

**ADAPTABLE DESIGN IN FIVE HOUSING PROJECTS IN
NORTH VANCOUVER: CLIENT USE AND
SATISFACTION**

by

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ABSTRACT

In 1997, the City of North Vancouver, British Columbia developed 'Adaptable Design Guidelines'. This was the first qualitative evaluation since guideline implementation that evaluated why tenants moved to Adaptable Designed units, identified changes being made by tenants, and indicated if functional independence was being supported due to the design features.

Participants were satisfied with their unit and the decision to move into their unit was primarily guided by location of the building. Also, participants were aware of Adaptable Design; however, some were misled about its uses.

Most participants were high functioning; however, several required assistance with household tasks such as cooking and cleaning. Unfortunately, these same support services are being eliminated by the provincial government in British Columbia.

Results can be used to guide future revisions pertaining to the guidelines as well as demonstrate what needs to be done in physical environments in order maintain functional independence in older adults.

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CHAPTER ONE: INTRODUCTION

Context

Through the endorsement of seven “Strategies to Support Seniors Housing” in 1994 (see Appendix A) and the creation of “Adaptable Design Guidelines” in 1996 (see Appendix B), the Corporation of the City of North Vancouver, British Columbia has taken a leadership role in the Greater Vancouver Area by incorporating concepts of housing and health into social policy.

The rationale for this study began through the identification of four problems regarding the implementation of Adaptable Design Guidelines in building units in the City of North Vancouver. First, there was a growing concern that the architects and builders designing and building these adaptable units were inexperienced with the concept. Second, many architects did not want to build housing that would meet the guidelines because they believed that these units would not be marketable. Third, when the architects finally designed the building to meet the adaptable guidelines, they handed the plans over to the City, which reviewed the unit plans and provided input to the developer. However, once the building was constructed, contact was usually lost between the City and the architect/developer. This meant that the City did not know which units in the building were built to meet the Adaptable Design Guidelines. Moreover, the City was under the assumption that building managers were not notifying tenants that they were living in an adaptable unit. Therefore, tenants living in adaptable units were not reaping the benefits. Fourth, and most importantly, because a post

occupancy evaluation was never conducted, the City of North Vancouver was unaware if Adaptable Design was working for elderly tenants, if any changes could be made to improve their relevance for senior tenants' needs, and the impact Adaptable Design was having on residents' functional independence.

City of North Vancouver's Adaptable Design Guidelines

In 1996, the Council of the City of North Vancouver requested a review of the need for housing for persons with disabilities. This led to research on various types of disabilities, the types of housing most preferred by individuals with disabilities, and the adaptations required in a specific unit to meet disabled peoples needs. Ms. Cheryl Kathler, a Social Planner for the City of North Vancouver, primarily undertook this task and concluded that an approach based on integration and normalizing housing options was the least biased and most efficient means of meeting the housing needs of persons with disabilities. She focused her research on Universal and Adaptable Design as a means of providing residential units that would meet the needs of persons with different types of disabilities.

In 1996, with the assistance of a broad based working group, staff proceeded to develop and draft the "Adaptable Design Guidelines" shown in Appendix B. Members of this Working Committee included representatives of persons with physical, visual, and hearing disabilities, the design and development sectors, an occupational therapist, a physical therapist, seniors, and representatives of community organizations providing housing for persons with physical and mental disabilities and older adults.

The Working Committee oversaw the use of the Adaptable Design Guidelines in three developments during a trial year (mid 1997-mid 1998) and participated in a review

and revision of the Guidelines in 1998. Moreover, they assisted in the process of defining the policies scope, the elements of Adaptable Design, and its applicability.

The process of encouraging developers to build adaptable units has been quite difficult as developers want to do things quickly with minimal additional costs. For many developers, Adaptable Design represents another municipal hurdle. In effect, the only developers who appear interested in Adaptable Design are those who wish to rezone, and it is negotiated either as a community benefit or as a density bonus for extra floor area over and above the allowable density. However, a commissioned study of the cost of the Adaptable Design Guidelines based on a one-bedroom unit of typical size (600 to 700 square feet) indicated that while Adaptable Design does add costs to a housing project, in relation to the total cost of a new unit, the costs are relatively minimal. To build a Level Two unit, the additional costs add 1 percent to 1.7 percent to the total unit price and for a Level Three unit the additional costs add 2.3 percent to 3.5 percent to the total unit price (City of North Vancouver, 1999). Champagne (1987) also provided an example using nine out of fifty-four “specially designed” townhouses. These townhouses cost 8-10 percent more than the others did, but overall they contributed to only 0.5% of the total project cost. Likewise, CMHC (1996) provided a report on 17 case studies which found that in most cases adaptable or accessible features added only 0.39 to 0.53% to the overall building costs. As suggested, if these features were integrated at the beginning of projects, the additional cost would be nominal. Also, like any new technology, the more adaptable or accessible features are marketed, the lower the cost becomes.

The first building to integrate this design was the Quayside Village Co-Housing development. Developers built this on their own initiative and put in several Adaptable

Design elements. However, the development did not entirely meet the City's Level One or Level Two requirements. Two additional projects were rezoned in May 1998; Alegria and Symphony. Together they included 100 percent Adaptable Design Level Two totaling 136 units, 33 of which were bought by BC Housing for low cost seniors housing and five of which were Level One units. These were the first two cases with inclusion of Adaptable Design which provided the City with the experience of applying Adaptable Design Guidelines on actual projects. Currently, there are nearly 400 Adaptable Design units built in the City of North Vancouver and over 1000 units in the development process (Kathler, 2003) (See Appendix C).

The 2001 guidelines are now undergoing their third cycle of revisions. However, this is the first time since the guidelines were enacted five years ago that they were evaluated before the revision.

Definition of Adaptable Design

Adaptable design features are modifications made to a standard design for the purpose of making the design usable for an individual (Centre for Accessible Housing, 1991, cited in Story, 1998). Adaptable Design falls within the broad category of accessible design which is design to meet the prescribed code requirements for use by people with disabilities (Centre for Accessible Housing, 1991, cited in Story, 1998). As shown in Figure 1, both Universal Design and Transgenerational Design overlap Adaptable Design. Universal Design respects, values, and strives to accommodate the broadest possible spectrum of human ability in the design of all products and environments (Young and Pace, 2001). Transgenerational Design considers the changes that happen to people as they age (Pirkl, 1994, cited in Story, 1998).

The City of North Vancouver's Adaptable Design Guidelines were designed to create livable residences for a wider range of capabilities of tenants than the current housing design permits (The Corporation of the City of North Vancouver, 2001). There are three levels of Adaptable Design set out in the guidelines which are in addition to the Barrier-Free requirements of the most current building code. Level One consists of basic design features and is required in all multiple unit buildings (MUB) with common corridors (The Corporation of the City of North Vancouver, 2001).

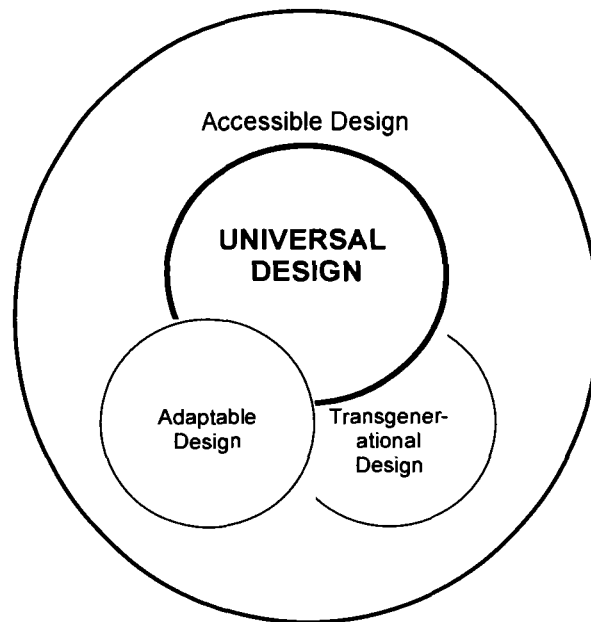


Figure 1: Relationship between accessible, adaptable, transgenerational, and universal design.
Source: Story, 1998. (Used by permission).

The Level Two and Three elements offer a larger range of adaptability, which developers are encouraged to build through a variety of bonuses and other types of incentives (The Corporation of the City of North Vancouver, 2001). The intention of Level Two Adaptable Design is to allow someone with a mobility aid to easily enter and exit the building, common areas and the adaptable unit, and to easily use their bathroom (The Corporation of the City of North Vancouver, 2001). In Level Three design, the

degree of adaptability increases to full access in all unit rooms and outdoor spaces. A more detailed description of the Adaptable Design Guidelines can be found in Appendix D, which includes the Design Elements Checklist and the Fixtures and Finishes Checklist.

The guidelines are intended to support independent living, thereby delaying or avoiding institutionalization of tenants. Recent Canadian census data indicates that 35% of women and 16% of men aged 65 and over live alone in private households (Walton, 2002). These figures have increased slightly from 1991 when 34% of women and 14% of men over aged 65 and over were living alone (Gutman and Wister, 1997). Results from the “Canadian Participation and Activity Limitation” survey indicated that, in 2001, 3.6 million Canadians living in households reported having activity limitations which represented a disability rate of 12% (Statistics Canada, 2003). Among adults, the disability rate increases with age from nearly 10% among adults aged 15 to 64 to more than 40% among persons aged 65 and over, and to more than half (53.3%) of persons 75 and over (Statistics Canada, 2003).

Purpose

The purpose of this study was to locate older adults residing in five housing projects in North Vancouver that have units built with Adaptable Design in order to identify unit design changes made by the tenants and their design preferences. Furthermore, this study sought to examine the influence of Adaptable Design on the maintenance of functional independence as operationalized by performance of activities of daily living (ADL) and instrumental activities of daily living (IADL). A qualitative approach combined with descriptive statistical data was used to understand these issues.

Research Questions

This study sought to answer four research questions:

1. What changes were the tenants making to their Adaptable Design units and why were they making these changes?
2. What were the changes that the tenants wanted to make to their Adaptable Design unit and why?
3. Were there any differences in tenant's levels of independence before and after they moved to their Adaptable Design unit?
4. Do tenants feel that their Adaptable Design unit helps them to maintain their functional independence?

CHAPTER TWO: LITERATURE REVIEW

A literature search conducted using the words “physical environment” and “functional independence of older adults” exposed a wide body of literature. A review of these materials revealed articles on person-environment fit theories, lists of design principles and guidelines, articles relating solely to functional independence in older adults, descriptions of universal design, assistive technology and health, and similarly, home modifications and health. However, qualitative, empirical, or experimental research on the topic of adaptable design and its influence on functional independence were scarce.

Similar conclusions were drawn by Shipp and Branch (1999) who focused on how the immediate living environment could act as a persuasive force affecting the physical activity level in older people. These authors noted that the strength of this body of literature were the well-developed theories on environment-behaviour, person-environment interactions, and physiologic reserve capacity and aging, which date back to the 1970’s. There were gaps, however, including a lack of well-designed studies that transformed the theoretical constructs into testable, operational hypothesis.

A second literature search was conducted during third level coding of the qualitative data as new themes began to emerge from the data during the qualitative analysis. The literature found during the second literature search has been included in this section in order to provide a frame of reference with which to understand the qualitative analysis. The five buildings used in the study were all relatively new, none having been

built before 1996. In other words, all the tenants surveyed had relocated during the past six years. This led to a search on “older adult relocation”. Two prominent theories surfaced in the literature; a migration decision model (Wiseman, 1980) and a life course perspective model (Litwak and Longino, 1987). These theoretical perspectives divided migration into three types of moves among older adults: one when they retire; a second move when they experience a moderate form of disability; and a third when a major disability is experienced. For the study participants, it appeared that they were locally relocating rather than migrating long-distances due to retirement or moderate disabilities. These participants had not yet reached the stage where they must move because of major disabilities.

This chapter begins with a review of literature on functional independence in older adults, how functional independence is influenced by the physical environment, design principals and guidelines used in housing for older adults, and literature on migration theories. The migration theory discussed in detail is Wiseman’s (1980) migration decision model to provide a basis of understanding for the qualitative data in this study. Additionally, research relating to the role of functional independence on the decision to relocate will also be discussed. The final section will review the conceptual framework used to guide the study. First, a review of person-environment fit theories will be undertaken in order to provide a context with which the guiding conceptual framework can be understood, this will be followed by a discussion on Carp and Carp’s (1984) Complementary Congruence model, which was the framework chosen for this study.

Functional Independence and the Older Adult

For the purpose of this study, persons with a disability are defined as those who report difficulties with activities of daily living (ADLs). ADLs are the personal care activities required for independence in our culture (Branch and Hoenig, 1997) and include such activities as dressing, bathing, toileting, grooming, and getting in and out of bed. Older adults may also require assistance with instrumental activities of daily living (IADLs), which are more heterogeneous in content, but often include activities necessary to live independently in the community such as: being able to dial a telephone; taking medications; shopping for personal items; housekeeping; and obtaining transportation (Branch and Hoenig, 1997). In fact, the IADL functions are the first to become impaired in older adults, however, it is when the ADL functions (e.g. toileting, bathing, grooming) begin to deteriorate that living independently becomes especially problematic (Lawton, 1991).

Bakker (1999) suggested that when one becomes dependent upon another person for assistance with ADLs or IADLs, physical environmental solutions should be undertaken to increase autonomy and independence. These environmental responses can include relocation to a more supportive environment, employing assistive technology, or making home modifications. The role of the home environment is increasingly relevant to the health of older adult as they spend more time in the home than in any other setting (Evans et al., 2000)

Techniques for Assessing Functional Independence

Lawton (1971) discussed the various techniques used in assessing the functioning status of elderly people. Functional assessments are defined by Lawton (1971) as any

systematic attempt to measure objectively the level in which a person is functioning in a variety of areas including ADLs and IADLs. Although Lawton's article is quite outdated, it provides a historical context with which the definition and measurement of ADLs and IADLs emerged.

Lawton (1971) described ADLs as the ability to take care of oneself physically and that the measurement of ADLs is typically used in rehabilitation setting to objectively rate how independent and adequately a patient dresses, grooms, and takes care of toileting. The scale that Lawton (1971) recommended for use was developed by Katz et al. in 1970 (Lawton, 1971). Another scale used at that time to measure ADLs was Lowenthal's Langley-Porter Physical Self-Maintenance scale (1964, cited in Lawton, 1971) which was modified by Lawton and Brody (1969, cited in Lawton, 1971) for easier use in institutional settings.

