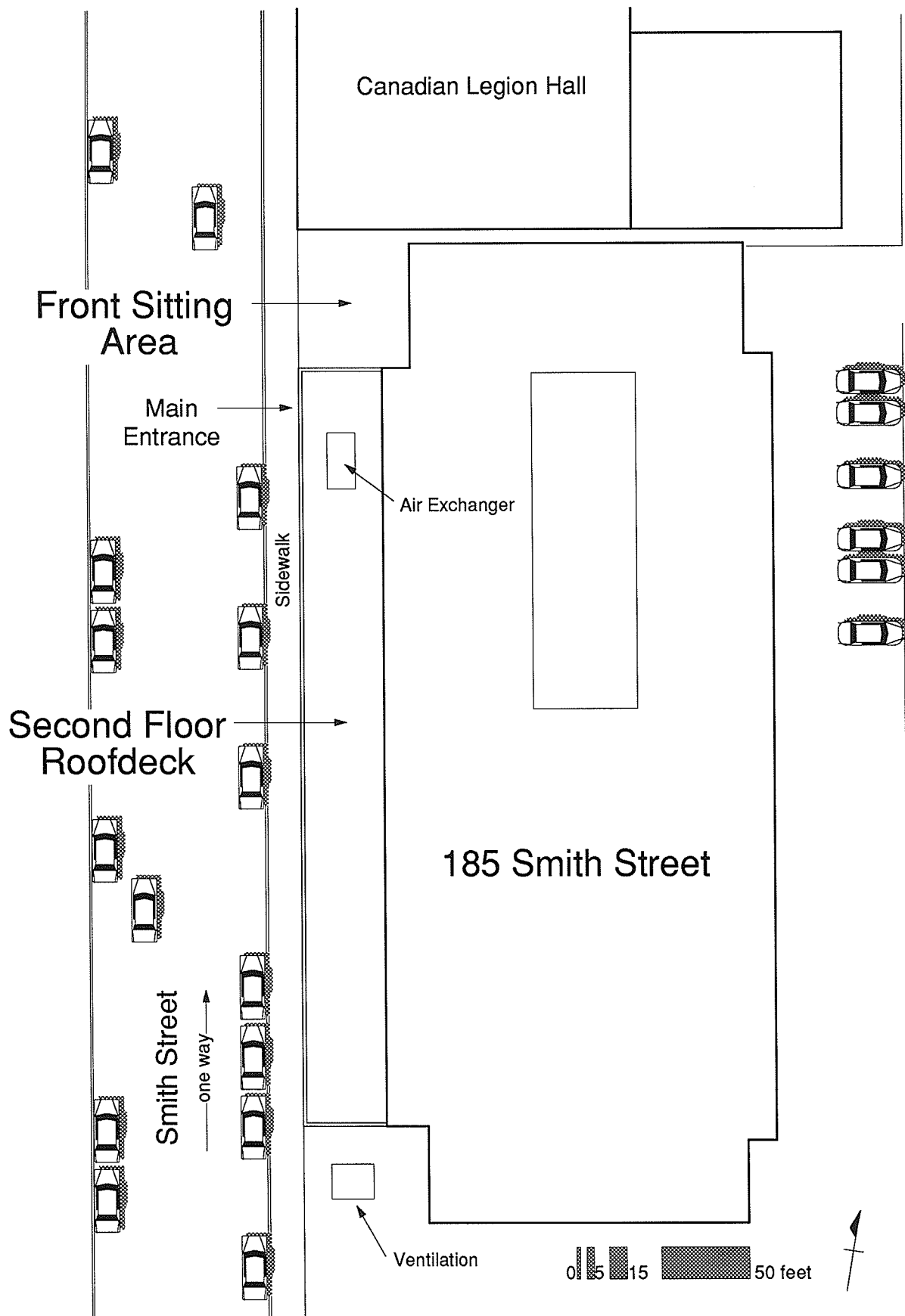


Figure 3. Outdoor spaces at 185 Smith Street.

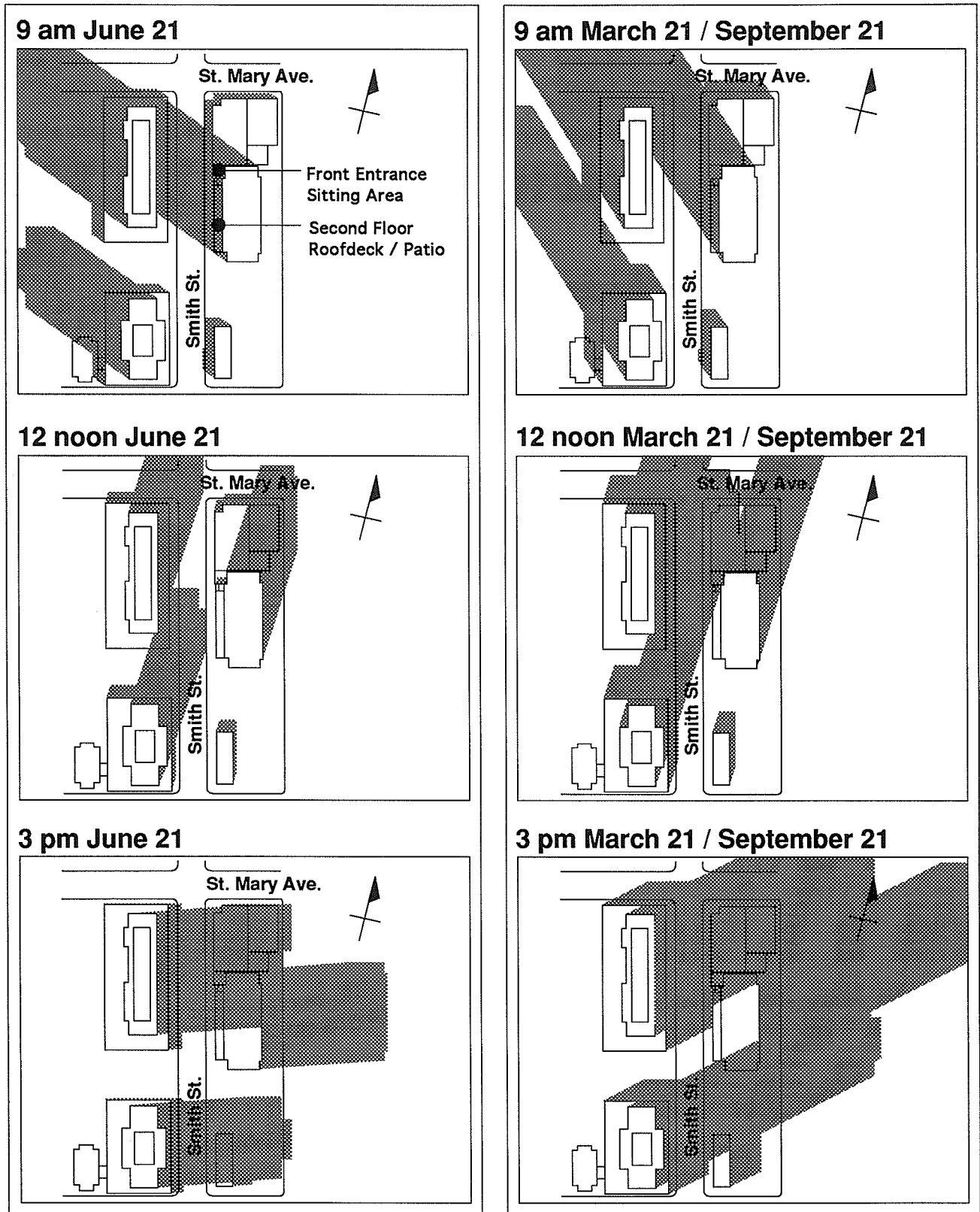


Figure 4. Sun and shade analysis of the exterior spaces.

The shadows cast by the three tall buildings creates a very predictable shade pattern on the roofdeck when the sun is shining. The light coloured brick facade of 185 Smith Street is also very reflective and causes considerable glare in the roofdeck area. In general, the roofdeck is shaded from dawn until mid-morning, again briefly in the early afternoon and yet again in late afternoon until dusk. The presence or absence of sun in the space will affect the redesign of the roofdeck and consequently how the residents use the space. The second floor roofdeck can be very uncomfortable on sunny days when there is little or no wind.

## Wind

The front sitting area is fairly protected from the wind but because it is quite shady tends to be uncomfortable when the winds are harsh. The second floor patio is very exposed to wind and can be unpleasant for some people even on days when the winds are light. The effect of the tall buildings causes accelerated north - south winds and affects both the front sitting area and the second floor roofdeck. The prevailing winds are from the north in the winter and from the south in the summer.

## Noise Pollution

The traffic noise and auto exhaust pollution can be very unpleasant in the front sitting

area during peak travel times. A light breeze helps to carry exhaust fumes away but little can be done regarding the traffic noise in the space. The plantings in the space will help to reduce airborne dust and partially filter the air.

The second floor roofdeck is not affected by the street noise nearly as much as the front sitting area. The space is surprisingly quiet considering the proximity to the street. However, a large air exchanger unit was recently installed at the northern end of the roofdeck. The noise it produces can be considerable when near the unit but becomes tolerable as you move away from it.

## Observations of the Existing Outdoor Spaces

Site visits by the researcher resulted in a number of outdoor spaces being selected for further study in the survey questionnaire. The spaces selected for redevelopment consideration include the front sitting area, the second floor roofdeck and the front sidewalk. The following information was compiled from observations made by the researcher.

### Front Entrance Sitting Area

The space (Figure 5) located adjacent to the front entrance and sidewalk serves two functions. First, as a place to wait for rides or taxis and secondly as a place to sit and visit or just to observe the daily activities. This area is quite



Observations by the researcher concluded that the front sitting area has the following deficiencies:

(a) *Due to differential settling of the paving materials, a hazardous situation had developed from the uneven sur-*

*making the seat height so low that few people will use them for fear of not being able to get out of them. Also, the benches have no armrests (Figure 6).*

(d) *A path was worn through the front planting bed from people taking a short cut between the two buildings through*



**Figure 5.** *Front sitting area at the front entrance to 185 Smith Street.*

*faces. An attempt was made to remedy this situation after a resident fell and broke her hip. A steel plate was installed to form a ramp of sorts between the two surfaces but has not corrected the problem. Given the difference in height, nothing short of resetting the grade will resolve this problem.*

(b) *The quarry tile is a very slippery surface when wet or icy.*

(c) *The three benches have all settled*

*to the lane. This has ceased since the installation of a wire fence between the two buildings but a problem still exists as people cut through the planting bed by the sidewalk. A number of residents expressed concern about this problem.*

(e) *The plant material consists of two Basswood trees, a few Lilac shrubs, and some annual flowers that one of the residents has looked after. The trees and shrubs required pruning but for the most part establish a human*





**Figure 6.** *Settling of benches has lowered the seat heights beyond comfortable use.*

*scale and helped make the space more enjoyable.*

*(f) The planting beds were only partially used for annuals but this added colour to the space. A common complaint concerned litter and cigarette butts.*

### **Second Floor Roof Deck**

This area (Figure 7) is located off the second floor of the building and is accessed by two doors, one off the main corridor and one from the activity centre also located on the second floor. This area is quite private except for the visual connection to the activity centre and is not accessible to the general public. The following

are observations made by the author from numerous visits to the site.

*(a) This space was intended primarily for the residents of the building as multi purpose outdoor space. Today, it is used sparingly for sitting, visiting and flower gardening.*

*(b) The overall condition is very poor with many examples of substandard design, workmanship and maintenance (Figure 8). Lack of funding is the probable cause of poor maintenance but it is evident that funding has never been available to develop the space to its potential. Given that this is the only private yard for the entire building it is difficult to understand how it would*





**Figure 7.** *Second floor roofdeck looking south.*

*receive such little attention for so long.*

*(c) The space, surprisingly, has a very human scale and is quite comfortable and relatively quiet considering its proximity to a busy street on one side and tall building facade on the other.*

*(d) The fact that all the planters were full of annual flowers was evidence of an attempt to beautify the space.*

*(e) The furniture was in poor condition requiring paint in some cases and replacement in others.*

*(f) The wood decking was in various stages of rotting and disrepair. The floor decking is about four inches lower*

*than the threshold of the access doors which has been overcome with plywood ramps (Figure 9).*

*(g) The lighting is minimal and is in poor condition.*

*(h) A large air exchanger unit was recently installed at the northern end of this area which disrupts the space.*

#### **Front Street Sidewalk**

*(a) The concrete sidewalk (Figure 10) is very exposed to the sun and wind and generally forms an uninteresting space to pass through.*

*(b) The building does not address the*





**Figure 8.** *Examples of poor detailing and deteriorating condition.*



**Figure 9.** *The wood decking is rotting away.*





**Figure 10.** *The front sidewalk.*

*front street very well. It is a very plain cast-in-place concrete building with a towering brick facade only redeemed by the stepping back of the second level creating the roof garden.*

*(c) The tan coloured brick and concrete sidewalk produce considerable glare and this problem should be addressed.*

# Part Four

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# Survey Analysis

## Introduction

**T**he residents of the building are the primary users of the spaces being studied and it logically follows that the design program should be derived from their collective views. A questionnaire (Appendix 1) was administered to all residents of the building. The questionnaire was dropped off at 279 apartments. This method of distribution was chosen as the most appropriate as it has been the standard for a number of years at the building. There were 92 completed questionnaires received by the Tenant Resource Worker for a return rate of 33 %. This was an acceptable return rate given the great number of studies conducted over the years on the residents of this building. Interviews were also conducted with staff (Appendix 2) to better understand their perspective regarding resident use of the outdoor spaces.

The primary intentions of the questionnaire were to establish the needs, preferences and priorities of the users of the outdoor spaces. The survey asked residents to respond to a variety of questions regarding their use of the outdoor spaces around the building. As in many cases, preconceived notions of the questionnaire results were anticipated by the researcher. Some of these proved to be correct while others were of little importance. Although the results are not definitive, they concur with other similar studies and provide a solid foundation for development of a design pro-

gram. This process provided a 'snapshot' of what is important to the residents and clear direction to the designer as to what should be included in the renovation. In the redevelopment process, the user group is often stereotyped by the designer either because of limited research or by the life experience and education of the designer. The method employed is intended to remove the chance of that bias occurring.

The following segment presents selected results of the survey as they were analyzed and evaluated to help develop a program for redevelopment of the outdoor spaces. The entire results are contained in Appendices 1 and 2. The method for evaluation included the following steps for selected questions or issues and each will be discussed in detail.

## Data Analysis and Design Objectives

The results of the questionnaire were compiled to accommodate descriptive and comparative data analysis. The descriptive analysis (Appendix 1) provided a profile of the residents and how they presently view and use the outdoor space at 185 Smith Street. The comparative analysis was conducted to search for any important relationships in responses, first between gender, and second between how respondents rated their health. Questions and issues were selected from the survey results for further discussion.

Included with each topic or issue are objectives to be considered in achieving the desired design goals. Consideration of appropriate design principles gathered from the literature review and site specific recommendations follow this section. The recommendations are summarized at the end of this section. These recommendations along with the site observations from the previous chapter form the basis for the design program.

### Profile of the Residents

The sample consisted of 33% of the residents at 185 Smith Street of which 61 were female and 27 were male and 4 questionnaires were left blank. The sample was representative of the total resident population in terms of age and sex, although by nature of the written questionnaire, residents with severe sight or literacy disabilities were not well represented in the sample. The ages of the residents surveyed are illustrated in Figure 11. It is very evident that as the age increases, so does the proportion of women. There was a significant ( $p < .05$ ) difference in the comparison of the mean ages of men (66-70) and women (between 71-80) living at 185 Smith Street. Older women are the single largest group of residents at the building and they have also lived there significantly longer ( $p < .05$ ) than men.

Most residents previously lived in an urban area (65.8%) or a suburban area (22.8%) (N=82) of a city prior to moving to the building. Of the entire sample, 58.1% previously lived in an apartment, 29.1% previously lived in a single family dwelling, and the remaining 12.9% lived in either a duplex or other accommodation (N=79).

### Design Objectives

The redevelopment plan must especially accommodate the number of older women living at the building. A great number of these residents have been living at 185 Smith Street for a long time and are aging in place.

As these residents grow older, the outdoor opportunities provided at the building become more significant. We must consider accordingly the special needs of this group of residents when it comes to providing a sense of security through either design or maintenance of a space.

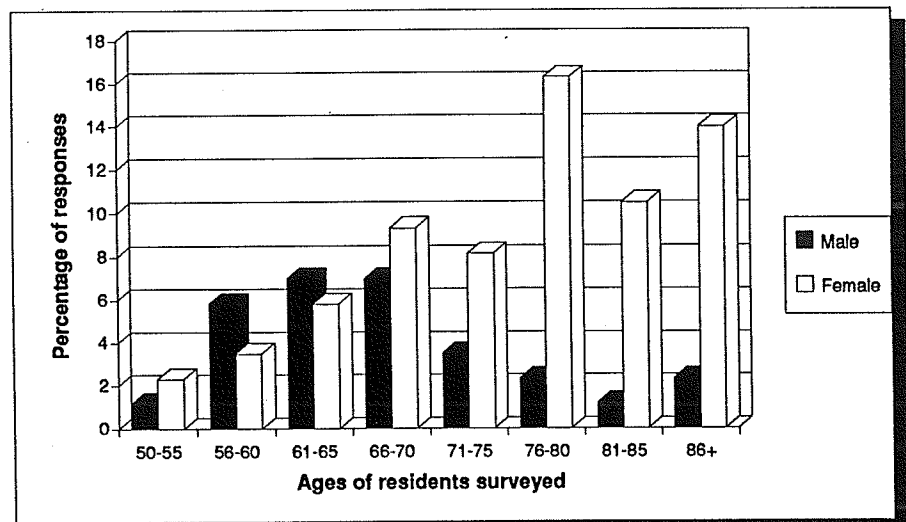


Figure 11. Comparison of ages of residents surveyed.

### Health and Ability

The residents rated themselves generally healthy with 75.6% (N=86) as good or fair health, 19.8% as poor and 4.7% as excellent. They rated their ability to get around almost identically at 79.1% (N=86) as good or fair, 11.6% as poor and 9.3% as excellent. Predictably, there was a significant ( $p < .05$ ) correlation between resident's responses regarding rated health and his / her ability to get around. However, unpredictably, there was no correlation between the residents age and their responses to 'rated health' or 'age' and one's 'ability to get around'.

Residents responded that they walk an average of 5 blocks away from the building when they walk to places. Predictably, there was a significant ( $p < .05$ ) difference in distance walked by those who rated their health as excellent or good and fair or poor. There was also a significant ( $p < .05$ ) difference in that men walked further than women.

### Design Objectives

Use of the outdoor areas should be encouraged by providing ease of access, comfort and safety. Barrier free design principles must be incorporated into all redevelopment of the outdoor spaces at 185 Smith Street.

It is necessary to provide opportunities and challenges for the independent residents while at the same time supporting the dependent residents.<sup>13</sup> The residents at 185 Smith Street

are for the most part considered independent requiring only minimal support.

With respect to the second floor roofdeck, it is important to develop and maintain support services such as visual monitoring by staff, washrooms, and drinking fountains. These services should be in close proximity to the outdoor space.

### Frequency of Use of the Outdoor Spaces at 185 Smith Street

In general, the outdoor spaces of the building were used infrequently by the residents even in good weather. Although 43.9% (N=89) of residents stated that they spent time outside around the building 'every day' or 'almost every day', 41.5% of residents stated that they 'almost never' or 'never' spent time outside around the building. There is no apparent reason for this polarity of responses but the percentage of residents that do spend time outside around the building when the weather is pleasant is indicative of the need to redevelop the outdoor spaces. It must be remembered that a fine line exists between what residents consider 'pleasant or unpleasant weather' and that fear of catching cold causes residents to dress warmly even on warm days.<sup>14</sup> The residents stated that they used the front sitting area mostly for fresh air or to wait for a ride. When the weather is nice, 45.1% (N=82) of the respondents used the library park at least once weekly and 54.8% used it rarely or not at all.



The questionnaire asked a number of responses regarding the front sitting area. The results indicated that men were more likely to use the space for sitting while both women and men used the area to wait for a ride or taxi. As expected, the residents felt most strongly about the seating (Figure 14). The two most popular uses for the space were waiting for a ride or taxi and a place to get fresh air.

An open question was asked if anything bothers or stops residents from using this area. The response was very strong with 71.7% of the residents choosing to take the time to answer this question. Most residents referred to the poor seating and poorly kept plantings. Other comments included:

*“the unkept condition”, “cigarette butts all over, not maintained and the flowers are lousy and just mud in between shrubs”, “untidy”, “it can be too public”, “not enough places to sit and too windy”, and “traffic noise”.*

The seating was the single most important element in the space and should be addressed accordingly.

**Design Objectives**

Encouraging use of the outdoor spaces at 185 Smith Street by the residents should be a priority. As the home range of the residents diminishes,<sup>14</sup> the outdoor spaces located on site will

become more important to the residents.

The front sitting area should be completely renovated with special emphasis on the seating and planting. A regular maintenance program for the space should also be initiated to ensure proper upkeep.

**Reasons or Activities the Outdoor Space is Used For**

The residents chose the second floor roofdeck and the sitting area outside the front entrance less frequently than other spaces for their everyday activities (Figure 12).

A visual connection between inside and out-

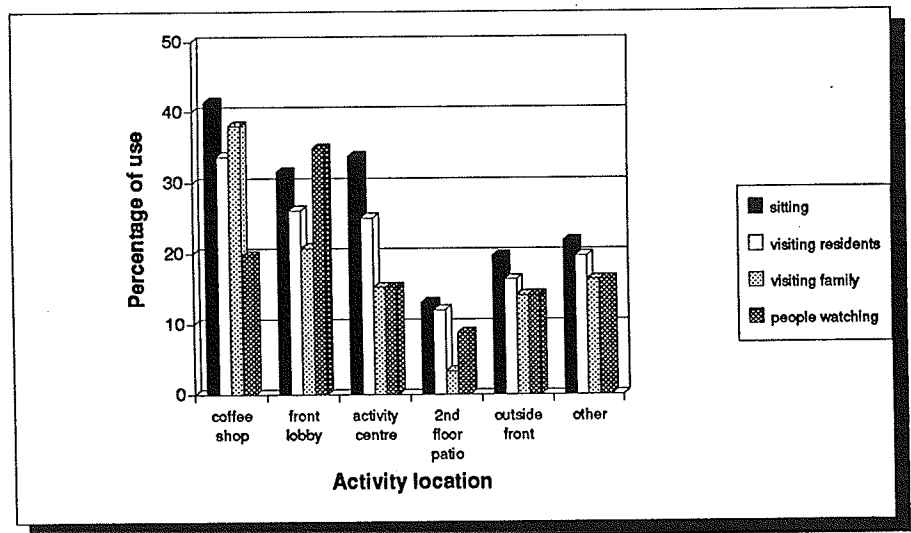


Figure 12. Comparison of the use of the exterior spaces by the residents surveyed

side space will encourage the use and certainly the perception of those outdoor areas. This condition exists between the activity centre on the second floor and the roof deck area.

The men at 185 Smith Street spend significantly ( $p < .05$ ) more time outside around the building, go out more, and are more likely to walk to some place in the neighborhood than the women. The reason for this difference is more likely related to security and safety, although the women are generally older than the men.

The women used the second floor patio for sitting significantly more ( $p < .05$ ) than the men while the reverse was true of the front entrance sitting area. The men were also significantly more ( $p < .05$ ) likely than the women to visit with friends and family or just pass the time at the front entrance sitting area. Again, issues of safety and security probably account for these differences. The issue of safety and security, in this case, relates to being seen by others if the resident fell or was bothered by strangers.

### Design Objectives

The second floor roofdeck should become the main outdoor area of the building for the residents. Considering the large number of women aging in place at 185 Smith, redeveloping the second floor roofdeck should be a major priority.