Lawton and Brody (1969, cited in Lawton, 1971) further identified eight tasks that, after retirement, become very relevant to the living of a minimally adequate social life. Lawton (1971) stated that one can live outside an institution without being able to perform some of them, however, the more these abilities are impaired, the more formal or family-administered services will be required to maintain the person in the community. The IADLs identified included: (1) the ability to use a telephone; (2) shopping; (3) food preparation; (4) housekeeping; (5) laundry; (6) mode of transportation; (7) responsibility for own medication; and (8) the ability to handle one's own finances.

In 1991, Lawton wrote a similar article describing functional status in older adults. However, the difference was that this article provided an in-depth discussion on the validity of using ADLs and IADLs as a measure functional health. Lawton (1991)

pointed out that the majority of recent national surveys incorporated ADL and IADL items. Results of these surveys (Health Interview Survey, National Centre for Health Statistics, 1987; National Long Term Care Survey, Macken, 1986; National Medical Expenditure Survey, Lair and Lefkowitz, 1990, cited in Lawton, 1991) indicated that there are a very small proportion of impaired persons in the general population. However, among the community dwelling long-term-care survey group, there are markedly greater proportions of impaired persons and extremely large proportions among the institutionalized population. As Lawton stated, “there could be no more convincing evidence that the ADL and IADL tasks perform well as indicators of functional health versus frailty.”(1991, p. 32)

Lawton (1991) argued that when one is not ‘aging well’, performance ADLs begin to deteriorate and it is not unusual for time use, social behaviour, subjective quality of life, and overall psychological well-being to erode as well. Therefore, living independently becomes increasingly difficult without the addition of formal or informal social support or environmental change or adaptation.

Branch and Hoenig (1997) provided a succinct overview of the scales that could be used in the community agency setting describing five ADL scales and nine IADL scales and providing their recommendations. The ADL scale recommended by the authors is the Katz Index of ADLs, which is similar to the recommendation made by Lawton (1971). The IADL scale the authors recommend is the Jette Functional Status Index due to its clear definitions and well-constructed response options.

Spector, Katz, Murphy, and Fulton (1987) draw on the previous work of Katz and others to create a three-level hierarchical scale, including both ADLs and IADLs.

Spector et al. (1987) argued that when only ADLs were used to measure dysfunction in community elderly populations, only 2-8% were dysfunctional depending on the definitions of ADLs (Branch and Fowler, 1975; Branch, Katz, Kniepmann, & Papsidero, 1984, cited in Spector et al., 1987). For this reason, their scale included ADLs and IADLs as IADLs help to represent the activities that are necessary to adapt independently to the environment. Spector et al. (1987) showed that IADL and ADL functions could be combined into a single scale that results in both discriminative and predictive validity. This is noteworthy, as Spector et al. (1987) move beyond testing individuals for facility readiness and assesses levels of independence within community based elderly by using secondary data from three previous studies: (1) the “Study of the well-being of older people in Cleveland, Ohio, 1975-1976” (Comptroller General, 1977, cited in Spector et al., 1987); (2) the “Alternative health services project” (Skellie, Mobley, & Coen, 1982, cited in Spector et al., 1987); and (3) the “Section 222 homemaker-day care study” (Weissert, Wan, & Livieratos, 1980, cited in Spector et al., 1987).

Currently, the Province of British Columbia is turning to the Minimum Data Set (MDS; Morris et al., 1990, cited in Hopper et al., 2001) for functional status assessments. Following the mandate of the Omnibus Budget Reconciliation Act of 1987 (OBRA) (Morris et al., 1994), the MDS assessment measure is now required for use in the United States to evaluate the functional status of residents in all Medicare certified nursing homes (Hopper et al., 2001). Used in conjunction with the Resident Assessment Protocols (RAPs), the MDS provides a comprehensive care plan designed for a particular resident in the nursing home setting.

In 1999, the Minimum Data Set Home Care Version 2.0 (MDS-HC) was released for use in Canada. This version is used to assess community dwelling clients home care needs. The foundation of the MDS-HC lies in the Resident Assessment Instrument, which consists of 74 items related to functional status in 16 domains, including ADLs and IADLs. The ADL self-performance measure asks clients how much help was required from family members and others for specific ADL tasks for the past three days, whereas the IADL section questions the client directly about his/her performance of normal activities around the home or in the community for the past seven days.

Morris et al. (1997) tested the reliability of the MDS-HC and its problem identification system among older home care clients from five different countries. Out of 241 clients, 47% were from Japan, 28% were from the United States, 11% were from Canada, 10% were from Australia, and 4% were from the Czech Republic. In general, the reliability of items from the MDS-HC drawn from the MDS 2.0 was comparable to those found for other highly rated nursing home assessments. Similarly, high reliability values were also found for items newly introduced in the MDS-HC.

Sato et al. (2001) moved beyond basic descriptions and measurements of ADLs and IADLs and investigated the characteristics of gender and age differences in ADL ability while considering ADL difficulty. The study classified older adults based upon their independence levels: the bedridden; the partially dependent; and the independent. They utilized a sample of partially dependent older adults as they have specific functional characteristics and if their functioning level declines, they become bedridden, but if they improve, they become independent (Sato et al., 2001).

Results indicated that there were significant decreases for the ages of 60, 70, 80, and 90 in ADL ability on 13 of the 17 items used to measure ADLs. There were no gender differences, however, the dependence for more difficult activities using lower limbs increases from age 70 and independence for low-difficult activities, such as manual activities, feeding, and changing posture while lying, was maintained until the 80s and over. The study is essential in the ADL/IADL literature because it recognized that older adults have increasing difficulty with certain tasks, and therefore, may require more specialized environments than younger individuals to maintain partial independence. Nevertheless, the authors noted that the effects of the aging process in physical fitness and disease characteristics influenced the dependency of basic ADLs in partially dependent older adults.

The Physical Environment and Functional Independence

Research has shown that the degree to which people can predict and control the environment in which they live is positively related to their health, morale, self-esteem, and level of functioning (Huesmann, 1978; Seligman, 1975, cited in Moos, 1981). For example, Ball et al., (2000) found that residents of assisted living projects who experienced a lack of choice and control in their environment were lonelier and more depressed than residents who had control over their environments. Adapting the environment to older adults' needs as they age may enhance their prediction and control over their environment. This could thereby increase feelings of independence. In effect, a sense of independence is relative to our environments and our abilities (Wylde, 2001).

However, some environments designed for older adults may be adapted so that they do not appropriately challenge an individual and, in turn, create dependency. Shipp

and Branch (1999) proposed that the impact of specialized environments for the elderly that were designed to ameliorate or accommodate declining function could inadvertently reduce their levels of habitual physical activity. Based on the model hypothesized by Raphael et al., (1995, cited in Shipp and Branch, 1999), in the interaction between one's environment and individual capabilities, the latter, including reserve capacity, determines frailty.

If environmental factors match the individual's capabilities, frailty can be delayed and independence maintained. This view was reinforced by Seeman, Silverstein, & Tabbarah (2000), who concluded that specialized housing alternatives would be an increasingly relevant issue in the future as individuals aimed to achieve and maintain the delicate balance between their functional abilities and living environments.

Some of these specialized housing alternatives included the use of assistive devices within the home, for example, the installation of a grab bar or using a shower seat in the bathroom. Mann et al., (1995) explored the relationship between assistive device use and functional independence among non-institutionalized adults. The results suggested that increased use of devices increased functional independence within an environment. Nonetheless, Mann et al., (1994) found that out of 110 participants, a majority did not have up-to-date or complete information on the assistive devices that could improve their independence levels. It is evident that a knowledge gap exists relating to available assistive devices and their use in increasing functional independence in the older population. Studies that addressed this gap would assist in allowing seniors to remain independent in their own homes for longer.

Design Principles and Guidelines

There are certain elements that must be considered when designing environments to maintain functional independence in older adults. As previously mentioned, the Corporation of the City of North Vancouver developed Adaptable Design Guidelines in order to guide the development of housing for their current population. There are many examples of design principles and guidelines making it difficult to discern the most effective ones. As stated beforehand, what to include as design principles is a complex decision because of the lack of empirical or experimental research examining the intended use of the guidelines.

Regnier (1993) formulated 12 environment and behaviour principles used to design environments for the aged. The principles are: 1) privacy; 2) social interaction; 3) control/choice/autonomy; 4) orientation/wayfinding; 5) safety/security; 6) accessibility/manipulation; 7) stimulation/challenge; 8) sensory aspects; 9) familiarity; 10) aesthetics/appearance; 11) personalization; and 12) adaptability. Each principle includes descriptive rationale designed to help order priorities in an older adult's environment, consequently, identifying weaknesses in a proposed design (Regnier, 1993).

The Canada Mortgage and Housing Corporation's (CMHC) (1994), *Maintaining seniors' independence through home adaptations: A self-assessment guide*, was developed in response to the large number of seniors wishing to remain in their own homes and an increased awareness that many homes are not designed for seniors. Yet, it is not clearly stated that these adaptations were based on research. This guide is divided into sections that deal with various activities in the home. In each section, the older adult must decide if they are having difficulty with that particular activity. If any difficulty is

detected, she/he is instructed to identify the type of adaptations that might assist them in the home. However, older adults may not know why they need to change something in their homes as there is no rationale given for the recommendations. Nonetheless, the strength of this assessment tool is that it is completed by the older adult who is likely the first to notice when they are having difficulty with an activity.

Bakker (1999) provided numerous suggestions for home modifications and argued that when an individual begins to have problems performing ADLs, it is best to begin by considering environmental rather than personal deficits. Bakker's suggestions were a combination of home modifications and assistive technologies to enhance safety and self-care in an older adult's environment. The recommendations were very descriptive and supported by literature, yet no empirical basis was presented for these conclusions. Bakker (1999) also provided suggestions for paying for modifications, technology, and recommendations for health care professionals.

Pynoos (1992) provided strategies to increase the extent of home modifications and repair in older adult's environments. These were based upon the premise that home modifications and repair could help older people to 'age in place'. When older people become frail, the home environment needs to become more supportive to compensate for limitations or disabilities (Bakker 1999; Lawton, 1980; Pynoos, 1988; Pynoos et al., 1987, cited in Pynoos, 1992). Pynoos (1992) suggested improving the home assessment process by making it more comprehensive. Comprehensive home assessments can link an older person's ability to carry out ADLs and IADLs independently with an evaluation of the home's ability to provide support (Trickey, 1989, cited in Pynoos, 1992). Other suggestions included expanding public awareness, developing home modification and

repair programs, increasing financial support for repairs and modifications, and promoting universal housing.

Moos and Lemke (1994) considered resident preferences when devising their design guidelines. Similar to Regnier's (1993) 12 environment and behaviour principles, Moos and Lemke (1994) noted that this type of information can facilitate the allocation of resources according to the priorities of users and can help reduce mismatches between residents' needs and the facility's design. In addition, their information draws on already validated concepts to support their findings. For example, the authors found that preferences appeared to reflect a hierarchy of needs with life-maintenance needs ranking highest and needs for social stimulation and self-actualization ranking lower. Moos and Lemke (1994) provided a sound illustration of how design guidelines could be developed for use in residential and independent environments.

Migration Theories

As stated previously, this section emerged through the content analysis of the qualitative data. Migration theories are usually applied to the long-distance mover (i.e. across the country), however, in this study, the theories have been applied to those who have relocated from relatively short distances (i.e. from Abbotsford to North Vancouver). Usually, migration theories are only applied to the long-distance mover but it appeared that the codes describing migrants were very similar to the situations described by the participants who had moved short-distances within the past 6 years into their current unit.

Migration Behavioural Decision Models

For the purpose of this study, migration is defined as a long-distance move from another country, province, state, or city, whereas relocation is defined as a short-distance move that occurs within the same city or neighborhood. Longino (2002) provided a succinct overview of the history of retirement migration arguing that, before the 1960's, research on older adult migration was scarce. Economists dominated the field of mobility because migration had been defined as a mechanism for redistributing the labour force (Rubenstein, 1885, cited in Longino, 2002). When Sun City, Arizona opened in the 1960's more research began to emerge. Although, it was not until the 1970's that significant research materialized. The problem with the initial research was that it only focused on current residents residing in the "Sunbelt States", rather than the processes that were bringing older adults to the communities. Finally, by the late 1970's and early 1980's, migration decision models began to appear in the literature that delineated the person-environment adjustment process by which the elderly decide whether or not and where to move (Longino, 2002).

A major contribution to the migration decision models was made by Wiseman (1980) whose work was based upon the work of Wolpert (1965, cited in Longino, 2002). Wiseman's (1980) model assumed that all people were potential migrants who were continuously re-evaluating their residential situation with respect to their needs, desires, resources, and perceptions of potential outcomes. Furthermore, the consideration of residential change could be stimulated by a number of triggering mechanisms. These included changes in the life-cycle stage (Rossi, 1955; Yee and Van Arsdol, 1977, cited in Wiseman, 1980), changes in preferred lifestyle, critical life events, the shrinking of a primary support network, and environmental incongruities (Lawton, 1975; Kahana, 1975, as cited in Wiseman, 1980).

According to these researchers, these triggering mechanisms were divided into “pull factors”, which were events that operated from the potential destination to draw the older person towards a change, and “push factors”, which were the events that loosened the ties to the current residence (Hays, 2002). These factors were influenced by contextual variables that made up the background circumstances that predisposed an individual to either stabilize or change their living arrangements (Hays, 2002). These contextual variables were found to improve the explanatory power of these predicative models (Kallan, 1993, cited in Longino, Perzynski, & Stoller, 2002). Some of these factors included demographics, household size, financial resources, health conditions, and housing market. Unfortunately, community influences have been studied less than personal factors. Hays (2002) found no research documenting the impact of neighborhood characteristics (e.g. noise, crime, traffic).

Besides factors that triggered an individual to move, decisions must be made about the type of move. Wiseman (1980) suggested a typology of migration that considered specific motivating factors - amenity migration, assistance migration, and return migration. The amenity moves are mainly motivated by changes in lifestyle to a more leisure and recreation oriented way of life, while assistance moves may be motivated by a decline in functional ability and the need to be near kin, mainly children (Wiseman, 1980). The third type of move, return migration, brings the individual back to their birthplace. Wiseman (1980) understands that the third move type cannot be clearly separated from the other two types of moves as a move back to the birthplace may be motivated by an improvement in lifestyle, a need for assistance, and/or the desire to be closer to kin.