The second floor roofdeck should include a variety of comfortable seating arrangements to provide opportunities for social interaction among residents. The large number of women

living at the building already use the space for sitting and visiting.

### Items Important to Have in Outdoor Spaces

Residents were asked to rank different amenities and attributes to have in outdoor spaces. The following table (Figure 13) illustrates the responses in order of importance.

Attribute	Responded "very important" or "somewhat important"
comfortable seating	94.4% (N=72)
safety	92.9% (N=71)
flowers	88.9% (N=72)
shrubs / trees	88.2% (N=68)
shade areas	87.5% (N=64)
lighting	86.5% (N=59)
sunny areas	76.4% (N=55)
gardening	72.0% (N=50)
group seating	61.5% (N=52)
private seating	55.5% (N=45)

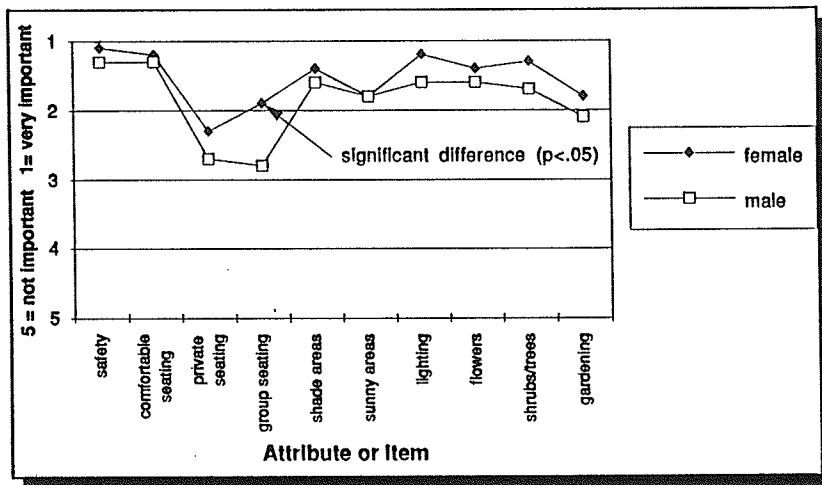
**Figure 13.** Residents responses to items important to have in outdoor spaces.

The only important difference in response between gender or rated health is that women ranked 'group seating' significantly higher ( $p < .05$ ) than the men as an attribute to have in outdoor spaces (Figure 14).

### Design Objectives

Providing comfortable seating should be the





**Figure 14.** T-Test comparing mean scores of men and women for items important to have in outdoor spaces.

highest priority in any design considerations. The redevelopment process should incorporate all, but not be limited to, the attributes listed in Figure 13.

The spaces must be designed to be safe both in a real sense as well as perceived. Redevelopment should also include a variety of plantings and provide opportunities for gardening in the outdoor spaces where appropriate.

### Residents' Perception of the Outdoor Spaces

Residents were asked to describe the sitting area outside the front entrance, the second floor patio and the nearby library park. The results are presented in Figure 15. The most negative response was towards the seating at the front sitting area. Other notable response differences were perceived levels of maintenance between the library park and the other outdoor spaces at the building.

Predictably, the second floor patio was described as the safest and the most private of the three spaces. There was a positive correlation in the responses between 'safety' and 'maintenance' for both the front sitting area and the second floor patio.

### Design Objectives

The most important "personal problem" for many elderly is a fear of crime.<sup>15</sup> This combined with a fear of falling because of a too demanding environment is particularly high in elderly women.<sup>16</sup> These are important issues as elderly women are the most likely residents of 185 Smith Street at present to use the outdoor spaces.

The positive correlation between safety and maintenance indicates that achieving better maintained outdoor spaces should be a priority as it would increase perceived safety and subsequently encourage more resident use. Establishment of regular maintenance procedures of the outdoor areas would increase residents sense of safety and security and make the spaces more inviting to the residents.

### Present Use of the Second Floor Roofdeck

Residents were asked to respond to which opportunities and amenities they would like to have available on the second floor patio. The

most frequent responses were to get fresh air (38%) and to look at flowers (25%). Figure 16 shows how residents responded to how they presently use the second floor roofdeck. The residents also showed an interest in having a place to visit with family and friends, to sit outside, or to meet new friends.

using the second floor patio':

*"I use it but it could be better maintained, furniture is broken and dirty all the time", "I used it all summer and its disgusting...", "broken furniture", "its unsafe for walking and very dirty", "could replace tables and chairs", "we*

*need a new floor, this one is unsafe for people with poor eyesight", "floors unsafe, furniture broken, no incentive to ask friends to visit you", "floors in poor shape - lack of comfortable seating", "needs old furniture removed", "I have not been able to use for three years due to its condition. If there is no improvement, put ten*

*more flower boxes and we could plant a garden at least"*

*"no shade in the afternoon", "very hot at times", "Its too sunny. It would be nice to have some partial shade - not all shaded", "the noise of the air conditioner is too loud and the floor is the pits", "a lot of noise but I still use it with my friend", "too breezy", "we need protection from the wind and sun for seniors. By protection, I would consider a shelter and also patio umbrellas", "afraid of falling"*

*"unable to get there by myself (in*

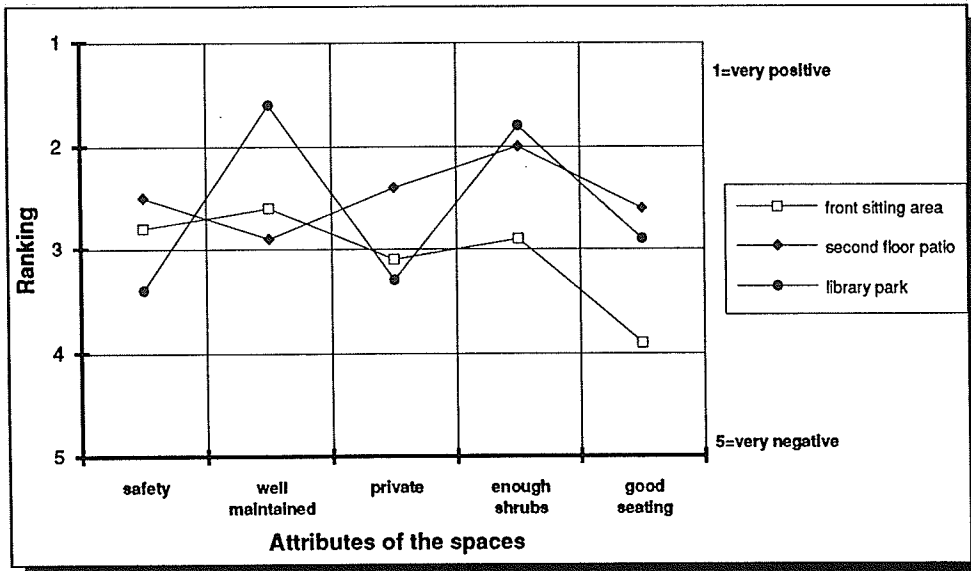


Figure 15. Mean scores of residents rankings of three outdoor spaces at or around the building.

**Design Objectives**

The redevelopment should provide a range of opportunities on the roofdeck. There must be comfortable seating areas where residents can observe flowers and plants. Present use of the space by residents is quite low and should be increased through redevelopment.

**Factors Affecting Use of the Second Floor Roofdeck**

The following comments were given when asked if 'anything bothers or stops you from

*wheelchair)", "hard to get at", "benches are too low, hard on the back"*

*"it just is not at all inviting to the average person", "not usable", "very poor condition", "its a non - descript place", "not appealing"*

*"no, I'm glad its there".*

As is evident from the responses, the residents were most concerned about the overall condition of the space. They also expressed concern about access and protection from the sun and wind.

**Design Objectives**

Accessibility, comfort, and safety are the most important considerations. A roofdeck should be located near indoor activity with easy visual and physical access. Protection from the wind and sun is important in making the space more comfortable and enjoyable.

The outdoor spaces must provide a variety of spaces that offer shaded areas as well as sunny areas. The flooring must offer safe footing and level entry. Seating must be comfortable and sturdy.

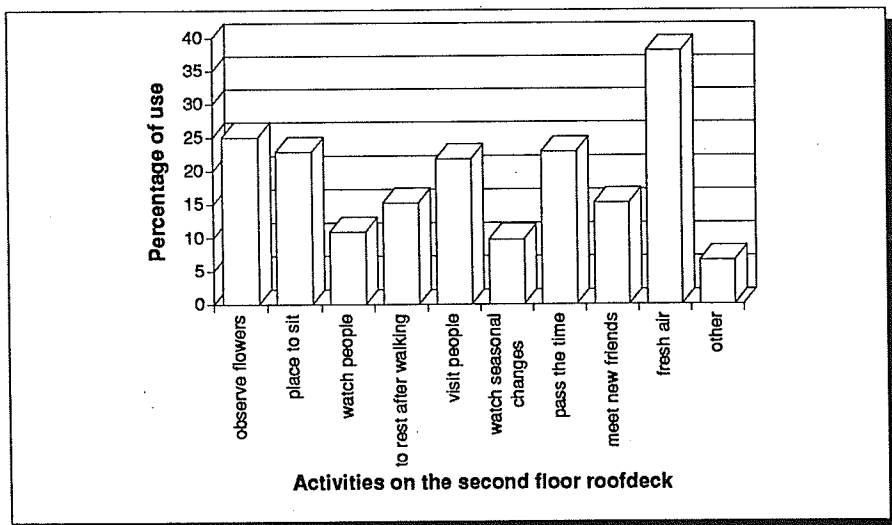
Wind abatement is necessary on the second floor patio in order to make it more comfortable for greater periods of time.

**Staff Input**

Discussions with management and staff indicated that many residents are choosing to stay at 185 Smith Street as they grow older. This view was supported by the survey results that many residents, particularly women, were staying on at the building. This aging in place places even greater emphasis on the outdoor spaces. The building initially intended to provide for independent living but as the residents are growing older there is ever increasing

pressure for supporting services. Whether this is being planned for in the long term is not clear but it should be considered in any redevelopment plan.

Another problem discussed by management was pressure from the funding agencies to fill vacancies in the building. The new tenants being referred are often



**Figure 16.** Present use of the second floor roofdeck by surveyed residents.

derelicts from nearby Main Street which cause considerable grief to the older, mostly female residents. This is very disruptive to the sense of community amongst the residents. Unfortunately, there are no simple solutions to this problem.

A number of informal discussions were held with various staff members at the building. This information helped direct the observations made by the researcher. A more structured interview was conducted with the tenant resource worker at the building (Appendix 2). For the most part, the information from the staff interview concurred with the other research findings. However, she also indicated that a number of residents use the second floor roofdeck at night during the summer months for sitting or visiting.

## Summary of Design Principles

While the establishment of design guidelines is important to provide a minimum standard of information to designers, the ultimate measure of success lies in the satisfaction of the user. The following are important concepts regarding design of outdoor spaces for the elderly.

1. Any new development or redevelopment of outdoor space must incorporate **barrier free** design principles to ensure access by people of all ability levels.

2. The size of the outdoor areas must be **flex-**

**ible** to accommodate planned group activities or smaller more intimate areas.<sup>17</sup>

3. It is desirable to provide residents the opportunity to **control and change** their own surroundings.<sup>18</sup>

4. **Redundant cuing** can help compensate for any deterioration of the senses due to aging and can help the elderly orient themselves and negotiate unfamiliar environments.<sup>19</sup>

5. **Adaptability** is important at all levels of design. This encourages use and helps residents maintain an independent lifestyle.<sup>20</sup>

6. Design of outdoor areas for seniors should provide **predictable** smaller spaces for comfort and security. These smaller spaces are easier to control and a sense of ownership can be assigned.<sup>21</sup> However, these spaces should not be isolated from sight lines to maintain visual surveillance from indoors.

7. Many elderly people who may not be physically able will still participate in activities as spectators through observation and conversation.<sup>22</sup>

## Summary of Recommendations

These recommendations were derived from the survey data analysis, site observations, design principles and staff interviews. They provide the information necessary to develop a

design program that directly responds to the expressed needs of the residents while at the same time considers related research. The outdoor spaces will be dealt with individually in order to present the ideas in a clear and concise manner.

## Second Floor Roofdeck

### Flooring

- provide a new floor surface that is non-glare, non-slip and colour tinted.

### Seating

- provide comfortable seating with armrests and full backs.
- provide both fixed and moveable seating.
- provide spatial diversity in seating arrangements.

### Planting

- specimen shrubs and evergreens should be planted in raised planters.
- include edible plants to attract birds to the space.

### Planters and Planting Beds

- include an area with raised planters for flowers, herbs or gardening.
- provide aromatic flower bed near the access door with handrails to get to seats.
- provide workspace and storage for gardening tools.

### Lighting

- include additional lighting to illuminate the ground plane and areas away from the building.

### Access

- slow-moving power assisted doors are re-

quired for both access points.

- the floor level should be raised to the height of the threshold of doors to provide level access.

### Sun/shade

- create both shade and sun areas for seating and activity areas.

### Wind

- provide screening for wind abatement in the space.

### Maintenance

- establish maintenance procedures and a realistic budget for the exterior space.

### General

- retain a clear view from inside to invite residents out and provide for staff monitoring.
- more privacy should be established with plant material or wooden screens.
- provide bird feeder and bird bath for visual interest.

## Front Sitting Area

### Flooring

- reset the grade so that it is level to the entrance walk and replace quarry tile with a non-slip, non-glare surface.

### Seating

- provide fixed seating with comfortable benches complete with armrests and full backs.
- some of the benches should be placed at right angles to promote neighboring.

### Planting

- retain existing woody vegetation removing all dead branches and suckering shoots.
- plant flowers, perennial ground covers and

shrubs that are shade tolerant.

### Planters and Planting Beds

- raised planters should be tall enough to be easily visible and define the space.

### Lighting

- ensure adequate night lighting for security.
- provide ground plane lighting for safety and visual interest.

### Sun/shade

- retain adequate shading in the space from the trees and shrubs.

### Maintenance

- establish maintenance procedures and realistic budget to care for the exterior space.

### General

- add a low fence and along sidewalk to prevent people from cutting through.

## Front Sidewalk

### Planting

- plant trees to provide shade for the sidewalk, main level windows and second floor.
- trees will provide a visual screen and backdrop for the second floor roofdeck.
- plant trees at close spacing 4.9 m. (16') on center including protective grates and guards.

### Walking Surface

- resurface with colour tinted concrete to reduce glare.
- pattern paving with good colour contrast along street edge of sidewalk to demark curb.

13. Carstens, Diane, *Site Planning and Design for the Elderly*, Van Nostrand Reinhold Co., New York. 1985 p. 16.

14. Lovering, Mary Jane, et al., *The Problems of Outdoor Spaces for the Elderly*, p. 27.

15. Pastalan, Leon, "How the Elderly Negotiate Their Environment", *Housing for the Elderly*, Dept. of Health Education and Welfare, Washington 1973. p.28.

16. Lawton, M Powell, *Environment and Aging*, Monterey, CA Brooks/Cole, 1980.

17. Lawton, M Powell, *Environment and Aging*, Monterey, CA Brooks/Cole, 1980.

18. Carstens, Diane, "Behavior Research Applied to the Redevelopment of Exterior Spaces: Housing the Elderly", in *Proceedings of the 13th International Conference of the Environmental Design Research Association*, edited by P. Bart, A. Chen, and G. Francescato. College Park, MD: EDRA, 1982 p. 361.

19. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 16.

20. Pastalan, Leon, *How the Elderly Negotiate their Environment*, Housing for the Elderly, Dept. of Health Education and Welfare, Washington 1973 p. 28.

21. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 17.

22. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 21.

23. Thiessen, Ingrid, *Problems and Needs of the Elderly in the Urban Landscape*, unpublished paper, Department of Landscape Architecture, University of Manitoba, 1982 p. 25.

# Part Five

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# Design

## Introduction

**T**his chapter of the study outlines a proposal for the redevelopment of the outdoor spaces at 185 Smith Street. Many improvements have been made regarding services offered at seniors housing facilities but only recently has there been any significant attempt by designers of outdoor spaces to go beyond 'an interesting composition' to meet the needs of seniors.

"The outdoor spaces of many housing environments frequently seem so bad as to defy any probability of their having occurred by chance. There is a universal insensitivity to the use of outdoor areas which automatically makes difficult or impossible the physical exercise component of good health."<sup>23</sup>

While this statement was made more than twenty years ago, it is still relevant today as many older existing outdoor spaces related to seniors housing have seen little or no improvement in the past two decades. A systematic approach based on objective research that is sensitive to the needs of the elderly is necessary to change the situation described above. In order to achieve this, a link must be established between the design professions and behavioral research.

This proposal is an attempt to make the connection between the elderly user and the designer. The design strategy used in this study encompasses the following:

- program development
- design development
- design detailing
- design drawings

## Program Development

The design program was established from the summary of recommendations. The three spaces at the site are dealt with individually as they serve different functions and have different design requirements.

### Second Floor Roofdeck

The roofdeck is the private yard for the residents. It should provide a variety of fixed opportunities but should also be flexible enough to allow people to create individual situations as they desire. This space must be inviting, comfortable and safe to be in with places to appreciate the outdoors. This must be accomplished within the spatial constraints of the site. Planters and site furnishings must be appropriately designed and selected.

Access is critically important to encourage use of the space and should be monitored through post occupancy evaluation. All aspects of accessibility must be enhanced to encourage use of the exterior spaces. This includes doors, door handles, handrails, level flooring, glare and anything else found to be a deterrent to use.

The space should be well lit to allow evening use on warm summer nights. The design must provide spatial diversity in seating arrange-



ments and planting. Protection from the wind and excessive sun must also be provided. The entrance and exit doors must be clearly defined to avoid confusion and fear among those residents with reduced spatial comprehension.

An important aspect of this program is to establish barrier free outdoor space that supports independent living. These spaces must encourage social interaction and communication among the residents. To best achieve this, there must be flexibility in the physical character of the space and adaptability in the use of the space. This program will provide the infrastructure and services necessary to redevelop the outdoor spaces that will prolong independent living for the elderly at 185 Smith Street.

Regular maintenance is absolutely necessary in order to ensure the spaces are properly looked after and do not prematurely deteriorate. This could be achieved by establishing a detailed Regular Maintenance Manual to direct maintenance staff as to the care and upkeep of the spaces. Equally important is to include sufficient funds in the annual budget to ensure ongoing compliance with the manual.

Exterior spaces that are maintained properly increase perceived and real levels of safety and security which is very important to the elderly.

#### **Front Sitting Area**

This area should provide a pleasant place to sit

or to wait for a ride. It should be a source of pride among the residents as any home frontyard should. The planting should be interesting visually and enhance the space with colour, texture and fragrance. The site furnishings and planters should be selected with careful attention to the user's needs. As this space is open to the public, care must be taken not to design a space that will be prone to vandalism.

#### **Front Sidewalk**

The front sidewalk must be considered as an opportunity to embellish the building and outdoor spaces. Tree planting along the sidewalk would shade the sidewalk, main level windows and second floor roofdeck. The tree canopy would visually form a forested backdrop and screen along the edge of the roofdeck to be enjoyed from the second level both indoors and out. The trees should be planted close enough to ensure a continuous canopy. The sidewalk surface should be redone in a tinted concrete with a contrasting brick edge to demark the grade change at the curb and also to accentuate the entrance to the building.

### **Design Development**

The redesign of the outdoor spaces at 185 Smith Street are to reflect the attitudes and needs of the residents of the building as they were expressed in the survey. The following proposal is a suggestion as to how the redevelopment of the outdoor spaces would occur. These ideas have been developed considering the program objectives outlined in Section 5.2.

To this end, the proposed design will provide comfortable environments in a context that supports the needs of the residents. The redevelopment concept is schematically illustrated in Figure 17 with the relationship of the major components included in the plan.

The conceptual idea used to develop the proposal for the second floor roofdeck is that of an island in the sea. The roofdeck is like a private island retreat in the urban landscape. This island needs to be pleasing to the people who use it and must provide protection from the elements. As this space becomes established it will be essential to encourage a social and physical context which human interaction can flourish.

## Design Detailing

Design detailing is a very important aspect of designing for the elderly. Special consideration must be given to design details as they can make it easier for the residents to use the outdoor spaces and help them stay active longer in life. In the last few years there has been indepth studies done by Diane Carstens<sup>24</sup> and others on the subject of design detailing. A number of outdoor space amenities will be looked at under this heading.

### Flooring Surfaces

Outdoor flooring materials should be non-slip, non-glare and easily negotiated with walkers, canes, wheelchairs and shuffling feet. Wooden decking with spacers is not suitable for outdoor

spaces to be used by elderly people. Any paving material used must not have uneven joints or large spaces between paving units. Even a 6 mm. (1/4") protrusion could trip residents who shuffle their feet.<sup>25</sup>

Concrete that is brushed and colour tinted is an acceptable surface material as are bricks set in concrete. Tiled surfaces tend to be very slippery when wet or icy. There are many new lightweight interlocking materials for outdoor flooring that may be a good alternative on roofdecks and possibly other applications. The most promising is a new interlocking rubber brick. Any planned pathways should be capable of two way walking traffic.

### Seating

Sitting is an important pastime to many elderly people. Age related changes and the great amounts of time spent sitting require that the seating be designed for comfort and ease of use. It is better to provide a few comfortable seats than many uncomfortable slab-type benches that would be rarely used.<sup>26</sup> It is also desirable to provide moveable seats and a variety of chair models. This will let residents with different physical requirements select the most comfortable type of seat and create their own groupings in the sun or shade.

Right angle seating or seating with views of other activities are popular seating arrangements.<sup>27</sup> Protection from wind and opportunities to sit in shade or sun are important to the

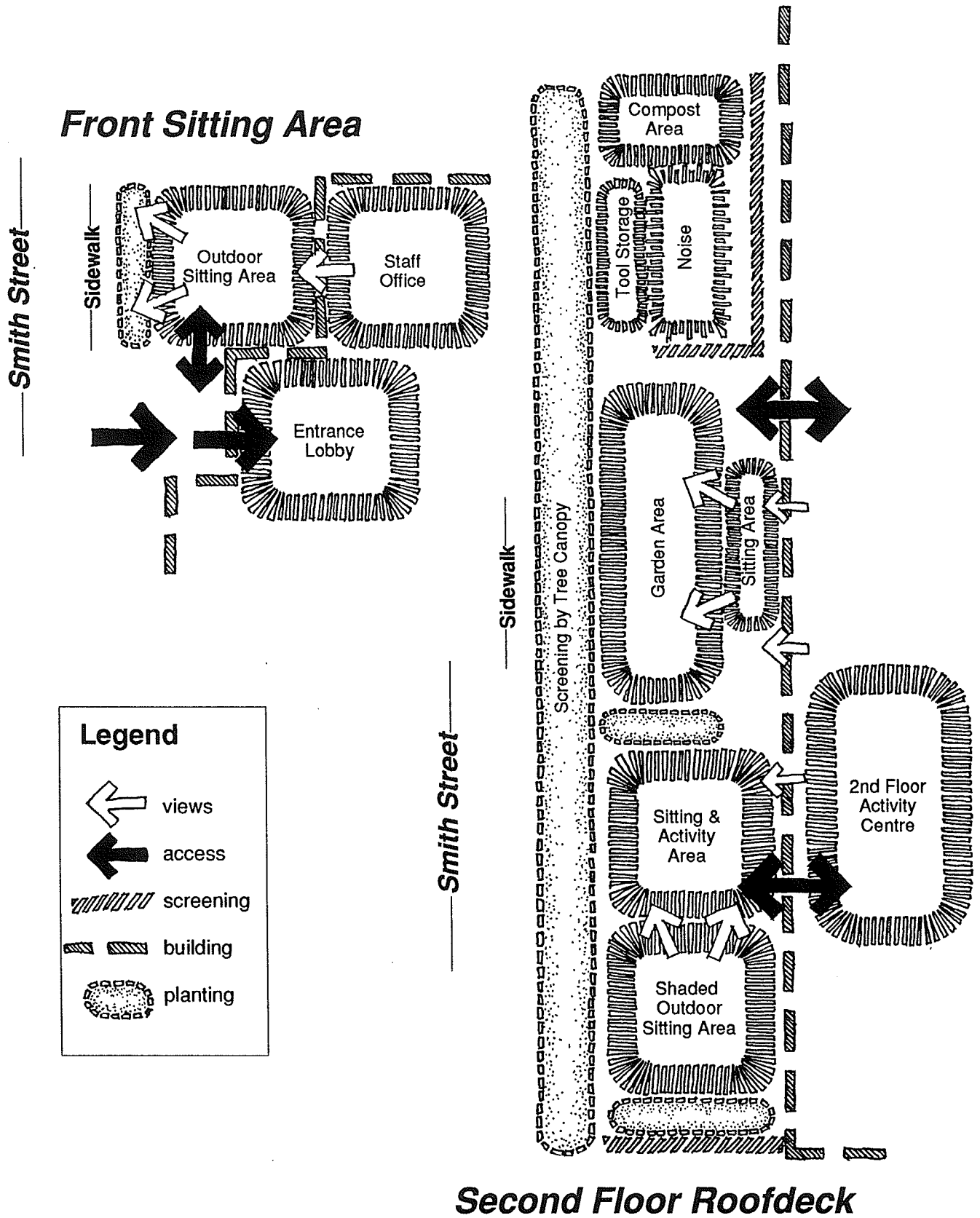


Figure 17. Bubble diagram illustrating schematic concept.

user's comfort.