Litwak and Longino (1987) build upon Wiseman’s typology of moves by focusing on discrete changes that occur in the life course that may prompt migration. This life course

patterning of migration appears to be universal and can be applied to countries other than the United States (Castro and Rogers, 1983; Long and Boertlein, 1976; Rogers and Willekens, 1986, cited in Litwak and Longino, 1987). The argument for Litwak et al.'s (1987) life course model was that there are events in the lives of adults, during their post-retirement lives that might prompt three major categories of residential adjustment; a life-style move, a disability move, and an institutional move. Although, these moves will only occur if an individual cannot adapt to their current living environment, Kahana (1982, as cited in Longino, Jackson, Zimmerman, & Bradsher, 1991) argued that moving to a new residence where the fit is better is the third way of restoring equilibrium between the person and the living environment. The first way would be to try and increase the capabilities of the individual to cope with the situation, while the second would be to try to modify the housing environment to make it more manageable (Lawton, 1980).

Similar to Wiseman's (1980) first type of migration, Litwak et al. (1987) defined the first as a lifestyle move. Lifestyle moves tend to follow retirement and these movers are often married couples in good health and economic standing (Longino et al., 1991). The second move may arise when people develop instrumental chronic disabilities that make everyday household tasks difficult to perform (Longino et al., 1991). Widowhood may compound these effects and may prompt movers to migrate towards people who are available to help them, most likely their children. The third type of move is an institutional move when health problems overwhelm the capabilities of the family (Longino, 2002).

There are many advantages to the migration decision model proposed by Wiseman (1980). The model frames the decision to move or not to move as a multifaceted process. Schiamberg and McKinney (2003) demonstrated that multiple factors contribute to the

thinking of those who anticipated moving or staying that fall into push/pull amenity factors and interpersonal/social influences of significant others. Furthermore, Longino et al. (2002) found, in an exploratory study of the decision process leading to retirement migration, that pushes and pulls were found both at the origin and at the destination of retirement moves. These findings support the prominent role that push/pull factors have in the decision to migrate.

However, most research tends to focus on long-distance migration among older adults in the United States, rather than those who wish to relocate within the same geographic area, like the majority of participants in this study. Nonetheless, Wiseman (1980) proposed several types of moves at the local level, each having distinct motivation characteristics relating to push/pull factors (Golant, 1972, cited in Wiseman, 1980). Like long-distance migration typologies, three types of local movers were identified: local amenity movers who may have similar motivations to long-distance amenity movers except that the local availability of activities and social contact needed to sustain a leisure-oriented lifestyle makes long-distance moves unnecessary; environmental push movers who may have a lower resource level than local amenity movers and would probably relocate to a similar type of dwelling unit and neighborhood with better environmental congruence (Wolport, 1965; Huff and Clark, 1978, cited in Wiseman, 1980); and the involuntary moves resulting from the need for assistance caused by chronic health problems or fixed income. These typologies were created for the basis of theory development and have yet to be studied. Wiseman (1980) contends that one of the greatest challenges of research on migration is the design of studies that can contribute to theory development.

Walters (2002) contributed to theory development through an empirical examination of the impact of origin and destination characteristics on the internal migration of retired migrant groups in the United States. The author noted that the same life-course considerations that influenced long-distance migration might also impact local mobility. Again, three mobility types were identified. There was the assistance migrant, which is similar to Wiseman's (1980) environmental push mover, who is looking for lower cost housing, the amenity migrants, and the severely disabled migrants. Confirming Wiseman's (1980) theory, Walters (2002) found that for amenity migrants, retirees living in smaller communities often migrated across county boundaries to satisfy their amenity preferences, while those living in larger communities achieved the same objectives making a local move. Assistance migrants moved for the same reasons as amenity migrants, rather than seeking locations with lower rents, or severely disabled migrants who tended to move in response to the availability of nursing home beds in their community of origin (Walters, 2002)..

There is a perception that older adults will immediately change location upon retirement. However, research has shown that roughly three-quarters of persons 60 years old and over reported having lived at the same address for at least five years (Longino, 1989). In Canada, the proportions of residentially stable and locally mobile older adults are comparable to the United States. In fact, older Canadians are less likely to make long-distance moves than those in the United States (Northcott, 1988, cited in Longino, 1989). This finding may be explained by Cuba and Hummon's (1993a, 1993b, cited in Longino et al., 2002) Place Identity Model of Retirement, that recognized the impact of self-identity in a specific location. According to this approach, retirees whose identities remained tied to their pre-retirement location were less likely to move, and if they did relocate, they had difficulty

developing attachments to their new environments. Staying in a familiar pre-retirement location promises an environment where older adults already understand the routines and rhythms of life (Longino et al., 2002). Nevertheless, it is evident that more research is needed on the role of relocation within the same or nearby communities among Canadian older adults and the reasons why older adults choose to relocate within the community.

The Role of Functional Independence on the Decision to Relocate

Both Wiseman (1980) and Litwak et al. (1987) identified a decline in functional ability as a motivating factor towards migration. Wiseman (1980) termed this ‘assistance migration’ while Litwak et al. (1987) called it ‘the second move’. Longino et al. (1991) explained that the decision to move based on declines in functional ability may not be the second in a sequence of moves because it may be the first and only move for an older adult. Those who make this type of move have a higher median age than those who move solely for amenity sake.

Using data from the 1984 and 1987 waves of the Longitudinal Study of Aging by the National Center for Health Statistics, Longino et al. (1991) tested the proposition that amongst community dwelling elderly over age 70, the probability of moving increased as instrumental functioning decreased, while controlling for self-assessed health, ADLs, age, sex, home ownership, duration of residence, and the number of living children. Results indicated that the higher the instrumental disability in 1984, the greater the likelihood of moving between 1984 and 1986. In effect, declines in instrumental ability pressure older people to relocate. Furthermore, renters and recent movers were more likely to relocate due to declining disabilities than persons who were more rooted. This study only considered IADLs as a function of ability and omits ADLs as they made no

significant contributions to preliminary models. Longino et al. (1991) suggested future studies to consider the role of financial resources in modifying housing environments or the ability of individuals to purchase external services rather than relocate. However, a similar study investigating the relationship between health and disability moving to another residence, changing living arrangements, and moving to an institution, found that financial resources had no effect on residential mobility (Speare, Avery, & Lawton, 1991). Conversely, Clark and White (1990) found that motivations for older adult mobility were different from those of the general population, with elderly populations more clearly influenced by their financial situation. The results of the latter study emphasized the overall importance of income on mobility. Whereas low income was a stimulus to mobility as it becomes increasingly important to minimize housing expenditure, high income tended to remove constraints to moving and higher mobility ensues (Clark and White, 1990). Nonetheless, this study focused on housing type, tenure, living arrangement, and location rather than the effects a disability may have on a move.

Using the same data as Longino et al. (1991), Speare et al. (1991) discovered that the level of disability in 1984 predicted both institutionalization and death in 1986 and that both the level of functional capacity in 1984 and the amount of change from 1984 to 1986 predicted residential mobility. However, the levels of pre-existing disability (the number of IADLs and ADLs in 1984) had no effect on decisions to migrate. Unlike Longino et al. (1991), Speare et al. used a combined IADL and ADL measure to create a composite measure of disability. These two studies lend support to the idea that increases in functional disability effects the decisions to migrate.

However, when using self-reported measures of ADL and IADL function to assess migration motivations, it was found that many older people adjust to declining ability by lowering their environmental expectations, rather than moving. This results in only a small proportion of community-dwelling elderly reporting unmet needs in coping with ADLs and IADLs (Longino and Soldo, 1987, cited in Jackson et al., 1991).

Conceptual Framework

Person-Environment Fit

To understand and predict the outcomes of individuals interacting with environments, various models based on the concept of person-environment fit have been constructed. Contemporary models are based on the work of Lewin (1935; 1951, cited in Wister, 1989), who reasoned that behaviour could generally be viewed as a function of the interaction between people and their environment. The Lewinian equation, $[B = f(P, E)]$, explained this relationship, where (B) is a function (f) of the personal characteristics (P) and environmental characteristics (E). While Murray (1938, cited in Wister, 1989) postulated that individuals needed to maintain equilibrium with their environment.

These models provided the background for Lawton and Nahemow's (1973) model of adaptation that would predict outcomes (adaptive behaviour and affect) associated with the interaction between a person and their environment that was characterized in terms of competence, and an environment of a given level of press, where $[B=f(P, E, P*E)]$ (the (P*E) represents the interaction of the (P) and (E) components) (Lawton, 1999). "Press" is derived from Murray's concept of environmental demand, characterized in terms of "alpha press" (objective, externally observable criteria) and "beta press" (demand as perceived by the person) (Lawton, 1999). "Competence" was

meant to be indexed in terms of biological health, sensory and motor skills, and cognitive function, viewed as relatively stable, but changeable in trajectories of illness and health (Lawton, 1999). This model is termed the Environment Docility Hypothesis. It posits that the less competent the person, the greater the influence of the environment on the outcome of behaviour (Lawton and Simon, 1968, cited in Lawton, 1999).

However, Carp and Carp (1984, cited in Lawton, 1999) pointed out that the model was applicable primarily to the segments of the population in which competence ranged from average to low, and although the scale of competence had no cap, the model did not account well for above average performance. Lawton (1985, cited in Lawton, 1999) went on to create the Environmental Pro-activity Hypothesis, which suggested that the higher the competence of the person, the better able the person would be to utilize the resources of any environment in the service of personal needs. This model recognized the reciprocal nature of the person-environment interaction. Lawton (1999) noted that older people, like all others, choose, altered, and created their environments.

Complimentary Congruence Model

Carp and Carp (1984) developed a conceptual model of congruence which included the rationale of Lawton, in addition to the congruence models of Kahana and her associates (Kahana, 1975; Kahana et al., 1980 cited in Carp and Carp, 1984) and Nehrke and his associates (Nehrke et al., 1981, cited in Carp and Carp, 1984). All of these models derived from Murray with the focus on the fit of the environment to personal needs.

Carp and Carp's (1984) model resembled that of French, Rogers, and Cobb (1974, cited in Carp and Carp, 1984), which is based on both Lewin and Murray and is not age-

specific. Murray's (1938, cited in Carp, 1987) notion was that adaptation depended on satisfaction of personal needs by the environment, and needs were organized according to Maslow's hierarchy (1954, cited in Carp, 1987).

An adapted model based on the work of Carp and Carp (1984) was chosen as the conceptual framework guiding the study in order to understand and predict the outcomes of the participants interacting with their Adaptable Design units. Figure 2 shows a two-part model that is differentiated according to the level of need and type of relationship between person and environment, where environmental variables are aspects of the specific environment relevant to characteristics of its user (Carp, 1987). Personal variables are the traits relevant to the specified environment (Carp, 1987). The study focuses on a section from the first part of the model as it deals directly with the maintenance of independence through the evaluation of ADLs.

Part one of the model (highlighted in bold in Figure 2) relates to characteristics of person and environment that facilitate or inhibit lower order life maintenance (LM) need satisfaction through the performance of ADLs necessary for independent living, namely, personal competence and environmental resources or barriers to performance of ADLs (Carp, 1987). Congruence is the degree in which P competence and E barriers/ resources relevant to ADLs are complimentary (Carp and Carp, 1984). In particular, the model assesses how well the adaptable design units built for the City of North Vancouver compliment or compensate for personal competence relevant to ADLs and IADLs.

Part two of the model is concerned with higher order (HO) needs, which are psychogenic (e.g. harm avoidance, affiliation) and with characteristics of the environment that facilitate/inhibit their satisfaction (Carp, 1987). The congruence concept for this part

of the model is concerned with similarity between the strength and quality of environmental resources for meeting it.

The model includes various modifiers that affect the outcomes such as: status resources/deprivations, sense of personal competence, health attitude, social support, coping style, and life events. The outcome of the model has four categories: 1) perceptual-environmental satisfaction; 2) behavioural-individual differences; 3) well-being/life satisfactions; and 4) life/death independence. Cvitkovich and Wister (2001) found that this model was the second best predictor of well-being using Lawton's (1997, cited in Cvitkovich and Wister, 2001) Valuation of Life Scale, in addition to providing support for use of this model in community settings with a non-frail sample.

Adapted from Carp & Carp's (1984) Complementary/Congruence Model

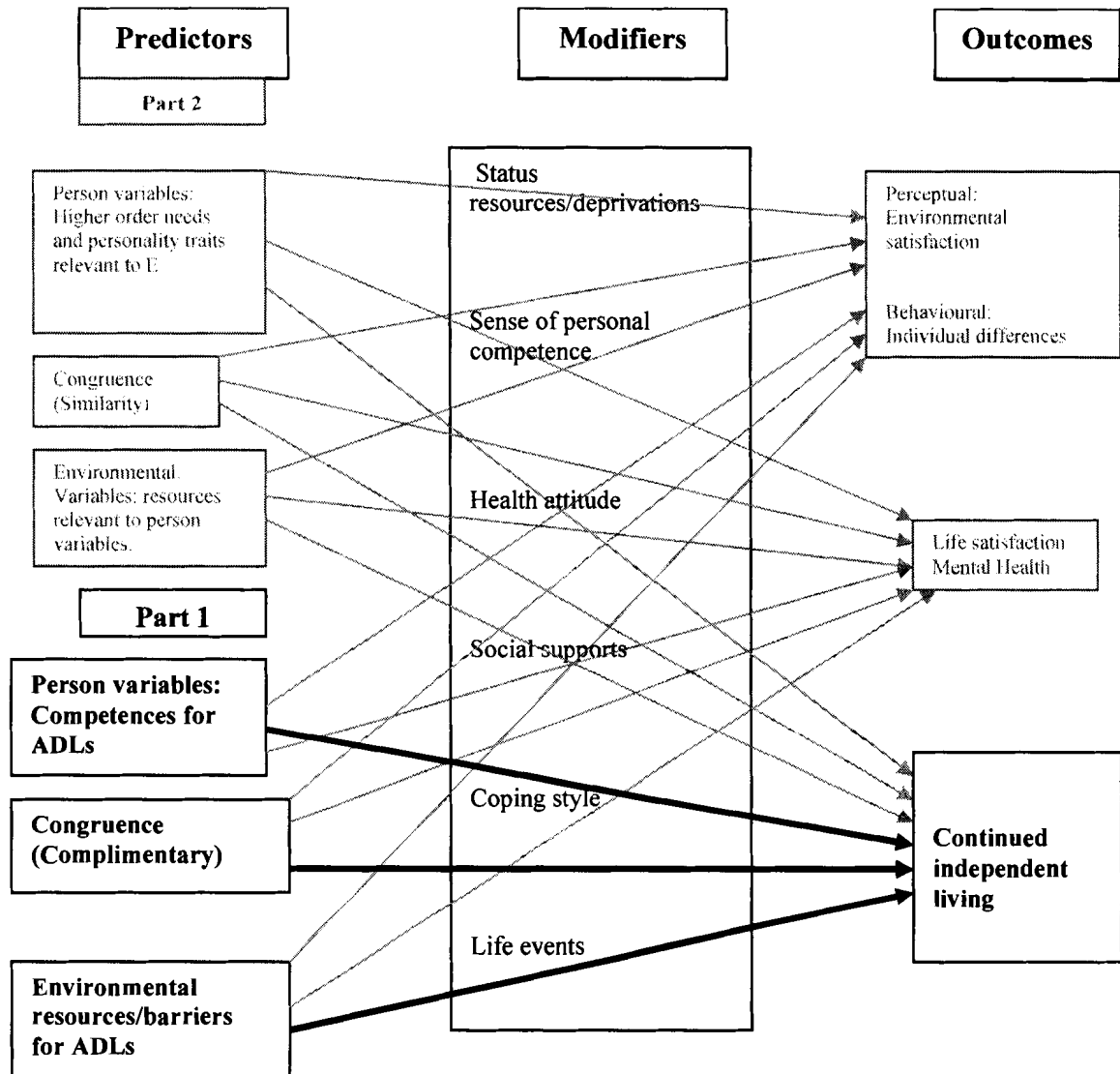


Figure 2: Adapted Complementary/Congruence model. Source: Carp and Carp, 1984. (Used by permission).