The seating should be in defined spaces as open areas tend to be overexposed and uncomfortable. The seating should be at a comfortable height with full backs, armrests, a near horizontal seat (from front to back), and a kickspace below (Figure 18). There should also be ample space beside seats to accommodate people in wheelchairs.

### Tables

Tables extend the activities and opportunities a space can offer. They should be separate from the seats and be very stable as many elderly people will use a table edge to help themselves up from a seat. The table surface should be

non-glare with a rolled edge for safety.

### Lighting

Proper lighting is necessary to enhance real and perceived security and safety around the building.<sup>28</sup> Entrance areas, drop-offs, and parking areas are especially important to be well illuminated.

Lighting of the ground plane to provide a shadow free view of the walking surface is important to people using canes, walkers or wheelchairs as well as for people who have aging eyesight.<sup>29</sup> Lighting can also be used aesthetically to enhance particular night views or for accentuating interesting landscape features in the space.

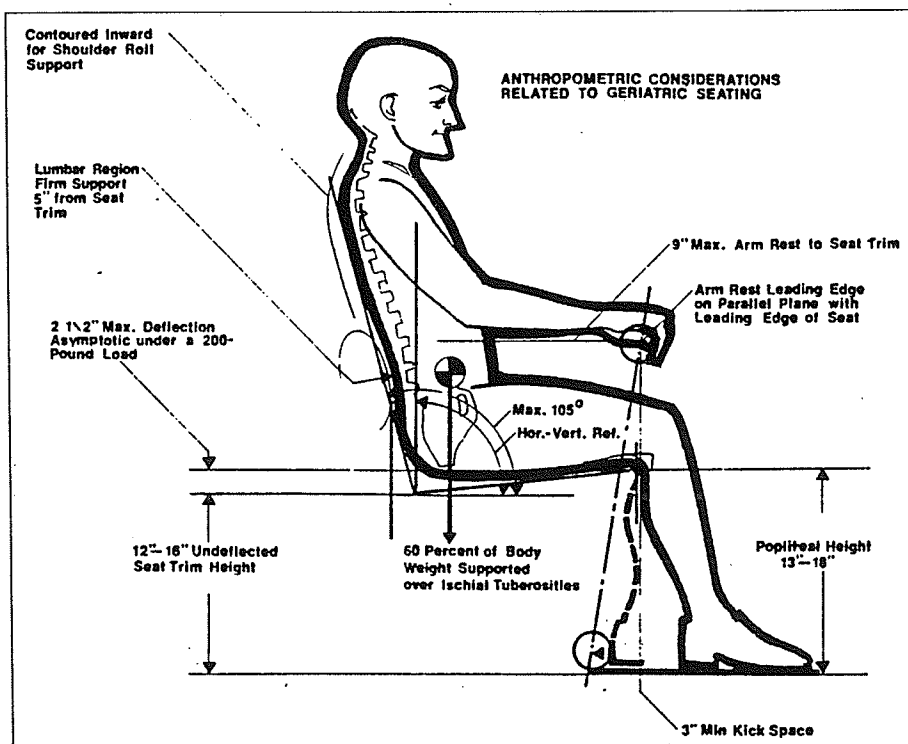


Figure 18. Anthropometric criteria for seating for the elderly.

Source: Joseph A. Koncelik, *Designing the Open Nursing Home*. Stroudsburg, PA, 1976 p. 123.

### Plants

Planting in the urban landscape plays a significant role as it may be the only regular contact with nature for many of the residents of a housing facility. Plants add colour, interest and beauty to a space. Some special considerations for viewing and safety are necessary when providing plants for the elderly.

Plants should be selected for winter colour as many people rarely go out in the winter and may only view them from in-

doors. Massing of plants will increase visual interest and make them obvious to people with failing eyesight.<sup>30</sup> Massing of flowers will also create a strong aroma.

Use of annual flowers should be used where the detail is appreciated and the yearly cost worthwhile.<sup>31</sup> Perennial ground covers and shrub massings are a more cost effective way to deal with expansive planting beds.

### Planters and Planting Beds

Planters and planting beds should either be a minimum 76 cm. (30") in height or right at grade to reduce the possibility of tripping.<sup>32</sup> The raised planter provides easy access and better visibility. For working planters, a variety of shapes and heights of 76 cm. (30") to 1 m. (40") best accommodate individuals preferences and abilities. Sufficient space must also be allowed for wheelchair access. For wheelchairs, a minimum knee clearance of 68 cm. (27") and armrest clearance of 79 cm. (31") is required.<sup>33</sup> Access can also be improved by bevelling the top of the planter outward.

### Ramps and Stairs

Ramps and stairs should be avoided entirely if possible as access to and around outdoor spaces is critical for use.<sup>34</sup> If grade changes are absolutely necessary ramps and stairs should have non-slip, non-glare surfaces. These areas should also be well lit and marked.

### Handrails

The presence of handrails often increases levels of real and perceived safety to those who walk with difficulty or use a wheelchair. Handrails should be set at a height ranging from 66 cm. (26") to 99 cm. (39") depending on the users. Ideally, a double handrail should be used with one at 81 cm. (32") and another at 66 cm. (26").<sup>35</sup>

The handrail should be easy to grip (Figure 19) and be made from weather resistant material. Indirect lighting near the handrail gives the greatest visibility.

### Doors and Door Handles

Doors and door handles can facilitate safe and easy access to outdoor spaces. The doors

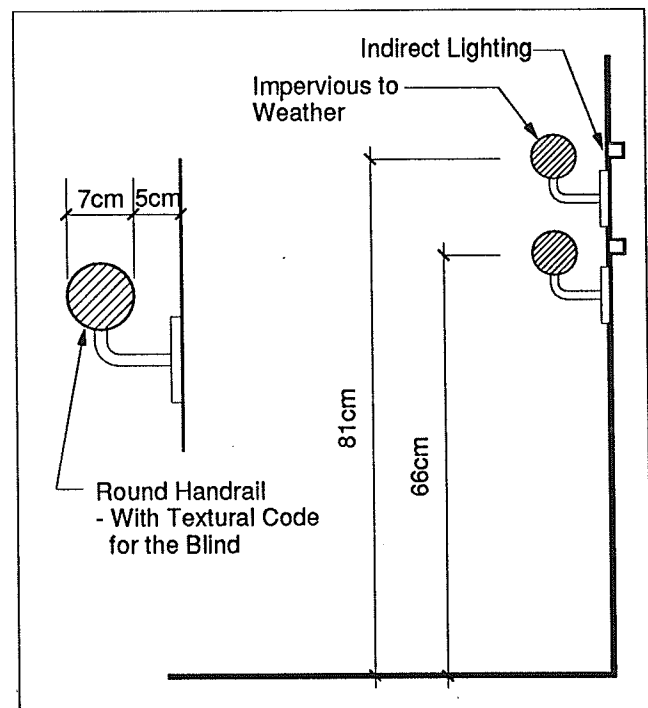


Figure 19. Typical handrail detail.

should be lightweight and their operation easy to comprehend whether the door is power assisted or manually operated. The door width should be a minimum of 81 cm. (32") and have a level or near level threshold. Door handles must provide sufficient gripping surface and be easy to open with a hand or forearm.<sup>36</sup>

## **Design Drawings**

The design of the second floor roofdeck, front sitting area and front sidewalk are presented in the following drawings:

- annotated plan (Figure 20).
- sections (Figure 21).
- axonometric (Figure 22).

**Front Sitting Area**

A semi-public space at street level accessed from the front entrance.

**Low Wrought Iron Fence**  
Low hedge planted along sidewalk.

**Retain Existing Trees**  
Prune up low branches and remove dead wood.

**Main Entrance**

**Compost/Storage Areas**

**Raised Wooden Planters**  
Resident use for seasonal plantings.

**Wooden Screen Fence**  
Lattice work with an access gate.

**Air Exchanger Unit**

**Second Floor Roofdeck**

A private space accessed from the second floor.

**Vinyl Canopy Over Door**  
Brightly coloured to accentuate entrance/exit.

**Pergola Over Work Area**  
Garden work area with counter space, storage, water, and seating.

**Specimen Shrub in Raised Planter**

**Seating with Armrests and Backs**

**Grape Arbor with Walk Through**  
Arbor over raised planters.

**Moveable Seating & Tables**  
Sturdy tables with optional umbrellas.

**Unit Paving 2' x 2'**  
Non-slip, non-glare surface.

**Specimen Shrubs**

**Seating with Armrests and Backs**

**Flood & Accent Lighting**  
Illuminating the ground plane and landscape features.

**Vinyl Canopy Over Door**  
Brightly coloured to accentuate entrance/exit.

**Pergola Over Seating Area**  
Shaded seating with comfortable benches.

**Street Tree Planting**  
Planted at 16' on centre, with ornamental grates.

**Decorative Unit Pavers**  
Unit pavers set into tinted concrete to accentuate entrance and demark the curb.

**Retain Existing Vegetation**  
Prune to remove dead wood.

**Seating with Armrests and Backs**

**New Shrub Planting**

**Raised Planter**  
Rocks with ground cover.

staff office below

open to main floor

entrance/exit sitting area

office

activity centre (Age & Opportunity)

**Second Floor**

entrance/exit

stairs

air vent

Smith Street

0 10 25 feet



Figure 20. Annotated plan of the proposed redevelopment.

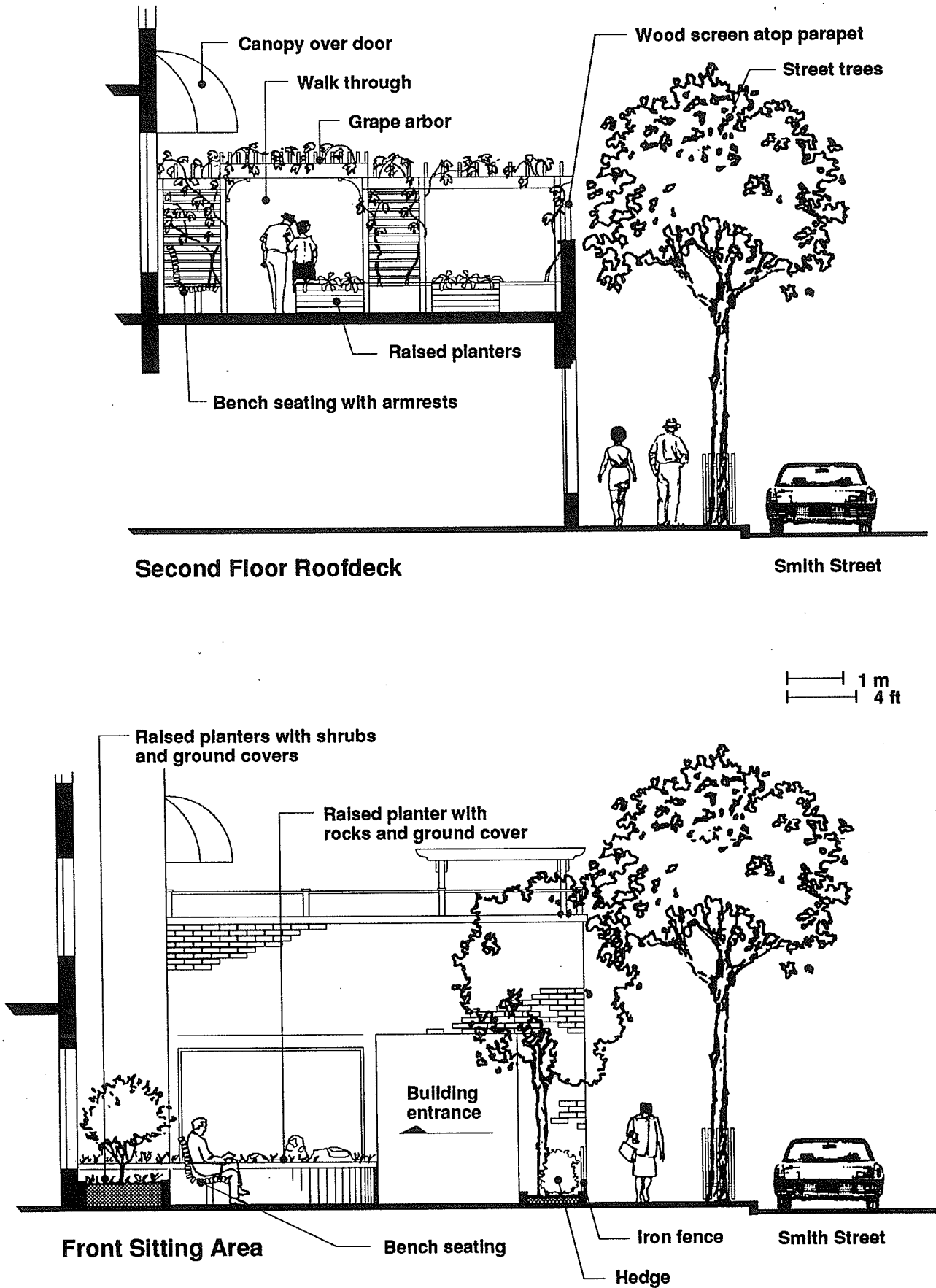


Figure 21. Sections of the proposed redevelopment.



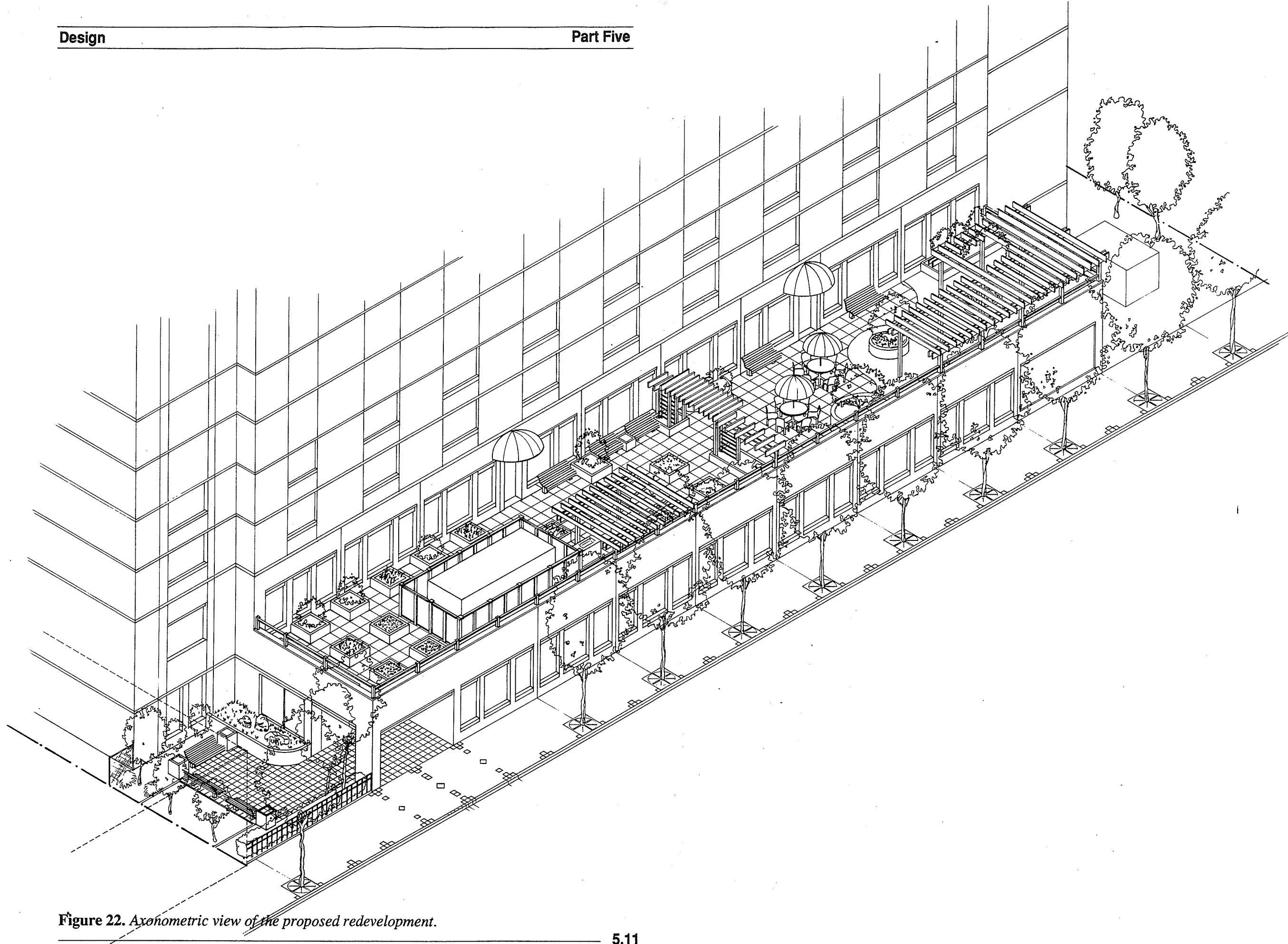


Figure 22. Axonometric view of the proposed redevelopment.

23. McGuire, Marie, C., "Preventive Measures to Minimize Accidents Among the Elderly", *Occupational Health Nursing*, October 1970, p.17.
24. Carstens, Diane Y., *Site Planning and Design for the Elderly*, Van Nostrand Reinhold Co., New York. 1985.
25. Lovering, Mary Jane et al., *The Problems of Outdoor Spaces for the Elderly*, Canada Mortgage and Housing, Vertechs Design Inc. 1983 p. 31.
26. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 123.
27. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 123.
28. Green, Isaac, et al., *Housing for the Elderly: The Development and Design Process*. Van Nostrand Reinhold, 1975. p. 125
29. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 127.
30. Thiessen, Ingrid, *Outdoor Space Surrounding Senior Citizen Housing Developments*, p. 107.
31. Thiessen, Ingrid, *Outdoor Space Surrounding Senior Citizen Housing Developments*, p. 108.
32. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 127.
33. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 129.
34. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 130.
35. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 133.
36. Carstens, Diane, *Site Planning and Design for the Elderly*, p. 135.

# Part Six

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# Summary

## Summary

**T**he realization of this proposal clearly necessitates further study and considerable capital investment. The scope of this study did not address the detailed commitments required to implement such a proposal. However, the need for redevelopment is obvious regardless of how much human resource or capital investment is required.

Further research would have to be undertaken to do design revisions as they may be required from the presentation to the residents and management. Once that was established, budgeting and identification and targeting of potential funding resources would have to be sought from appropriate government and non-government agencies.

Private funding through corporate donation could also be a source of capital or building materials. A volunteer coordinated fund raising campaign culminating in a newsworthy event may be a means of soliciting such donations from corporations.

## Implications for Future Research

Redevelopment of the outdoor spaces at 185 Smith Street will require additional efforts as outlined in the methodology (Figure 1) not undertaken as part of this research. Establishing the need for this renovation is clearly presented

but how to initiate the process is not addressed. Future research into streamlining the process and methodology used in this study would be of great benefit to designers facing similar design challenges.

The need for research into providing meaningful outdoor space for the aging population has never been more critical. As the number of elderly people grows, so does the need. This obligation and challenge will have to be initiated by the design professions or we will be responsible for perpetuating the problem.

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## Bibliography

- Beyer, Glenn H., and M.E. Woods**, "Living and Activity Patterns of the Aged", *Research Report No. 6, Center for Housing and Environmental Studies*, Cornell University, Ithaca N.Y., 1963.
- Canada Mortgage and Housing Corporation**, *Housing and the Elderly People: A Bibliography*, 1987.
- Canada Mortgage and Housing Corporation**, *Housing for Elderly People: Design Guidelines*, 1987.
- Canada Mortgage and Housing Corporation**, *Innovations in Housing for Seniors*, 1989.
- Canadian Seniors Network**, *New Perspectives - New Choices: Senior Canadians Speak on Housing Issues*, 1988.
- Carstens, Diane Y.**, "Behavioral Research Applied to the Redevelopment of Exterior Spaces: Housing the Elderly", In *Proceedings of the 13th International Conference of the Environmental Design Research Association*, EDRA 1982.
- Carstens, Diane Y.**, *Site Planning and Design for the Elderly: Issues, Guidelines, and Alternatives*, New York: Van Nostrand Reinhold Co., 1985.
- Clark, Kate, and Oberlander, Cornelia Hahn**, "Louis Brier Garden Courtyard: Spatial Design for the Elderly." *Landscape Architectural Review*, December 1989, p. 6-9.
- Epp, R.M.**, *Islands in the Sky: An Investigation Into the Nature and History of Roofscaping, and Recommendations for Future Roofscaping in Winnipeg*, Unpublished Master of Landscape Architecture Thesis, University of Manitoba, 1985.
- Fletcher, Susan, and Stone, Leroy O.**, *A Profile of Canada's Older Population*, Montreal: The Institute for Research on Public Policy, 1980.
- Fletcher, Susan, and Stone, Leroy O.**, *The Seniors Boom: Dramatic Increases in Longevity and Prospects for Better Health*, Minister of Supply and Services, Ottawa, 1986.
- Green, I., Fedewa, B.E., Johnston, C.A., Jackson, W.M., Deardroff, H.L.**, *Housing for the Elderly: The Development and Design Process*, Toronto: Van Nostrand Reinhold Co., 1975.
- Hall, Edward T.**, "A System for the Notation of Proxemic Behavior", *American Anthropologist*, Vol. 65, No.5, October, 1963.
- Hiatt, L.G.**, "Moving Outside and Making it a Meaningful Experience", *Nursing Homes*, 29,3 p.34-39 1980.
- Howell, Sandra**, *Designing for Aging: Patterns of Use*, MIT Press, 1980.
- Howell, Sandra**, *Shared Spaces in Housing for the Elderly*, Dept. of Arch. MIT Press, 1976.
- Kastes, Wade G. and Fulmyk, Anna**, "Analysis of Supportive Service Housing for the Elderly; Province of Manitoba," *Manitoba Housing and Renewal Corporation*, Winnipeg, Manitoba, 1982.
- Kerr, G.P.**, *Rehabilitative Environments: A Courtyard at the Winnipeg Rehabilitation Respiratory Hospital*, Unpublished Master of Landscape Architecture Thesis, University of Manitoba, 1989.