CHAPTER THREE: METHOD

Overview of the Research Design

This study consisted of two parts. The first included identifying all adaptable units in five buildings with Adaptable Design in the City of North Vancouver and conducting a survey of the tenants. The five buildings included in the study were: 1) Quayside Village Co-Housing; 2) Alegria; 3) The Symphony; 4) The Summerhill; and 5) Quayview Community Housing Project.

The second part of the study consisted of face-to-face interviews with a sample of 26 persons aged 50 and older selected from persons returning survey questionnaires. (Initially, all age cohorts were administered survey questionnaires as the City of North Vancouver requested information from all individuals living in Adaptable Design units.)

Study Population

Housing Projects

The sample for this study was comprised of the residents from 304 units in the five buildings identified above. These buildings are all relatively new, none having been built before 1997. All of these buildings include units that have been built using either the 1998 or 2001 City of North Vancouver's Adaptable Design Guidelines. Out of the 304 units, 27 units have been built with Level One Adaptable Design features, representing nine percent of the total units. There are 131 units built with Level Two features, representing 43 percent and 146 have been built using Level Three features, which represents 48 percent of the total units. There are 33 units that have been built

using BC Housing Adaptability requirements, which are considered Level Two Adaptable Design and will be included in the project. For a summary of units by Adaptable Design level in each building see Appendix C.

The following section is a description of North Vancouver and the five buildings included in the study. Most participants were living in or near North Vancouver before their present location. The differences between the five buildings must be noted in order to recognize the context with which the participants' view their environment.

North Vancouver

All of the buildings are located off of the east side of North Vancouver's main street, Lonsdale Avenue. Lonsdale Avenue is segmented into 'Upper Lonsdale', 'Central Lonsdale', and 'Lower Lonsdale' and runs in a north-south direction. According to 1996 statistics obtained by the City of North Vancouver (2003), the majority of older adults over age 55 in North Vancouver lived in the Central Lonsdale area (33.6%), followed by Lower Lonsdale (30%) and the area around Grand Boulevard (11.5%).

Central Lonsdale appears to attract older adults because of easy access to transportation, shops, and community services in an area that is relatively flat. In a short distance from three of the five buildings in the study, participants can find a bus stop, doctors offices, a hospital, a community centre, a senior's centre, grocery stores, affordable restaurants, and a drug store.

Most of the shops and services located on Lower Lonsdale are situated on a rather steep grade. Furthermore, Lower Lonsdale is separated from Central Lonsdale by a hill, making it difficult for some older adults to access Central Lonsdale unless some form of vehicular transportation is used. However, Lower Lonsdale is close to the Sea Bus, which

is a direct link to downtown. Recently, a large grocery store was built. The area is also undergoing a major transformation and will soon have many of the shops and services found in Central Lonsdale. The two buildings found in Lower Lonsdale are Quayside Village Cohousing and Quayview Community Housing Project.

It is important to note that the majority of housing on the North Shore is owned (vs. rented), however, there are differences between the three municipalities. North Vancouver City has the highest rental rate at 55%, while North Vancouver District has the lowest rental rate at 22%. Additionally, significantly more people who rent their homes spend more than 30% of their income on household expenses (North Shore/Coast Garibaldi Health Services, 2000). This is especially true with regard to older adults with fixed incomes. Furthermore, compared to the rest of British Columbia, those in North Vancouver pay slightly higher rents, on average \$830 a month, compared to \$750 and more people are renting (51.8% compared to 33.4%). Finally, 37.7% of North Vancouver's population lives in one-person households compared to 27.2% in British Columbia.

Considering the income levels of North Vancouver residents, according to recent census data, the population of North Vancouver has slightly higher average earnings with \$45,170 compared to the rest of British Columbia (\$44,307) (Statistics Canada, 2004). North Vancouver's older adult population is also more educated with 28% of those aged 45-64 having a university certificate, diploma, or degree compared to the rest of British Columbia with 22% (Statistics Canada, 2004). Therefore, North Vancouver has a slightly more educated and affluent population compared to the rest of British Columbia.

Alegria

Alegria is located in the Central Lonsdale area and is home to the Royal Canadian Legion 118. Alegria was completed in April 2000 and uses 1997 Adaptable Design Guidelines along with BC Housing accessible design requirements. The second to sixth floor are owned by BC Housing and managed by Royal Canadian Legion 118 Housing Society. The 33 units on these floors are for adults aged 55 and older, and for people with disabilities. The rents for these units is based on income where one third of the units are for those requiring deep subsidies, one third are for those requiring shallow subsidies, and the final one third are market value rents. The estimated rents range from \$400 to \$800 per month for these units. All of the 33 units were built using BC Housing accessible design requirements (25 of these are 'adaptable' and eight are specifically designed for wheelchair use). As mentioned previously, these units were considered Level Two Adaptable Design for the purpose of this current study.

The remaining floors (7-16) have 52 units owned by the tenants and managed by a Strata Council. All of the units were constructed using Level Two Adaptable Design Guidelines. Of these units, five are two bedroom and 48 are one-bedroom units. Initially, the tenants occupying the strata title units were older adults; however, these units now appear to be attracting those in their mid to late twenties. Participants for this current study came from both the rental and strata title units.

The Summerhill

The Summerhill was initiated 1998, rezoned in 2000, and completed in 2001 utilizing the 1998 Adaptable Design Guidelines. It is located in the Central Lonsdale area next door to Alegria. The building is owned by Rainer Adam Muller and managed by Chartwell Care Corporation. All 107 units are rented to those aged 55 and older. The

Summerhill is termed an “independent retirement residence”, otherwise known as supportive rental housing, where rent includes a suite containing a kitchenette and a service package. This package includes: two professionally prepared meals daily; weekly housekeeping and linen changes; 24 hour staffing; transportation; refreshments available all day; organized activities; entertainers; scheduled visits with therapists; and a beauty salon. The Summerhill also includes a piano lounge with a fireplace, a movie and entertainment theatre, two landscaped patios, a private library, a fully equipped exercise room, free access to internet and computers, a full kitchen for resident use, a horticultural area, a wellness and therapy centre, a family and guest stay-over suite, a bar and games room, and a general activity area.

All units in The Summerhill were built using Level Three Adaptable Design, which is the highest level. There are two studio units, 81 one-bedroom units and 24 two-bedroom units. The building manager was unable to disclose average rents, however, it is estimated that rents range between \$2000 and \$3000 a month based on similar types of units.

The Symphony

The Symphony is a modern concrete hi-rise located in Central Lonsdale. It was constructed in 2002 using 1998 Adaptable Design Guidelines. Five of the units have Level Three Adaptable Design Guidelines and the other 46 include Level Two. All of the 51 units are owned by the tenants and managed by a Strata Council. There are four one bedroom apartments and the remainder are two bedrooms. The average age of occupants is unknown, but the building appears to be inhabited by adults aged 35 and up. These

units are geared towards those with higher incomes and rents probably range from \$1500-2000 a month based on an estimate from a tenant.

Quayview Community Housing Project

Located off of Lower Lonsdale, this building is owned and managed by the North Shore Association for the Mentally Handicapped, which is a non-profit organization. The intent of this building is to provide an opportunity for those who would not normally live in the community, because of mental or physical disabilities, a chance to live independently with a mix of other residents in affordable and adaptable designed housing. Eighty-one percent of the units in Quayview have Level Two Adaptable Design even though the City of North Vancouver only asks for twenty percent of the units to have Level Two Adaptable Design. That translates to 34 units. The other eight meet the Level One Adaptable Design requirements.

The tenant ages vary ranging from 19 to 80 years old. At the time of the study, there was one 19 year old and approximately three units with those over 65 years old. The average income also varies; 26 of the units are subsidized with a mix with full and partial subsidies. The average rent for the 34 one-bedroom units is approximately \$740 per month, while the average rent for the eight two bedroom units is approximately \$880 based on information from the rental manager. The abilities of the tenants also vary with at least half having some sort of physical or mental disability.

Quayside Village Cohousing

Quayside Village is located in Lower Lonsdale. The idea for the building was initiated by a group of individuals who wanted to remain in their community and be able to “age in place.” They worked in partnership with the City of North Vancouver to come

up with Quayside Village Cohousing. The site was specifically selected because of its closeness to public transportation, shops, community services, and the distance to the Sea Bus, which is a direct connection to downtown Vancouver. Quayside Village was built in 1995 before the Adaptable Design Guidelines became policy, however, they still tried to incorporate as many Level One features (from what became the 1997 Adaptable Design Guidelines) into the final design. Environmental sustainability was also a consideration in the building creation as developers followed the standards set by BC Hydro Power Smart Program and the BC Gas Energy Efficiency Program. Furthermore, the Canada Mortgage and Housing Corporation funded a grey water system used to treat and recycle water for reuse in toilets and recycled materials were reused from the buildings that originally stood on the land.

Cohousing communities try to combine the autonomy of private dwellings with the advantages of shared resources and community living (Canadian Cohousing Network, 2004). Residents in Quayview own their units and are all members of the Strata Council. There is a mix of residents ranging from couples with babies to older adults. Units are slightly smaller than average apartment units are as there is more emphasis on shared common spaces in a cohousing community. Quayview has a common house that includes a kitchen and dining area, a lounge, a playroom, laundry, a craft area, a guestroom, and an office. There is an outdoor courtyard on the first level and a gazebo and garden on the third level. The bathroom in the common area has been designed using Adaptable Features and includes a roll-in shower so if a resident can no longer utilize their own bathroom, an accessible alternative is available.

Quayview has 19 units with some Level One and Two Adaptable Design features incorporated into each. As designated by the City of North Vancouver, the community collectively purchased a two-bedroom unit that it rents to qualified renters as an affordable for approximately \$800 a month. This unit was also designed to be fully wheelchair accessible. Currently, there are three units with older adults, two of which participated in the qualitative interviews.

Participants

Sampling

A purposive sampling technique was employed for this study. This was chosen over a random sample where participants selected would know nothing of the topic (Morse and Field, 1995). In this case, only individuals living in adaptable units in five buildings in North Vancouver, British Columbia were chosen to participate, and from those, only persons aged 50 and over were selected.

The purposive sampling strategy used to select face-to-face interview participants is called “snowballing”. This is where new participants were identified from people who were already participants (Creswell, 1998). This technique was employed due to an initial lack of participation from The Summerhill.

Description of Participants

A total of 26 participants, 20 single participants and three couples, completed the face-to-face interviews. The couples participated in one interview but both provided input, therefore, their answers were analyzed separately. There were seven participants from Alegria, three participants from The Symphony, 12 participants from The Summerhill, two participants from Quayview Community Housing Project, and two

participants from Quayside Village Cohousing. There were 18 female participants and eight males. Participant ages ranged from 50 to 86 years old.

There were 53 returned survey questionnaires, 23 from The Summerhill (43.4%), 16 from Alegria (30.2%), six from The Symphony (11.3%), five from Quayview Community Housing Project (9.4%), and three from Quayside Village Cohousing (5.7%). The background information from the survey questionnaires was summarized from the socio-demographic and functional independence variables presented tables' one through four. Socio-demographic characteristics include: gender; age; living arrangement; and length of time living in the unit. The socio-demographic characteristics include the nine additional participants from the Summerhill who agreed to participate in the face-to-face interviews¹. Functional independence variables include: ADL dependence levels; IADL dependence levels; difficulty with ADLs; difficulty with IADLs; use of mobility aid indoors; use of mobility aid outdoors; amount of time participant leaves; and amount of physical activity.

¹ Survey-questionnaires were not distributed to these nine participants. Background information was obtained at the beginning of each face-to face interview. The socio-demographic characteristics are included in the descriptive statistics, however, due to the descriptive nature of the answers to the functional independence questions, the decision was made to analyze them using content analysis and not include them with the descriptive statistics.

Table 1: Socio-demographic variables of survey questionnaire participants, face-to-face interview participants, and combined.

	(n=53) %	(n=9) %	(n=62) %
Gender			
Female	60.4	89	64.5
Male	39.6	11	35.5
Age			
50-55	5.7	0	4.8
56-65	9.4	0	8.1
66-75	20.8	44	24.2
76-85	39.6	44	41.9
86+	24.5	11	21.0
Living Arrangement			
With a spouse/partner	13.2	33.3	14.5
Alone	83	66.7	82.3
With a family member	3.8	0	3.2
Residency in Unit			
0-12 months	26.4	56	30.6
13-24 months	39.6	33.3	38.7
25-36 months	22.6	11	21.0
37-48 months	5.7	0	4.8
49-60 months	5.7	0	4.8

Over 64% of the participants were female and 35% were male. The majority of the participants (41.9 %) fell between the ages of 76-85, followed by those who were between the ages of 66-75 (24.2 %), 86 and over (21.0%), 56-65 (8.1%), and 50-55(4.8%). The 2001 age distribution statistics for the City of North Vancouver indicates that the study population is not representative of the City's population, as the largest category of older adults fall between the ages of 45-54 (15.1%), followed by those between the ages of 55-64 (8.8%), 65-74 (6.5%), 75-84 (4.8%), and 85 and over (1.6%).

With regard to living arrangement, percentages indicate that 82% of the population lives alone, 14.5% live with a spouse, and 3.2% live with another family member. According to recent census data, 'living alone' is the fastest growing lifestyle category (Anderssen, 2002). In 2003 in Canada, 51% of adults aged 65 or older lived alone in private households (Walton, 2002). This has increased slightly from 1991 figures where 48.5% of adults aged 65 or older were living alone (Gutman and Wister, 1997).

Slightly more than one third (38.7 %) has lived in their residence between one to two years. The next largest group was those who have lived in their residence for under a year (30.6%), those who resided in their building between two to three years (21.0%), and those who had been there between four to five years and five to six years (4.8%) (See Table 1).

Table 2: Length of residence by building

Length in residence	Building					Total (n=62)
	Summerhill (n=23)	Alegria (n=16)	Symphony (n=6)	Quayview (n=5)	Quayside (n=3)	
0-12 months	37.5% 12	6.3% 1	83.3% 5	20% 1		30.6% 19
13-24 months	53.1% 17	12.5% 2	16.7% 1	80% 4		38.7% 24
25-36 months	9.4% 3	62.5% 10				21.0% 13
37-48 months		18.8% 3				4.8% 3
49-60 months					100% 3	4.8% 3
Total	100%	100.1%	100%	100%	100%	100%

If “building residence” is crosstabulated with “length in residence” (see Table 2), 37.5% lived in Summerhill for less than one year, 53.1% have lived there between 13 to 24 months, and 9.4% lived there between 25 to 36 months. The participants who have lived there for 3 years have most likely been there since it was constructed in 2001.

Nearly two-thirds, (62.5 %) living in Alegria have lived there between three to four years, however, 18.8% of the respondents lived there since Alegria was constructed in 2000. The remaining Alegria participants have been there for less than two years, with 12.5% lived there for less than two years but more than one year and 6.3% residing there for under a year.

Quayview was built utilizing the 1998 guidelines slightly over three years ago. No participants have been living there since inception, but four fifths have been there between two to three years. The remaining one fifth has been there for one year or less. There were only three participants from Quayside Village Cohousing, which is the oldest building and all of the participants have been there since its inception.

The survey questionnaire also elicited information on participant’s level of functional independence. As the population consists of older adults, being able to perform certain activities throughout the day becomes increasingly important in order to maintain independence levels. Lawton (1991) noted that when one is not ‘aging well’, performance ADLs begin to deteriorate. Furthermore, it is not unusual for time use, social behaviour, subjective quality of life, and overall psychological well-being to erode as well. Therefore, living independently becomes increasingly difficult without the addition of support, be it formal or informal social supports or an environmental change or adaptation. Furthermore, the role of the home environment becomes increasingly

relevant as older adults spend more time indoors than any other setting (Evans et al., 2000).

Participants (n=53) were asked to identify their independence level when performing ADLs, which included: moving around in bed; transferring; moving around in the unit; moving around outside the unit; dressing upper body; dressing their lower body; eating; toileting; bathing; and grooming. The variables were coded into four categories: (1) independent; (2) requires some help; (3) requires full help; or (4) done by others. As demonstrated in Table 3, moving around in the bed, transferring, moving around in the unit, dressing the upper and lower body, eating, toileting, and grooming are being performed independently by over 90% of the participants.

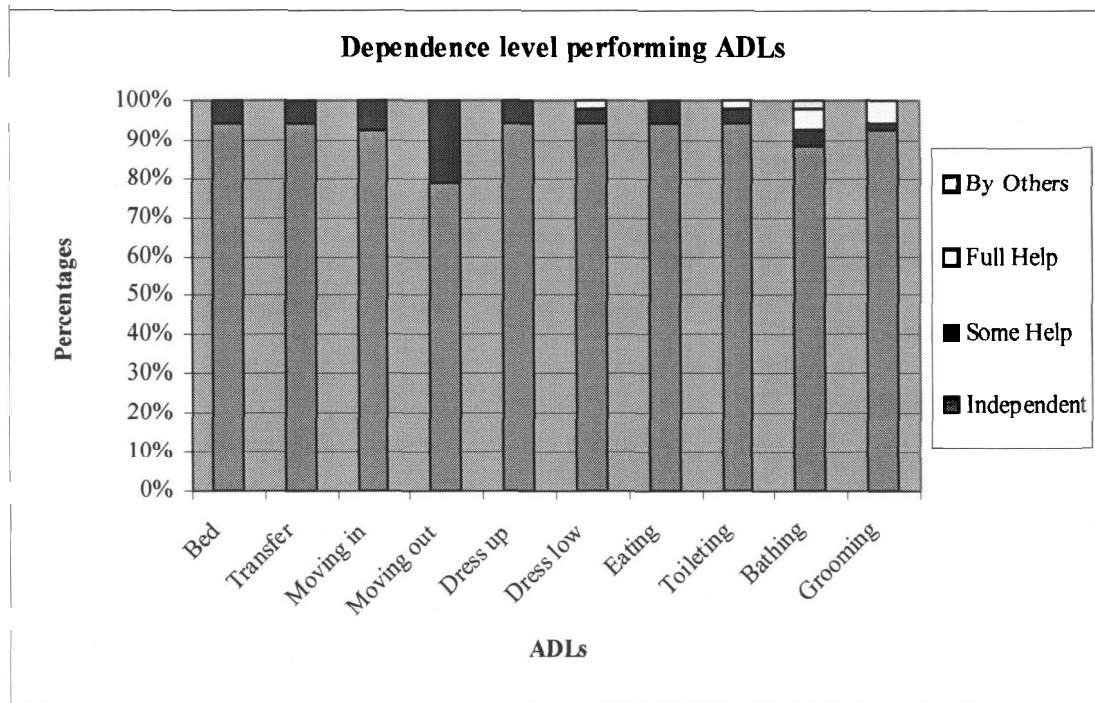


Figure 3: Dependence levels performing ADLs

When moving outside of the unit, only 77.4% performed the task completely independently, while 20.8% required some help and 1.9% required full help. Related to the participants level of independence moving around outdoors, respondents were asked “What is your primary method of moving outside you unit?” More than three quarters of participants stated that they are completely independent, while 41.5% used some type of assistive device to move around outdoors. Of the 41.5%, 18.9% are using a walker or crutch, 11.3% a scooter, 7.5% a cane, and 3.8% a wheelchair. This information assists in demonstrating how the spaces in a unit are being utilized, such as if participants require the 5-foot turning radius among the various unit spaces.

Interestingly, 92.5% of participants were completely independent when moving around inside their unit. However, when asked about their primary method of moving around indoors, 13.2% indicated that they use a cane, while 5.7% use a scooter, and equal percentages (3.8%) use a walker and/or wheelchair.

With regard to bathing, 5.7% of the sample required full help, 3.8% required some help, and 1.9% was bathed completely by others. Nevertheless, the vast majority of the sample (88.7%) were able to bathe independently. Overall, this is a very independent population who experience minor difficulties moving around outdoors.

Instrumental activities of daily living represent the activities that are necessary to adapt independently to the environment (Spector, Katz, Murphy, & Fulton, 1987). These activities include such things as preparing meals, housekeeping, managing finances, managing medications, shopping for personal items, housekeeping, and obtaining transportation. Similar to the questions assessing levels of dependence with ADLs, this

question was also coded into four categories: independent; requires some help; requires full help; and done by others (See Table 4).

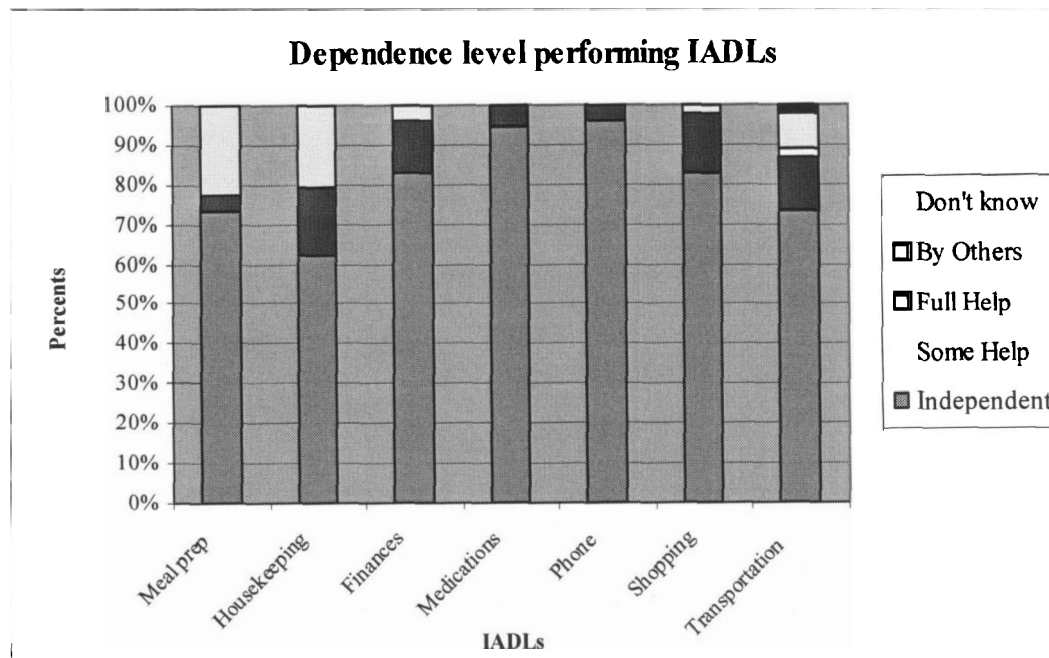


Figure 4: Dependence levels performing IADLs

This sample (n=53) is fairly independent in its IADL functioning, however, participants were slightly less independent when performing IADLs compared to ADL functioning. This finding is consistent with the literature stating that IADL functions are the first to become impaired in older adults (Lawton, 1991). Nonetheless, it is only when the ADL functions begin to deteriorate that living independently becomes increasingly difficult (Lawton, 1991).

Housekeeping appeared to be the IADL that participants required the most assistance. Specifically, slightly less than two-thirds (62.3%) were able to perform the

task independently while 20.8% had to have it done by others and 17% requiring some help. Participants were also less independent when preparing meals and transporting themselves to places. Seventy-four percent of participants were able to perform both tasks completely independently, but 22.6% had to have their meals prepared by others and 3.8% required some help. With regard to transportation, 13.2 % required some help, 9.4% get others to transport them, 1.9% required full help with transportation, and another 1.9% did not know. Another task requiring the help of others is shopping. However, while 15.1% indicated that they required some help with their shopping, the vast majority (83%) reported that they were able to shop independently. With regards to managing finances, 83.0 % report having no problems doing it themselves, but 13.2 % require some help, and 3.8% have their finances done by others. Both managing medications and using the phone were reported by over 90% of the sample as being done independently.

Although participants indicated that they were able to perform ADLs and IADLs independently, some may be performing them with great difficulty. A goal of an Adaptable Design environment is to help decrease the level of difficulty through modifications that allow the individual to function independently in their own unit for a longer period. Results indicate that participants generally have “no difficulty” with ADLs, however, there were several tasks that participants reported as having “some” or “great difficulty” with. Respondents were having the most difficulty with: moving outside of the home (26.4% were having “some difficulty” and 3.8% were having “great difficulty”); bathing (11.3% reporting “some difficulty” and 5.7% reporting “great difficulty”); and dressing their upper bodies (11.3% reported having difficulty). Moving

around in bed, transferring, moving around inside the unit, eating, toileting, and grooming were reported as being not difficult for 90% or more of the population.

Similar to IADL independence levels, participants reported greater difficulties performing IADLs compared to ADLs. Transportation (24.5%), shopping (22.6%), and housekeeping (17%) were the tasks that participants are having the highest levels of “some difficulty” with, whereas, housekeeping (11.3%) and meal preparation (7.5%) are the tasks that participants are having the “greatest difficulty” with. Although, many of the Summerhill participants answered “not applicable” to the housekeeping and meal preparation question as it is included as part of their service package.

A majority of the ADL and IADL tasks that these participants were having difficulty performing were the same non-medical services that homecare workers could provide. However, due to current health policy regulations, a large number of these tasks were no longer being performed by outside help, leaving the residents to perform them themselves with “some” or “great difficulty”. Nonetheless, participants were very independent and did not appear to be having difficulties or require assistance when performing ADLs and IADLs.

Participants were also asked how many times they left their unit in a week. Leaving ones unit becomes especially difficult for those who find it harder to get around outdoors. Therefore, the quality and accessibility of the unit becomes increasingly relevant as participants may be spending a larger portion of their time inside due to the difficulty they have with outdoor mobility. However, results indicate that the majority of the population (84.9%) leaves their units daily and if they do not leave everyday, 11.3 % leave two to six times a week. Only 1.9% of the population leaves only once a week and

1.9% do not leave their unit at all. It is for these people that Adaptable Design may be of immediate importance.

In general, this sample is characterized by being very active as 75.5% engaged in over two hours of physical activity over the past three days, while prior to their interview only 24.5% participated in less than two hours.

Instruments

Survey Questionnaire

The survey included mainly closed-ended questions enhanced by some open-ended questions that allowed respondents to describe factors relating to use of Adaptable Design (See Appendix F).

The questions making up Part A of the survey questionnaire were developed by the researcher with the assistance of Ms. Cheryl Kathler, Social Planner, City of North Vancouver. The questions addressed the awareness of the respondent to the Adaptable Design unit. Part A also addressed if respondents were happy with the design of their units, the specific environmental changes made to their units, and suggestions for further adaptable design elements to their units. These questions were based on the 1998 and 2001 Adaptable Design Guidelines (see Appendix D).

Part B of the survey questionnaire was designed to assess functional independence and was adapted from the MDS-HC questionnaire. The ADL questions consisted of nine different daily activities: transferring; moving around the unit; moving around outside of the unit; dressing the upper body; dressing the lower body; eating; using the toilet; and grooming. The respondent checked off whether or not they could perform these activities independently, with some help, with full help, or the activity is

performed completely for them by another person. These items have been identified by numerous researchers as making up the core measurable components of activities of daily living (Branch & Hoenig, 1997; Lawton, 1971, 1991; Spector et al., 1987).