- 
- Lawton, M. Powell**, *Environment and Aging*, Brooks / Cole, Monterey, CA., 1980.
- Lawton, M. Powell, et al.**, eds., "Community Planning for an Aging Society: Designing Services and Facilities" *Community Development Series*, Stroudsburg, Pa.: Downden, Hutchinson, and Ross, 1976.
- Lovering, M. J., et al.**, Problems of Outdoor Spaces for the Elderly, Canada Mortgage and Housing Corporation, External Grant Report, Ottawa, 1983.
- McGuire, Marie, C.**, "Preventive Measures to Minimize Accidents Among the Elderly", *Occupational Health Nursing*, October, 1970.
- Mumford, Lewis L.**, "For Older People: Not Segregation But Integration" *Architectural Record* 119 (May 1956):191-194.
- National Advisory Council on Aging**, *Housing An Aging Population: Guidelines for Development and Design*, 1988.
- National Advisory Council on Aging**, *Understanding Seniors' Independence: The Barriers and Suggestions for Action*, 1989.
- Nordhaus, R., and Kowtowitz, M.**, "Access Problems and Outdoor Sites: A Level of Accessibility", In *Proceedings of the 16th International Conference of the Environmental Design Research Association*, EDRA 1985.
- Pastalan, Leon**, "How the Elderly Negotiate Their Environment", *Housing for the Elderly*, Department of Health, Education and Welfare, Washington, 1973.
- Provincial Fact Book on Aging - Manitoba**, Prepared for the Fourth Conference on Aging, May 1985.
- Saarinen, Thomas, F.**, *Environmental Planning: Perceptions and Behavior*, Houghton Mifflin Company, U.S., 1976.
- Saskatchewan Housing Corporation**, *The Task Force on Senior Citizen Housing*, 1984.
- Satin, A., and Shastry W.**, *Survey Sampling: A Non-Mathematical Guide*, Statistics Canada, Ottawa: Statistics Canada, Ministry of Supply and Services Canada, 1983.
- Sudman, Seymour, and Bradburn, Norman, M.**, *Asking Questions: A Practical Guide to Questionnaire Design*, 1982., Jossey-Bass Inc., 1982.
- The Elderly in Canada**, Statistics Canada, Ottawa, 1984.
- Thiessen, Ingrid A.**, *Outdoor Space Surrounding Senior Citizen Housing Developments*, Unpublished Master of Landscape Architecture Thesis, University of Manitoba, 1983.
- Thiessen, Ingrid A.**, *Problems and Needs of the Elderly in the Urban Landscape*, Unpublished paper, University of Manitoba, 1983.
- Zeisel Research**, "Low Rise Housing for Older People: Behavioral Criteria for Design", *Department of Housing and Urban Development*, Office of Policy Development and Research, Washington, D.C., 1978.
- Zeisel, John**, *Inquiry by Design: Tools for Environment-Behavior Research*, Cambridge University Press, N.Y., 1984.

# APPENDIX ONE

## Survey Questionnaire for 185 Smith Street

Please read the questions carefully and check the appropriate response.

### Part One - Going Outside

#### 1. When the weather is pleasant and not too hot, how often would you:

##### a) go out of your apartment?

<input type="text" value="67.4"/>	every day	<input type="text" value="0.0"/>	every other week	N = 92
<input type="text" value="20.7"/>	almost every day	<input type="text" value="1.1"/>	once a month	V1
<input type="text" value="8.7"/>	twice a week	<input type="text" value="0.0"/>	almost never	
<input type="text" value="1.1"/>	once a week	<input type="text" value="1.1"/>	never	

##### b) go out of the building?

<input type="text" value="55.6"/>	every day	<input type="text" value="1.1"/>	every other week	N = 90
<input type="text" value="27.8"/>	almost every day	<input type="text" value="1.1"/>	once a month	V2
<input type="text" value="8.9"/>	twice a week	<input type="text" value="0.0"/>	almost never	
<input type="text" value="4.4"/>	once a week	<input type="text" value="1.1"/>	never	

##### c) spend time outside around the building?

<input type="text" value="27.0"/>	every day	<input type="text" value="1.1"/>	every other week	N = 89
<input type="text" value="16.9"/>	almost every day	<input type="text" value="0.0"/>	once a month	V3
<input type="text" value="5.6"/>	twice a week	<input type="text" value="20.2"/>	almost never	
<input type="text" value="7.9"/>	once a week	<input type="text" value="21.3"/>	never	

##### d) walk to someplace in the neighbourhood?

<input type="text" value="6.7"/>	every day	<input type="text" value="12.4"/>	every other week	N = 86
<input type="text" value="3.4"/>	almost every day	<input type="text" value="12.4"/>	once a month	V4
<input type="text" value="6.7"/>	twice a week	<input type="text" value="19.1"/>	almost never	
<input type="text" value="25.8"/>	once a week	<input type="text" value="13.5"/>	never	

##### e) go someplace by car or taxi

<input type="text" value="41.9"/>	every day	<input type="text" value="0.0"/>	every other week	N = 83
<input type="text" value="27.9"/>	almost every day	<input type="text" value="0.0"/>	once a month	V5
<input type="text" value="14.0"/>	twice a week	<input type="text" value="1.2"/>	almost never	
<input type="text" value="4.7"/>	once a week	<input type="text" value="10.5"/>	never	

#### 2. When you walk, how far away do you usually go?

<input type="text" value="7.2"/>	about 1 block	<input type="text" value="12.0"/>	5 blocks	N = 83
<input type="text" value="7.2"/>	2 blocks	<input type="text" value="13.3"/>	6 blocks	V6
<input type="text" value="15.7"/>	3 blocks	<input type="text" value="1.2"/>	7 blocks	
<input type="text" value="16.9"/>	4 blocks	<input type="text" value="26.5"/>	8 or more blocks	



**3. What types of activities do you do in various places around the building?**

(other than your apartment)

Please check all that apply.

**a) sitting**

<input type="checkbox"/> 41.3	coffee shop / restuarant	V7	<input type="checkbox"/> 13.0	2nd floor patio / roof deck	V10
<input type="checkbox"/> 31.5	front lobby / lounge	V8	<input type="checkbox"/> 19.6	outside sitting area at front entrance	V11
<input type="checkbox"/> 33.7	2nd floor activity centre	V9	<input type="checkbox"/> 21.7	other (please describe) _____	V12

**b) visiting with residents**

<input type="checkbox"/> 33.7	coffee shop / restuarant	V13	<input type="checkbox"/> 12.0	2nd floor patio / roof deck	V16
<input type="checkbox"/> 26.1	front lobby / lounge	V14	<input type="checkbox"/> 16.3	outside sitting area at front entrance	V17
<input type="checkbox"/> 25.0	2nd floor activity centre	V15	<input type="checkbox"/> 19.6	other (please describe) _____	V18

**c) visiting with family / friends**

<input type="checkbox"/> 38.0	coffee shop / restuarant	V19	<input type="checkbox"/> 9.8	2nd floor patio / roof deck	V22
<input type="checkbox"/> 20.7	front lobby / lounge	V20	<input type="checkbox"/> 14.1	outside sitting area at front entrance	V23
<input type="checkbox"/> 15.2	2nd floor activity centre	V21	<input type="checkbox"/> 22.8	other (please describe) _____	V24

**d) watching people**

<input type="checkbox"/> 19.6	coffee shop / restuarant	V25	<input type="checkbox"/> 3.3	2nd floor patio / roof deck	V28
<input type="checkbox"/> 34.8	front lobby / lounge	V26	<input type="checkbox"/> 14.1	outside sitting area at front entrance	V29
<input type="checkbox"/> 15.2	2nd floor activity centre	V27	<input type="checkbox"/> 16.3	other (please describe) _____	V30

**e) walking**

<input type="checkbox"/> 28.3	coffee shop / restuarant	V31	<input type="checkbox"/> 8.7	2nd floor patio / roof deck	V34
<input type="checkbox"/> 25.0	front lobby / lounge	V32	<input type="checkbox"/> 14.1	outside sitting area at front entrance	V35
<input type="checkbox"/> 16.3	2nd floor activity centre	V33	<input type="checkbox"/> 30.4	other (please describe) _____	V36

**f) other exercise**

<input type="checkbox"/> 14.1	coffee shop / restuarant	V37	<input type="checkbox"/> 7.6	2nd floor patio / roof deck	V40
<input type="checkbox"/> 17.4	front lobby / lounge	V38	<input type="checkbox"/> 9.8	outside sitting area at front entrance	V41
<input type="checkbox"/> 19.6	2nd floor activity centre	V39	<input type="checkbox"/> 28.3	other (please describe) _____	V42

**g) reading**

<input type="checkbox"/> 4.3	coffee shop / restuarant	V43	<input type="checkbox"/> 7.6	2nd floor patio / roof deck	V46
<input type="checkbox"/> 12.0	front lobby / lounge	V44	<input type="checkbox"/> 6.5	outside sitting area at front entrance	V47
<input type="checkbox"/> 4.3	2nd floor activity centre	V45	<input type="checkbox"/> 42.4	other (please describe) _____	V48

**h) writing letters**

<input type="checkbox"/> 4.3	coffee shop / restuarant	V49	<input type="checkbox"/> 3.3	2nd floor patio / roof deck	V52
<input type="checkbox"/> 3.3	front lobby / lounge	V50	<input type="checkbox"/> 4.3	outside sitting area at front entrance	V53
<input type="checkbox"/> 0.0	2nd floor activity centre	V51	<input type="checkbox"/> 44.6	other (please describe) _____	V54

**4. How important is it to have the following in outdoor spaces:**

Please check all that apply.

	very important	somewhat	neutral	somewhat	not important		
safety	91.5	1.4	2.8	0.0	4.2	N = 71	V55
comfortable seating	83.3	11.1	2.8	0.0	2.8	N = 72	V56
private seating	33.3	22.2	20.0	4.4	20.0	N = 45	V57
group seating	42.3	19.2	19.2	1.9	17.3	N = 52	V58
shade areas	71.9	15.6	6.3	0.0	6.3	N = 64	V59
sunny areas	60.0	16.4	10.9	1.8	10.9	N = 55	V60
lighting	78.0	8.5	5.1	1.7	6.8	N = 59	V61
flowers	70.8	18.1	2.8	0.0	8.3	N = 72	V62
shrubs / trees	73.5	14.7	2.9	0.0	8.8	N = 68	V63
gardening	58.0	14.0	12.0	0.0	16.0	N = 50	V64

**FRONT SITTING AREA**

These questions refer to the area outside the front entrance.

**5. How would you describe the seating area outside the front entrance of this building?**

Please check the box that best describes how you feel about each item.

	very much	somewhat	neutral	somewhat	very much		
safe	26.3	22.8	17.5	15.8	17.5	unsafe	N = 57 V65
well maintained	29.0	27.5	11.6	11.6	20.3	poorly maintained	N = 69 V66
private	16.3	18.4	24.5	16.3	24.5	public	N = 49 V67
enough shrubs	29.8	15.8	17.5	14.0	22.8	not enough shrubs	N = 57 V68
good seating	14.3	11.4	12.9	1.4	60.0	poor seating	N = 70 V69

**6. If you do use this area, what do you use the sitting area for?**

Please check all that apply.

V70	42.4	waiting for a ride or taxi	29.3	only place to sit outside	V71
V72	21.7	watching people	26.1	to take a rest before or after walking somewhere	V73
V74	26.1	visiting with friends or family	18.5	watching seasonal changes	V75
V76	23.9	good place to pass the time	22.8	to meet friends	V77
V78	44.6	fresh air	6.6	other, please specify	V79

**7. Is there anything about the outside front sitting area that bothers you or stops you from using it?**

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**SECOND FLOOR PATIO**

These questions refer to the outside patio area on the second floor.

**8. How would you describe the second floor patio area of this building?**

Please check the box that best describes how you feel about each item.

	very much	somewhat	neutral	somewhat	very much			
safe	49.0	9.8	13.7	2.0	25.5	unsafe	N = 51	V81
well maintained	24.1	27.8	13.0	0.0	35.2	poorly maintained	N = 54	V82
private	37.8	24.3	13.5	5.4	18.9	public	N = 37	V83
enough flowers	54.0	16.0	16.0	0.0	14.0	not enough flowers	N = 50	V84
good seating	43.4	17.0	13.2	1.9	24.5	poor seating	N = 53	V85
quiet	42.3	21.2	13.5	0.0	23.1	noisy	N = 52	V86

**9. If you do use this area, what do you use it for?**

V87	25.0	to look at the flowers	9.8	watching seasonal changes	V92
V88	22.8	only place to sit outside	22.8	good place to pass the time	V93
V89	10.9	watching people	15.2	to meet friends	V94
V90	15.2	to take a rest before or after walking	38.0	fresh air	V95
V91	21.7	visiting with residents, friends or family	6.6	other, please specify _____	V96

**10. Is there anything about the second floor roofdeck that bothers you or stops you from using it?**

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## Part Two - Neighbourhood

### 11. What places do you go to in the neighbourhood and how do you get there?

#### a) to stores

<input type="text" value="75.0"/> V98	walk both ways	<input type="text" value="29.3"/> V99	take public transit	<input type="text" value="14.1"/> V100	car / taxi	<input type="text" value="4.3"/> V101	don't go there
--	----------------	--	---------------------	---	------------	--	----------------

#### b) bank

<input type="text" value="69.6"/> V102	walk both ways	<input type="text" value="16.3"/> V103	take public transit	<input type="text" value="6.5"/> V104	car / taxi	<input type="text" value="8.7"/> V105	don't go there
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#### c) church

<input type="text" value="32.6"/> V106	walk both ways	<input type="text" value="15.2"/> V107	take public transit	<input type="text" value="7.6"/> V108	car / taxi	<input type="text" value="17.4"/> V109	don't go there
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#### d) doctor

<input type="text" value="35.9"/> V110	walk both ways	<input type="text" value="37.0"/> V111	take public transit	<input type="text" value="27.2"/> V112	car / taxi	<input type="text" value="0.0"/> V113	don't go there
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#### e) post office

<input type="text" value="64.1"/> V114	walk both ways	<input type="text" value="9.8"/> V115	take public transit	<input type="text" value="2.2"/> V116	car / taxi	<input type="text" value="12.0"/> V117	don't go there
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#### f) just to walk around

<input type="text" value="64.1"/> V118	walk both ways	<input type="text" value="9.8"/> V119	take public transit	<input type="text" value="2.2"/> V120	car / taxi	<input type="text" value="9.8"/> V121	don't go there
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#### g) friends' or families' places

<input type="text" value="7.6"/> V122	walk both ways	<input type="text" value="37.0"/> V123	take public transit	<input type="text" value="28.3"/> V124	car / taxi	<input type="text" value="12.0"/> V125	don't go there
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#### h) clubs / activity centres

<input type="text" value="15.2"/> V126	walk both ways	<input type="text" value="19.6"/> V127	take public transit	<input type="text" value="7.6"/> V128	car / taxi	<input type="text" value="25.0"/> V129	don't go there
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#### i) barber / hairdresser

<input type="text" value="41.3"/> V130	walk both ways	<input type="text" value="19.6"/> V131	take public transit	<input type="text" value="5.4"/> V132	car / taxi	<input type="text" value="10.9"/> V133	don't go there
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#### j) library

<input type="text" value="56.5"/> V134	walk both ways	<input type="text" value="10.9"/> V135	take public transit	<input type="text" value="1.1"/> V136	car / taxi	<input type="text" value="19.6"/> V137	don't go there
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#### k) restaurant

<input type="text" value="52.2"/> V138	walk both ways	<input type="text" value="13.0"/> V139	take public transit	<input type="text" value="7.6"/> V140	car / taxi	<input type="text" value="16.3"/> V141	don't go there
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#### l) bus stop

<input type="text" value="56.5"/> V142	walk both ways	<input type="text" value="9.8"/> V143	take public transit	<input type="text" value="2.2"/> V144	car / taxi	<input type="text" value="7.6"/> V145	don't go there
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**12. How many blocks do you feel comfortable walking?**

<input type="text" value="9.1"/> one	<input type="text" value="6.5"/> five	V150 N = 77
<input type="text" value="6.5"/> two	<input type="text" value="14.3"/> six	
<input type="text" value="10.4"/> three	<input type="text" value="7.8"/> seven	
<input type="text" value="14.3"/> four	<input type="text" value="31.2"/> eight or more	

**13. For how many minutes do you feel comfortable walking?**

<input type="text" value="5.3"/> 5	<input type="text" value="3.9"/> 25	V151 N = 76
<input type="text" value="9.2"/> 10	<input type="text" value="14.5"/> 30	
<input type="text" value="10.5"/> 15	<input type="text" value="6.6"/> 35	
<input type="text" value="17.1"/> 20	<input type="text" value="32.9"/> 40 +	

**14. What are some of the things that you like when you walk in the neighbourhood?**

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**15. What are some of the things that bother you when you walk to places in this neighbourhood?**

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**16. Where is your favorite outdoor place in the neighbourhood? What is it that you like about it?**

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**17. How much do you enjoy the neighbourhood where you live?**

<input type="text" value="40.7"/> very much	<input type="text" value="7.4"/> a little	V156 N = 81
<input type="text" value="27.2"/> a lot	<input type="text" value="4.9"/> not at all	
<input type="text" value="19.8"/> somewhat		

**18. When the weather is nice, do you use the park on the corner?**

<input type="text" value="20.7"/> daily	<input type="text" value="14.6"/> rarely	V157 N = 82
<input type="text" value="15.9"/> twice weekly	<input type="text" value="40.2"/> not at all	
<input type="text" value="8.5"/> once weekly		

**19. How would you describe that park?**

	very much	somewhat	neutral	somewhat	very much		
safe	<input type="text" value="17.5"/>	<input type="text" value="19.3"/>	<input type="text" value="12.3"/>	<input type="text" value="8.8"/>	<input type="text" value="42.1"/>	unsafe	V158 N = 57
well maintained	<input type="text" value="66.0"/>	<input type="text" value="18.9"/>	<input type="text" value="5.7"/>	<input type="text" value="3.8"/>	<input type="text" value="5.7"/>	poorly maintained	V159 N = 53
private	<input type="text" value="15.0"/>	<input type="text" value="22.5"/>	<input type="text" value="15.0"/>	<input type="text" value="10.0"/>	<input type="text" value="37.5"/>	public	V160 N = 40
enough shrubs	<input type="text" value="55.3"/>	<input type="text" value="28.9"/>	<input type="text" value="5.3"/>	<input type="text" value="2.6"/>	<input type="text" value="7.9"/>	not enough shrubs	V161 N = 38
good seating	<input type="text" value="41.2"/>	<input type="text" value="3.9"/>	<input type="text" value="15.7"/>	<input type="text" value="5.9"/>	<input type="text" value="33.3"/>	poor seating	V162 N = 51
quiet	<input type="text" value="34.7"/>	<input type="text" value="20.4"/>	<input type="text" value="14.3"/>	<input type="text" value="0.0"/>	<input type="text" value="30.6"/>	noisy	V163 N = 49

**Part Three - General Questions**

**1. How long have you lived at 185 Smith Street?**

<input type="text" value="15.2"/>	less than one year	<input type="text" value="16.3"/>	11 - 15 years	N = 86	V164
<input type="text" value="31.4"/>	1 - 5 years	<input type="text" value="14.0"/>	16 years or more		
<input type="text" value="23.3"/>	6 - 10 years				

**2. What floor do you live on?**

<input type="text" value="0.0"/>	1st	<input type="text" value="6.1"/>	8th	<input type="text" value="3.7"/>	16th	N = 82	V165
<input type="text" value="0.0"/>	2nd	<input type="text" value="6.1"/>	9th	<input type="text" value="9.8"/>	17th		
<input type="text" value="6.1"/>	3rd	<input type="text" value="6.1"/>	10th	<input type="text" value="3.6"/>	18th		
<input type="text" value="9.8"/>	4th	<input type="text" value="8.5"/>	11th	<input type="text" value="6.1"/>	19th		
<input type="text" value="4.9"/>	5th	<input type="text" value="8.5"/>	12th	<input type="text" value="3.7"/>	20th		
<input type="text" value="2.4"/>	6th	<input type="text" value="1.2"/>	14th				
<input type="text" value="6.1"/>	7th	<input type="text" value="7.3"/>	15th				

**3. Where did you live before you moved into this apartment?**

<input type="text" value="65.8"/>	In an urban area of a city	<input type="text" value="7.6"/>	In a rural town	N = 79	V166
<input type="text" value="22.8"/>	In a suburban area of a city	<input type="text" value="3.8"/>	On a farm		

**4. What type of dwelling did you live in before moving here?**

<input type="text" value="29.1"/>	A single family house	<input type="text" value="3.5"/>	A room in a hotel	N = 86	V167
<input type="text" value="4.7"/>	A duplex	<input type="text" value="4.7"/>	Other (please specify)		
<input type="text" value="58.1"/>	An apartment				

**5. How would you rate your health?**

<input type="text" value="4.7"/>	Excellent	<input type="text" value="38.4"/>	Fair	N = 86	V168
<input type="text" value="37.2"/>	Good	<input type="text" value="19.8"/>	Poor		

**6. How would you rate your ability to get around?**

<input type="text" value="9.3"/>	Excellent	<input type="text" value="40.7"/>	Fair	N = 86	V169
<input type="text" value="38.4"/>	Good	<input type="text" value="11.6"/>	Poor		

**7. If you answered 'fair' or 'poor' to the previous question, what do you do about it?**

<input type="text" value="16.4"/>	Stay at home	N = 55	V170	<input type="text" value="18.2"/>	Get help from others	N = 55	V172
<input type="text" value="18.2"/>	Use mechanical aids	N = 55	V171	<input type="text" value="72.7"/>	Pace myself (be careful)	N = 55	V173

**8. How frequently do you use public transit (buses)?**

<input type="text" value="8.3"/>	every day	<input type="text" value="20.2"/>	almost never	N = 84	V174
<input type="text" value="16.7"/>	almost every day	<input type="text" value="20.2"/>	never		
<input type="text" value="19.0"/>	twice a week	<input type="text" value="4.8"/>	once a month		
<input type="text" value="10.7"/>	every other week				

**9. If you answered 'almost never' or 'never' to the previous question, why not?**

26.1	taxi is convenient	N = 46	V175	19.6	have access to car	N = 46	V178
30.4	can't climb stairs	N = 46	V176	41.3	prefer to walk	N = 46	V179
2.2	too much waiting	N = 46	V177				

**10. For statistical purposes only, would you indicate your age, sex, and living arrangement?**

4.5	50 - 55		10.1	71 - 75	N = 89	V180
10.1	56 - 60		20.2	76 - 80		
12.4	61 - 65		11.2	81 - 85		
15.7	66 - 70		15.7	86 +		
68.2	female				N = 88	V181
31.8	male					
7.9	married		42.7	single	N = 89	V182
48.3	widowed		1.1	co habitating		

**11. Do you have any other suggestions for improving the outside area?**

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Thank you very much for your time and patience in answering this questionnaire.



# APPENDIX TWO

## Staff Interview for 185 Smith Street

1. From your general observations, who uses the outside spaces around the building?  
(the front sitting area and the second floor outdoor patio)

*The front area is used by both tenants and the public.*

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*The second floor patio is used almost entirely by the tenants and mostly for sitting.*

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2. How do they use the space?

*They use it for sitting, viewing flowers, reading, waiting for rides or taxis.*

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3. What requests/complaints do you receive from the residents about improving the outdoor space?

*Front area - "poor seating", "poor maintenance", "litter", "one resident planted annuals there."*

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*Second floor - "too hot", "poor floor", "they use it at night when it is cool."*

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4. In your opinion, what site features would be the most appropriate for the second floor patio? (seating, planting, etc.)

*"Greenery", "good flooring", "good seating", "flowers".*

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5. What advice would you give to a designer about developing outside space?

*You should have umbrellas for shade, good flooring and seating and well lit space.*

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6. Out of all the activities possible, which are the ones that residents participate in most?

*Sitting and visiting outside is the most popular. I think they appreciate the outdoors and fresh air even though opportunities are limited.*

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Thank you for your participation.