The questions assessing independence levels while performing IADLs have also been identified as important measurable components (Branch and Hoenig, 1997; Lawton, 1971, 1991; Spector et al., 1987). As stated previously, Spector et al. (1987) show that IADL and ADL functions can be combined into a single scale which results in both discriminate and predictive validity. However, as the questions have been adapted from the more recent MDS-HC (1999), both ADL and IADL scales have been included. The IADL questions assess levels of independence while performing the following activities: preparing meals; ordinary housework; managing finances; managing medications; using the phone; shopping; and transportation.

Part B also assessed the level of difficulty that the respondent had with both ADLs and IADLs. This was included because the respondent may have been able to perform the activities independently, however, they may be performing them with great difficulty and the design of their housing unit may have contributed to this.

Part C of the survey questionnaire asked participants whether they believed that the physical design of their unit influenced their functional independence.

The goal of the survey questionnaire was to summarize the patterns of responses from the participants. Both the socio-demographics characteristics and functional independence characteristics were summarized in the above section entitled “Description of Participants” in order to provide an overview of the study population. The remaining variables that describe participants awareness of Adaptable Design, the design changes

they have made to their units and where these changes are, and future changes that the participants would like to make are presented in a section before the qualitative results in order to provide a context with which to understand the qualitative text.

Interview Schedule

During the face-to-face interviews, participants were asked why they chose to live in their adaptable units, whether they used the Adaptable Design features, their levels of independence before and after moving, if they believed their unit supported the maintenance of their functional independence, and if they would take advantage of the Adaptable Design features in the future (see Appendix G). At times, additional prompting questions were used with the goal of eliciting additional information or clarify concepts.

Procedure

The Survey Questionnaire

The Adaptable Design units within the five buildings were identified through architectural plans and conversations with the architect, building managers, strata council members, and tenants.

Once permission to enter the premises of four of the buildings was given by a building representative (building manager, strata council members, or tenant), letters informing participants of the study were placed outside the unit doors (see Appendix E) along with a copy of the survey questionnaire and consent letter for them to sign. Participants were informed in the letters that they had two weeks to complete the survey questionnaire and have it picked up by the researcher, return it to the building representative, or drop the completed survey off at City Hall. The City of North

Vancouver was interested in all tenants, regardless of age, living in Adaptable Design units. At this time, letters and survey questionnaires were given to everybody.

The building manager of the fifth building did not feel comfortable having the package placed outside the doors, so they self-selected 10 participants. The participants met with the researcher at a specified time and the questionnaires were filled out together with the building manager present. As this building was intended for those ages 55 and over and is the only one with 100 percent Level Three Adaptable Design, it was felt that 10 survey questionnaires out of a potential 107 was not a good representation of residents in the building. Permission was granted by the building manager to leave 50 questionnaires at the front desk for residents to fill out on their own time. Unfortunately, only three were returned. Despite two attempts at accessing residents in this building, it was determined that a mail out would provide better access to a larger portion of the residents. A new letter was written explaining the study and specified that those who completed the questionnaire were entered into a raffle to win thirty-five dollars (see Appendix H). The letter was mailed along with the letter of consent and the survey questionnaire. It was already known that there were 107 units and 16 floors so suite numbers were obtained by looking at the architectural plans of the building to assess how many units there were per floor. Envelopes were addressed to “Residents of The Summerhill” so no names were used and an attempt was made to not mail survey questionnaires to those who had already filled one out. This method elicited eight survey questionnaires out of a possible 84.

Once the questionnaires were returned, only those meeting the criteria of being aged 50 and over were included in the study. As the age question in the survey

questionnaire was divided into ranges, one being 46-55, any participants who checked that off was called to determine their specific age. Only two returned questionnaires were eliminated.

The Face-to-Face Interview

From the 53 returned survey questionnaires, those who indicated that they would agree to participate in a face-to-face interview were telephoned to arrange a meeting time. During the phone call, participants were reminded of the survey-questionnaire and were told that the interview would last no longer than one hour. Additionally, the voluntary nature and confidentiality of participation was emphasized along with the right to cease participation at any time.

Seven respondents from Alegria indicated that they would like to participate in the interview and after an initial telephone call, all seven agreed and meeting times were set up. From The Symphony building, only two were contacted and agreed to participate, however, after completion of one of the interviews, the participant suggested another resident who had also completed the questionnaire. A telephone call was made from the participant's unit and the new participant agreed to be interviewed that day. A similar situation occurred at Quayside Village Cohousing, where a participant agreed, was interviewed and then suggested another potential participant who had also filled out the survey questionnaire. A telephone call was placed and the participant agreed to participate.

The returned questionnaires from Quayview Community Housing Project indicated that two respondents would like to participate in interviews. They were both contacted and both agreed.

Out of the 22 returned survey questionnaires from The Summerhill, there were initially 10 who indicated that they would like to participate in the face-to-face interviews. Three out of the 10 no longer lived at that location, four declined participation, and three agreed to participate. After the first interview was completed, it was explained to the participant that more people were required to participate from this particular building. The participant agreed to speak to friends and acquaintances to request participation. This participant produced a list of five more potential interviewees. Three agreed to participate after an initial phone call, one was already in the initial three agreeing to participate and the other one declined due to illness. After meeting with the first of the new participants, a similar request was made and a list was produced at the time of the interview with six names. Telephone calls were made and all agreed to participate.

Interviews were conducted within a one-month period and all participants agreed to be tape-recorded. The interviews began with a brief introduction explaining the purpose of the study and the definition of Adaptable Design. At this time, participants were given the opportunity to ask any questions they may have had. The tape was turned on and all the interviews began with the first question in the structured interview guide (see Appendix G).

Interview times ranged from 30 minutes to one and a half hours, and except for one interview, they all took place in the participant's units. This proved to be an ideal location as participants were being asked specific questions about their unit. In many cases, the participant led the researcher to different areas of their unit to show the features

that they were discussing. One participant felt more comfortable holding the interview in the lobby of the building which was a quiet environment and free of disruptions.

All of the interviews were transcribed verbatim. To ensure confidentiality, all names, including third party names, were changed and tapes were kept in a locked drawer.

Data Analysis

Social science theories provide explanations, predications, and generalizations on how the world operates (Creswell, 1998). There are five traditions of inquiry that dominate qualitative methodology used to construct social science theories: 1) biographies; 2) phenomenology; 3) grounded theory; 4) ethnographies; and 5) case studies.

Since the research question guiding the interview questions were loosely framed by Carp and Carp's (1984) Complementary Congruence Model, the social science theory guiding the qualitative component of this study utilized a more logical deductive approach (Charmaz, 1990, cited in Weston et al., 2001). Content analysis was also employed to analyze the data from the interview and the open-ended questions in the questionnaire. This method was chosen as it lends itself well to exploratory studies because it 'gets the answers to the questions to which it is applied' (Carney, 1973, cited in Priest, Roberts, & Woods, 2002).

Content analysis facilitates the production of core constructs from the textual data through the method of reduction and analysis (Priest et al., 2002). Content analysis also works well when using computerized software programs, as large sections of text can be

rapidly coded (Priest, et al., 2002). The NVivo software program was chosen to facilitate coding.

The first step taken during the analysis was to read over the entire set of interviews in order to identify the important topics (Morse and Field, 1995). These topics became the master codes or analytic categories from which the sub-codes emerged. The first reading of the interviews and the answers from the survey-questionnaire revealed 15 master codes. Each master code was given a name (e.g. reasons for leaving old place, reasons for moving into new place, functional independence, design features). These names were the conceptual labels that represented the phenomena grounded in the text and have meaning for the analyst (Creswell, 1998; Strauss and Corbin, 1991). Morse and Field (1995) note that initial categories are usually quite broad so that large amounts of data can be sorted into a few groups; usually between 10 and 15 categories per study. The next step was to enter these master codes into NVivo along with the sub-codes that emerged (e.g. reasons for leaving old place: illness; loneliness; location). NVivo also allowed for the creation of “free nodes” or the data that did not readily fit into existing codes (Priest et al., 2002).

After the master codes and sub-codes were entered into NVivo, the process of first level coding began. The data was reviewed line-by-line and highlighted sections of varying size were pasted to the particular codes through the NVivo ‘coder’. After this was completed, second-level coding was undertaken whereby the data was again reviewed line by line and a more detailed indexing was applied (Priest et al., 2002) using the additional sub-codes added from the first-level of coding. NVivo allowed for the creation of an index tree, providing a visual overview of all the master codes and sub-

codes, termed by NVivo as ‘children’ and ‘grandchildren’. This made it easy to see emerging patterns.

Before continuing to the next coding level, a literature search was conducted on key words derived from the coding (e.g. older adult relocation, functional independence). Strauss and Corbin (1991) recognized this is an important step, called ‘theoretical sensitivity’, which refers to the ability of the researcher to recognize what is important in the data and to give it meaning. Theoretical sensitivity is improved by familiarization with the phenomenon of interest.

The codes were identified first (e.g. health situations, housing amenities, knowledge of Adaptable Design). Similar codes were then grouped together to form the themes (e.g. reasons for leaving old place). Some themes were very similar and tended to form patterns (e.g. triggering mechanisms) and these patterns tended to be very similar to the constructs identified in Wiseman’s (1980) migration decision model. From this, patterns and themes were relabelled based on constructs in Wiseman’s (1980) model (i.e., triggering mechanisms, indigenous factors, type of move, destination selection, and migration outcomes). For example, “reasons for leaving old place” was relabelled “pull factors” as both are events that operated from the potential destination to draw the older person toward a change (Hays, 2002). At the end of the analysis, four levels of coding emerged: 1) patterns; 2) themes; 3) codes; 4) sub-codes.

CHAPTER FOUR: RESULTS

Descriptive Statistical Findings

The following section describes the participants' responses to questions posed in the survey questionnaire directly relating to the Adaptable Design features, which includes five sections: being aware of Adaptable Design; happy with the design of the unit; changes made to the unit; design preferences in the future; and, use of Adaptable Design.

Aware of Adaptable Design

Participants provided responses to the question of if they were aware that they were living in Adaptable Design Units. It should be noted that the City of North Vancouver was under the assumption that participants were not aware. However, the majority of respondents (67.9 %) were aware that they were residing in Adaptable Design units.

Happy With the Design of the Unit

The survey questionnaire asked respondents, "Are you happy with the following: entrance; kitchen; hallway; bathroom; bedroom; living room; dining room; laundry room; storage room; lighting; windows; doors; and balcony?" Of note is that the participants living in Summerhill did not have balconies or in suite laundry rooms and may not have considered their kitchenette a dining room as meals are served in a communal dining room.

While the proportions were low, participants indicated that they were unhappiest with their storage space (18.9%), bathrooms (17.0 %), bedrooms (17.0 %), and windows (15.1%). Overall, participants were very happy with the design of their units.

Changes Made to the Units

Participants were also asked if they have made any changes to their units, specifically the entrance, kitchen, hallway, bathroom, bedroom, living room, dining room, laundry room, storage room, lighting, windows, doors, and balcony. Participants were asked to write down the types of changes they made and why they had made these changes. Similar to the above question, Summerhill residents did not have a in suite laundry or a balcony and may not have considered their kitchenette a dining room and, therefore, would likely responded as not making any changes to these spaces.

The most common space participants made changes to was the bathroom (43.4%). The qualitative section provides insight into the specific types of changes participants are making. Furthermore, 26.4% of participants have made changes to the storage areas, 15.1% to the kitchen, 13.2% to the laundry room, and 11.3% to the windows and balcony. For the rest of the spaces listed in the questionnaire, fewer than 10% of participants made any changes.

Future Design Preferences

When asked about future changes, it was apparent that the areas which participants indicated that they were unhappy were also the areas in which participants indicated that they wanted to make future modifications. Over 18% of participants indicated that they were unhappy with their storage space and only 13.2% indicated that

they wished to make future changes. Many participants also indicated that they were unhappy with the bathroom (17%) and that 18.9% plan on making changes. Similarly, 17.0 % were unhappy with their kitchen and 15.0 % are planning on making changes. However, while 15% of participants were unhappy with their windows, only 7.5% planned on making changes. The majority of responses indicating that participants were unhappy with their windows came from Summerhill participants. This was also evident in the qualitative responses, where Summerhill participants complained of windows being too small and not opening up wide enough. However, windows are extremely difficult to modify without replacing the whole window which is costly and time consuming causing many just to leave them alone.

Fewer than 10% of participants wished to make changes in the remaining spaces of the unit, but many participants did wish to make changes to the storage areas, kitchens, and bathrooms.

Use of Adaptable Design

The final question of the survey questionnaire asked participants if they felt that their Adaptable Design unit helped to make things easier for them. Over half the participants (67.9%) felt that their Adaptable Design unit made daily tasks easier for them.

Overview of Qualitative Patterns and Themes

The content analysis of the textual data revealed patterns relating to existing theories of migration, specifically to the behavioural model developed by Wiseman (1980). As the data did not exactly coincide with the original model developed by

Wiseman (1980), the model was adapted to better fit emerging themes as shown in Figure

3.

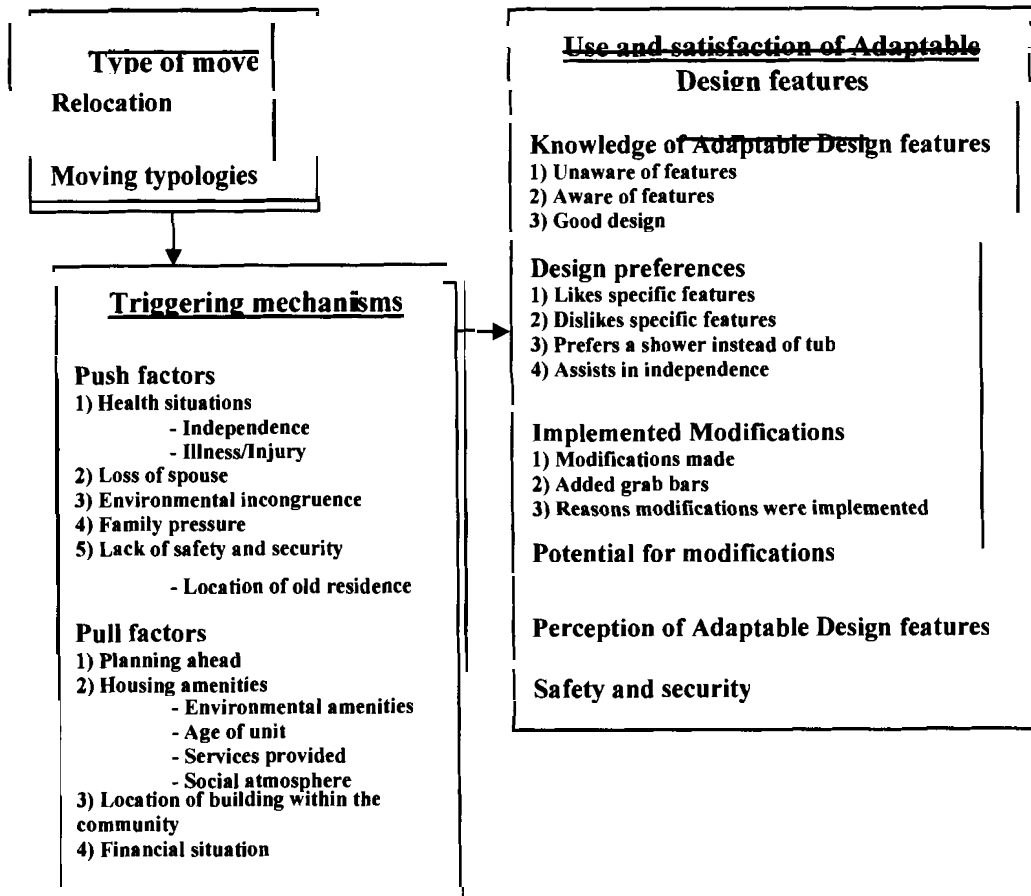


Figure 5: Overview of patterns, themes, codes, and sub-codes emerging from qualitative data.

Wiseman's model listed five factors that influenced a decision to move: (1) triggering mechanisms; (2) indigenous factors; (3) type of move; (4) destination selection; and (5) migration outcome. Some of the original factors influencing a move were still applicable to this study, however, because this study evaluated Adaptable Design, rather than the migration processes of older adults, the factors were modified

along with the order of the factors and the variables that influence each factor to move.

The three factors, now called patterns of the responses, that appeared from the data were:

1) type of move; 2) triggering mechanisms; and 3) use and satisfaction of Adaptable Design features.

The first pattern, “type of move”, is illustrated using themes synonymous with local mobility typologies identified by Wiseman (1980), Walters (2002), and Litwak et al. (1987) and relocation patterns of older adults and how this relates to the participants in the study using qualitative data.

As it was already known that the participants in the study had made a decision to move to their current location, “triggering mechanisms” emerged from the qualitative data to help inform why these decisions were made. Wiseman (1980) defines “triggering mechanisms” as the processes in which the older adults begin to think about moving to a different location.

Two variables, termed themes in this study, were identified by Wiseman (1980) that help “trigger” these moves - “push factors” and “pull factors”. Push factors are the events that aid in loosening ties to the previous residence and compel participants to change their residence (Hays, 2002), while “pull factors” are the events that draw the participants to their current location. The qualitative data revealed that “push” and “pull” factors were apparent and influenced participants’ decisions to move away from their old location and to their current location.

Five codes emerged from the data representing the “push factors” that influenced participants decisions to change locations: (1) health situations, which included the sub-codes of “independence” and “illness/injury”; (2) loss of spouse; (3) environmental

incongruence; (4) family pressure; and (5) lack of safety and security, which included the sub-category of “location of old residence.”

There were four emergent codes under the theme “pull factors” that aided in the decision to draw the participant to the current location: (1) planning ahead; (2) housing amenities, including the sub-codes “environmental amenities,” “age of unit”, “services provided” , and “social atmosphere”; (3) location of building within the community; and (4) financial situation.

The largest pattern appearing from the data is “use and satisfaction of Adaptable Design features”. Under this pattern emerged six themes: (1) knowledge of Adaptable Design features, which includes the codes “unaware of features”, “aware of features”, and “good design”; (2) design preferences, which included the codes of “likes specific features”, “dislikes specific features”, “prefers a shower instead of a tub” ,and “assists in independence” ; (3) implemented modifications included the codes, “modifications made”, “added grab bars”, “the reasons modifications were implemented”; (4) potential for modifications; (5) perception of adaptable design features; and (6) safety and security

Qualitative Findings

Type of Move

In the behavioural migration model proposed by Wiseman (1980), three types of moves were identified: 1) migration; 2) seasonal migration; and 3) relocation. All participants, except for the two who migrated from Ontario to be closer to their children, have relocated from locations around Vancouver.

As stated previously, literature on local relocation is sparse compared to studies on long-distance migration. Nevertheless, there was some discussion on the motivations of local movers (Walters, 2002; Wiseman, 1980). When participants were asked to describe their former location, many described their reason for moving in ways that were similar to the typologies described by Wiseman (1980), Walters (2002), and Litwak et al. (1987): amenity movers; assistance movers; and disability movers. Also identified were environmental push movers, forced movers, and chronic movers. Furthermore, the previous section on “destination selection” helps to explain why many older adults chose to relocate to the Central and Lower Lonsdale area. Not surprisingly, participants did not appear to fall into one category, but into combinations of multiple codes.

Diane can be classified as a local amenity mover as well as a disability mover. Diane lived in an apartment unit in West Vancouver. When looking for a new residence, she had to decide between two buildings while taking into consideration her declining mobility. Diane describes the reasons she chose to move to The Summerhill: “the (other) building was lovely, it was very close to the community centre, but not close to any stores and I wanted to move to a location where I could, with my walker, walk to stores.” Besides the location of The Summerhill in Central Lonsdale, there is a community centre a short bus-ride away.

Betty is also an amenity mover who was looking for a neighbourhood that would better suit her needs; she describes her experiences at her former location.

...before I moved here, I lived in a seniors building close to Joyce Road and it was a lovely building, very very nice, it had very nice suites, smaller than these. But, there was no place for me to walk and I like to walk, and there were no stores close by and there were no restaurants like if I wanted to stop in and have a cup of coffee and it was all mainly Asian. Which I’m not prejudice in any way, shape or

form. I have Asian friends-but-it just wasn't right for me...I lived there 6 years and I told them mainly just exactly what I'm telling you, that I was happy there but I wasn't happy with the area.

Ted and Joanne were forced to move from their former location. This type of move was identified by Wiseman (1980) as a forced move, and can result from such things as gentrification, rent increases, and housing renovations or conversions. Additionally, Ted and Joanne can be classified as assistance movers as they are on a fixed income. They were living in a two bedroom apartment in North Vancouver, but were required to move, "...because it was owned by somebody and she wanted to move, and the rent was too high for us because we are low income."

Esther's motivations to move were based upon kinship ties, and, although not identified as a local mobility typology, Litwak et al. (1987) identified the need to be near children as part of the second stage move, which is equivalent to the disability move (Walters, 2002; Wiseman, 1980). Usually, disability moves are triggered by declines in instrumental abilities, and formal organizations may not substitute well for informal caregivers when it comes to performing basic household tasks for people who are only moderately disabled (Litwak et al., 1987). Esther realized that she was living too far from her children, "I have a son and daughter (that live in North Vancouver) and it's a long way to travel to Abbotsford, you know. On the spur of the moment, sometimes you might need them and they can be here in 10 minutes."

Kay experienced an environmental push; she was living in a unit not far from where she is now.

...the reason I moved was because they put up high-rises behind and it was facing north anyway and it was so dark all the time...so then I heard about this place and

they said they weren't allowed to build high-rises here because of the view...something to do with the quay...Now I'm here and they're building here and they're driving me nuts.

It appeared that many of the migration typologies identified in the literature could be effectively applied to the participants in the study. This aids in the clarification of motivations for their relocation. Although not explicitly stated by all participants, the amenities available in the Central and Lower Lonsdale area seemed to be the principal motivation to relocate from other areas in and around North Vancouver. For example, Art stated that, "...Lions Gate hospital is close, etc. So it seemed like a move that we were going to have to make sooner or later anyways so it might as well be sooner than later."

Triggering Mechanisms

The pattern "triggering mechanisms" emerged from responses to the question "why did you move to this location?" "Triggering mechanisms" include the key factors causing participants to relocate. This section is divided into two themes, "push factors" and "pull factors", which are the critical life events that have pushed the participant from their previous location or pull them towards their new residence. This section provides insight into whether Adaptable Design influences the decisions of these participants to move.

Push Factors

With regards to "triggering mechanisms", the first theme to emerge was the factors that convinced participants it was time to relocate. These "push factors" can be grouped into five codes: "health situations", "loss of spouse", "environmental incongruence", "family pressure", and, "lack of safety and security". Each of these

represents a critical event in the participant's life and may act alone or in combination requiring the participant to either relocate or modify their home environment.

Health Situations

Health situations were divided into the two sub-codes of "independence" and "illness/injury". Many participants realized that their current health situations were not improving and many made the decision to change their environment to better suit their declining situation. Furthermore, some of the participants described environmental modifications that were made after they decided to relocate.

Independence

The sub-category "independence" was segmented into "ADL ability", "IADL ability", and "driving ability". For many of these participants, these losses appear to be a natural part of aging that are accepted, rejected, or adjusted to by changing environments.

Sandy adjusted to her loss of ability to bathe independently due to the poor bathroom facilities in her previous location where there was no bathtub, just a sponge and bucket. The loss of this ADL was a major source of embarrassment for her. After she moved to a new environment, she regained self-worth, feelings of independence, and her ability to bathe herself. She explains, "they got a girl from one of those care units...she's a practical nurse, and she came in and she would wash me down, and then I would use the portapotty and that's all I had to use."

In her previous location, Sandy also lost the ability to prepare meals for herself, an IADL. She moved to the Summerhill where she independently prepares breakfast, while the other two meals of the day are prepared for her. Sandy describes how the meals were prepared at her previous location, "...and she got my breakfast for me (her daughter)

and then she'd head out to work. The practical nurse got my lunch and then she'd got my dinner when she came home, so that's how it worked out. But this is far better, far, far better."

Due to a stroke, Phil also lost the ability to prepare meals for himself. Like Sandy, he relocated to the Summerhill, where meals would be prepared for him. For Phil, this was not his first option, but a recommendation by health professionals. He stated, "I suppose I have to think that I wouldn't want to cook for myself, that's what the medical profession says- 'For god sake stop cooking, get in to some place where people will look after you.'" He went on to explain that he "wouldn't move into any place where I was on my own cooking dinner because that would be disastrous, so with that sentence I cannot go below this type of care." Esther, who also resided in Summerhill, explained, "I like the idea of the meals because I was on my own cooking my meals for a year and a half and it wasn't good."

Diane, a participant from the Summerhill, found it difficult to prepare meals because of an injury:

Because I had injured my back and I have osteoporosis and I also have arthritis in my spine and it became increasingly difficult to stand and do things without increased pain so getting my own meals became quite a chore

Of note is that only the Summerhill participants were having difficulties with meal preparation before their move to that location, and they relocated to find that support service. The major issue that participants from other buildings were having was with housecleaning. However, this issue was not a motivating factor for relocation, rather it caused many to hire outside help after they had already moved to their current location. This was the case for Diane as well; who only relocated after meal preparation

became an issue. To that point, she hired someone to do the housecleaning for her, "... I did everything except for someone coming in to clean every other week."

Jerry, from Alegria, explained, "A gal comes in once every two weeks and she cleans. In fact, she was here yesterday, through an agency, what do they call it (pause) We Care. Yah its and agency, but they're just down the block there." Jane, from the Symphony, realized that not everyone can afford the luxury of a cleaning service, "I'm very lucky I have a lady come in every two weeks to clean my place so I don't have to bend down and do things like that, which I do have a little difficulty with and so in that case I can manage." Rose, from Quayside Village Cohousing, did not receive housekeeping help as of yet, but stated that "I'm really independent, except in the summer, I know that last year, I think this year I'm going to have to get a cleaning lady, the heat really de-energizes me-I'm laying flat sleeping half the time."

Similar to the loss of the ability to do housework, issues arising due loss of mobility have caused some participants to adapt to their environments by using mobility devices after relocation has occurred. For some, it appeared that they needed to justify why a mobility device was being used. For example, Esther explained that she just bought a walker, "Well I didn't like to give into it, but I found I couldn't walk for any length of distance. You know, I would like to go over to Safeway, but it was agonizing, miserable."

Likewise, Sandy stated, "I only take my walker because the sidewalks are uneven. I walk around here with a cane and I seem fine, but the sidewalks are uneven and my cane is on my bedroom door there. When I take my walker, I put it on my bedroom door

so I always know where it is and I navigate around here.” Jerry used a scooter to get around “I can’t walk very much because of my breathing, I’ve got to take it easy.”

Kay lived in Lower Lonsdale and had difficulty with the hills in that area. She did not yet need a mobility device, however, she complained about the increasing amount of construction taking place in that area and it appeared that she was feeling pressure to relocate again. As mentioned, she was living in a unit close to where she is now.

I find the hills really hard here, I didn’t realize just how hard it would be cause uh I have arthritis and its hard going up the hills...but they’ve just built an IGA down here. I haven’t been to it yet because it’s downhill and I have to carry my groceries uphill and it’s not far enough to take the bus...

Interestingly, a source of loss associated with independence that emerged for many participants was the ability to drive. When asked about their independence levels before moving into this location, many mentioned that they had stopped driving. For some participants, losing the ability to drive was synonymous with taking away all of their independence. With their car, they have the freedom to go anywhere and do not have to rely on anybody. Jerry realized, because of his location in Central Lonsdale, he did not require a vehicle, however, he did not wish to give it up.

When I go outside, I got my car--I literally don’t need a car, but I had one for so many years that it is like an old friend. If I feel like I want to do something, I can go down, I can get into my car, and I can do it. I’ll miss it, I’ll tell you, but I really don’t need it. Just you know to keep it down in the parking spot.

Art’s wife was still able to use the car, but due to his health condition, he did not feel that he should be driving.

...like my wife just went off to Sears with the car, we still have a car, but I’m not confident driving it in the city anymore and with this medication one of the characteristics makes you sleepy at times and all that. I’ve never had any trouble, I’ve been able to drive-drive around-take trips that are a couple of hours, but it’s not like it used to be. We’ve been discussing getting rid of the car completely.

Diane gave up her car when she moved to the Summerhill, “I was driving my car so I could drive to places to, but I gave up the car when I came in here.” Jessica also gave up her car when she moved to the Summerhill; she explained how detrimental this was to her sense of independence:

I don't drive and really you need a car....Oh yes, always busy driving all the time. Now I don't drive. That was my worst thing, having to give up driving...I forget things when I drive, maybe I'll go somewhere and I'll forget where I left the car-what will I do? So, I decided it was time. I miss it. Oh gosh it was just awful to not just jump in the car when you want to. I don't think I'd ever use the bus. You can just go when you want.

For many of these participants, the loss of an ADL, IADL, the ability to drive, had a direct relationship to their feelings of independence and overall health. Amongst some of these participants, a sense of frustration ensued. To alleviate this, some relocated, whereas others had already relocated and needed to adjust their environment or themselves, like hiring a cleaning service or obtaining a mobility aid.

Illness/Injury

The prevalence of chronic health problems in later life is well recognized (Strain, 1996). For these participants, this was a major trigger pushing them out of their previous residence into a new environment. For example, Diane's back injury in combination with osteoporosis caused her to seek a more accommodating supportive environment in the Summerhill as she was finding it increasingly difficult to cook meals. Similarly, Mike sought a new residence due to both his and his wife's illness. Mike experienced osteoporosis in his legs and found it difficult to walk at times. He explained the major issues that motivated him to find a unit in the Symphony:

...my wife had a stroke in 2000 so, at that point, she was living at Evergreen and there was a problem of always getting her home, she didn't come home that often

but, also going up and down the ramp and it was wet and the ramp was a bit slidey.

Sandy was one of the two participants who migrated from Ontario to British Columbia to be closer to her children. The major trigger for this move stemmed from her breaking her pelvis.

I broke my pelvis and I couldn't sit. I had to sit most of the time. I have two artificial hips that's the problem and I was putting away laundry and I forgot to open the door and I ran into it and it threw me back on my two legs crouched on the floor and I broke my pelvis. So, I had to crawl to the phone and I phoned for 911 and an ambulance came and they took me and they said I had a broken pelvis and I'd be out of commission for a while and so.

Phil recalled the events in detail that led him to the Summerhill, beginning with the illness of his wife and finally his own.

...before my wife died, I had a super attack and I was off to (the) hospital...in November 2001 she died...I was living in this quite large condominium by various standards and no member of the family-they had all disappeared-what was I to do....And I lived there keeping my self for some months...Well I did a very dramatic exit where I collapsed on my own...I don't know all the circumstances of it, but I was found lying on the floor in the kitchen. Nobody really knows how long I had lain there, was it a week or month? I was still alive and taken again to the hospital and after about 8 weeks or so, they said, "We think we can let go but we hate the idea of you living anymore on your own. We think you should go someplace or other where you will be with others."

The responses elicited from these participants illustrate that illness and injury are motivating factor in the decision to change the environment. Due to the type of illness or injury, different environments were sought. New residential environments were chosen for their supportive services, nearness to medical services was an important factor, or units with wheelchair accessibility.

Loss of Spouse

Although the death of a spouse can be considered a normative life event for older adults, especially for older women because of longevity differences between genders (Norris and Tindale, 1994), it is still a highly stressful experience. The experience of widowhood may cause the survivor to change their lifestyle and environment (Pellman, 1995).

Lazurus, DeLongis, Folkman, and Gruen (1985, cited in Pellman, 1995) discussed eight daily frustrations that may occur after spousal death, one being increased household hassles. These may occur due to new or increased responsibilities in the area of household management. This occurred in Phil's situation:

... when my wife died of the inevitable cancer that ladies seem to get these days after having suffered before...and in November 2001, she died. I was then faced with a problem of what to do, I was living in this quite large condominium by various standards and no member of the family-they had all disappeared-what was I to do...

For Melissa, it was the ever-increasing loneliness that triggered her move, "when my husband died and after a while of being alone, I decided-we (Melissa's children) heard of this." Petrowsky (1976, as cited in Norris and Tindale, 1994) found that many women seek the company of other widowed peers. Other widows have had similar experiences and can help others cope with grief and feelings of loss. The Summerhill has a very high proportion of widowed women which may have influenced Melissa's decision to move to that location. Sandy found herself in a similar situation in Ontario; her children acknowledged her loss and initiated the push to a more supportive environment. She explained, "my husband died, I came out here on December 15. They

insisted that I come out, they're both nurses...They realized it's time for me to be supervised especially in my own place and they said never to go without the cane."

For both Sandy and Melissa, their children played a crucial role in their environmental decisions. When critical life events occur, especially widowhood, many older adults will turn to their children for assistance rather than friends as they may feel they would be asking too much of their friends (Connidis, 1989b, cited in Norris and Tindale, 1994).

Family Pressure

This category is related to, "loss of spouse", where, in some instances, children held a key position in the decision-making process related to environmental change. This could be a function of reciprocity, which is the sense of equitable exchange (Gouldner, 1967, cited in Norris and Tindale, 1994). Because parents provide children with monetary resources, support and understanding, children may feel, at this stage in their parents' lives that they need to do something in return. Although children and family have helped to make these environmental decisions, it is important to note that equity and reciprocity between parents and children is realized in the overall relationship, not just in this one episode (Norris and Tindale, 1994).

Jessica noted the occurrence of reciprocity in the last sentence of her statement. Her children do not live in the area and their motivation for assistance appears to stem from their mother being alone in an environment where no one would be looking after her. Her children decided that the Summerhill was an appropriate location for their mother due to the desire to provide a minor level of supervision for their mother.

My kids decided...they didn't like me being home alone...my daughter found this and the kids don't live here, and they said they would be comfortable having me

here where I can have someone looking after me. So I did. I used to tell them what to do, now they tell me what to do...when you get old.

Phil had stated earlier that, after the death of his wife, he continued to live in a large condominium and that all family members had disappeared. Phil also mentioned, however, the assistance his children provided in finding him a suitable location where he would no longer be, alone. Nonetheless, the medical staff first suggested that Phil be relocated to a more supportive environment. Phil put up a quite a fight before finally accepting his new location, "All these places--you know what I mean. And this one was comparatively new and the family thinks it's a good idea. I am brought here and I think it's a dreadful idea and we have a family row about it."

For Betty, her grandchild realized that her former living environment was not suitable. She states, "My granddaughter found me--she found me that one-over in South Vancouver. So I was very happy to get that because the rent was very very high on the west side. It was okay over there but when you're not working, you don't have any money." Norris and Tindale (1994) note that grandparents generally provide help to their children's families whenever necessary and, in return, grandchildren reciprocate with affection and tangible aid if required. This grandmother-granddaughter relationship is brought up again when Betty describes her traveling experiences. This conversation aids in the understanding of why Betty's granddaughter helped find her grandmother a new location. Furthermore, this paragraph highlights the reciprocative nature of the relationship between Betty and her daughter.

When I lived on west 10th 9 years ago, I was paying \$1100 in an old building...I went on a trip, I spent all my money traveling- I took her on a Caribbean Cruise and my daughter came in and did all my packing and so when I come back and I was ready to go into the other place.

Family pressure was a common theme among these participants. Mostly aided by children, participants were able to find a new location that best suited their current needs.

Environmental Incongruence

“Environmental incongruence” occurs when the environment no longer supports the needs of the individual. It has been argued that individuals will relocate only as a last resort to adjust environmental fit, after they try and increase capabilities and environmental modifications (Lawton, 1980; Kahana, 1982, cited in Longino et al., 1991).

For two other participants, due to illness, climbing stairs to get into the house became a major issue which led them to relocate to buildings without stairs in the unit. For Mike, the situation was compounded by his wheelchair bound wife, along with the debilitating osteoporosis he experienced in his legs.

Before that, we were in a house...two steps to get into the house, and in the house going to the living room was two steps to go to the bedrooms we were able to get-my wife had a stroke in 2000...she was living at Evergreen and there was a problem of always getting her home...going up and down the ramp and it was wet and the ramp was a bit slidey. Anyway, the decision was because of my health as well, there's a basement to that house and the outdoors was pretty hilly so we decided to a place that was closer...that's when we bought this apartment...this is closer to where she is at Evergreen and the ramp to get into the building is all inside here, except with my condition also with the leg...

Fourteen years ago, Steve found out that he had lymphatic leukemia. He described his former location as “a house with stairs-stairs that led down to the basement, steps to the yard and to the front door. There were lots of steps.” Laurie described Steve as the kind of person who liked to have his house in perfect condition and because his illness caused a decrease in his energy levels, he found less energy to devote to yard

work, keeping up the house, or climbing the stairs. Steve and his wife then chose to relocate.

Art did not have an issue with the stairs in his house as it was a bungalow, but similar to Steve, his illness caused problems with household maintenance, triggering the push to move to a building with no stairs.

...and all my dad's relatives, all my uncles, they died of strokes when they were about in their 70's and so did my dad and here I was approaching that age too...you know, living in the country there we had a big garden, and all kinds of little chores to do...there is a lot of work that you don't realize and uh, it was getting kind of much and we were a long way from town and uh, and the close big hospital was Edmonton so we had a couple of bad sessions so we decided we would sell the house and move here.

Art noted that in his current location, the lack of stairs is beneficial, "you could get a wheelchair right down to the sidewalk if you wanted, you can't always do that...there's no stairs that I have to negotiate."

Vince and his wife's environmental incongruence were initially due to the general declines associated with the aging process and his wife's illness. Because of the nature of the main environmental incongruence, which was difficulty with meal preparation, Vince and his wife decided to relocate to the Summerhill, where meals were provided.

So, the big thing was meals, we found making the beds was hard work, it was a nuisance...we always made them together...And in the house we had a big garden and we did different tasks there... We found making the beds, she would say just a minute, "My back hurts, I just can't bend over", so Sara, and these meals... When she was so down she felt an obligation to prepare the meals, she was determined, positive women, I'll do it if it kills me sort of thing. She wanted to do it, she felt, "Vince, you can't do it."

Patricia had chronic mobility issues and required the use of her scooter at all times. Her former location was three blocks away from her current location and she had lived there for 25 years. Her main problem was utilizing the washroom. She found it

extremely inaccessible, although she managed for all those years. As a member of the City of North Vancouver's Adaptable Design Committee and having watched council meetings on television, Patricia was very aware that Alegria was being designed specifically for people with varying disabilities. The environmental incongruence she was experiencing, in addition to her knowledge of the design features in Alegria, pushed Patricia to relocate. Even though her current unit is much smaller than her last one, the unit has been designed in a way that allows her get around.

Lack of Safety and Security

Related to environmental incongruence is the lack of safety and security that participants felt in their former locations. A lack of safety and security can negatively impact an older adult's quality of life and, while relocating may add additional stressors, the security afforded by the new dwelling unit provides, for many people, adequate compensation for the stress associated with relocation (Lawton, 1990).

During the interview Betty had before being accepted to Quayview Community Housing Project, she was asked why she wanted to move to a new location and replied, "There's a few things, there's Vietnamese gangs around Kingsway there and I said there's so many house break ins..." The fear of robbery was also mentioned by Esther, "Yes, we were out in Abbotsford for 25 years, and we were in a house for a good 7 years and we were robbed and that sort of turned us off of the house."

For Phil, Jessica, and Sandy, others tended to be more concerned about their safety than they were. After a stroke, the medical staff at the hospital said, "We think we can let go, but we hate the idea of you living anymore on your own. We think you should go someplace or other where you will be with others." Jessica commented on her

safety at her previous location, “actually, I had never thought about it until it came it to the crunch, the kids said, ‘none of us live here and we have to know that you’re safe’.” Similarly, Sandy’s kids felt that her safety was in jeopardy, “they realized it’s time for me to be supervised especially in my own place and they said never to go without the cane.”

Kay was concerned about lighting levels in her unit and the possibility of an emergency, like a fire. Influenced by her declining level of mobility, she was pushed to relocate to a building that had fewer floors.

Oh yes, like the other place I lived in, I lived up on the 16th floor there and that’s one of the main reasons I moved out because between the darkness all the time, it was up so high and they often had the fire alarms go off and you know false, they never did have one all the time I was there, but uh, 16 floors is too much to go down and then you’d have to wait until the elevator came on again or else try and walk up 16 floors.

Kay’s new location had six floors and she was located on the fifth. When asked if she could get out on her own in her new location, Kay replied, “Oh yes, I’ve done it a few times just try. Going down it is kind of hard on the knees but its coming up that’s really a killer.”

Pull Factors

The second theme to emerge from the pattern of “triggering mechanisms” was “pull factors,” which are the events and circumstances that draw participants to their current location. “Pull factors” are divided into four codes: “planning ahead”; “housing amenities”; “financial situation”; and “location of building within the community”.

Planning ahead

This is the first category to emerge that reflects the participant’s knowledge of the design features incorporated into the units they have chosen. These participants appear to have chosen these suites because of the possibility of having an illness or disability in the

future. This category lends support to the theory that these participants are still very high functioning and do not yet need the adaptable features incorporated into the units, but may at some point. It also reflects the notion that participants are aware of the aging process and are taking into account potential future declines. Julie provided an excellent example of what “pulled” her towards choosing her unit.

I am looking at possibly having a disability in the future, I have osteoarthritis and it's progressing at a rapid rate and so the adaptability was a feature in looking at it because I may end with a walker and things like that. So I appreciate the design. When I found out it was adaptable, it certainly leaned me more towards this suite because of my problems and looking down the road. No, it was a factor.”

Mary helped initiate the construction of Quayside Village Cohousing and, therefore, knew and advocated for the incorporation of some Level One adaptable features. She discussed, in detail, some of the reasons she wanted the features built, in addition to the reasons that cohousing is an important feature to her as she ages.

...if there's a point where you can't get in or out of the bathtub...so I could still have a shower downstairs in the common house. So those kinds of things, you can look to the future and see...I am on one level which is a key issue...It's not necessarily an Adaptable Design issue, but I've got two rooms-one's a study one is a bedroom, but in the event I'm immobilized in some way or something and I'm able to stay home with care I can have somebody live here in one of the rooms so that could be a caregiver room if that was necessary. I've thought of those things. ... We have community meals together twice a week... So that's not Adaptable Design but as I get older too and I don't want to cook... you go down, you have sociability, you connect with people and you have a meal for three dollars.

Many of the participants were concerned about getting in and out of the tub and off of the toilet as they aged and discussed a future need for a grab bar. This next passage is from Rose, “I'm getting on now and I foresee the day when it might be a bit hard for me to get in and out the toilet, the tub, and stuff and I think I won't be able to manage without that bar.” Jerry also revealed, when asked about placing a bar next to the toilet,

that, “I don’t need one yet, but maybe later on I might. What they do I think is you get a toilet seat that’s much higher.” In the excerpt below, Betty discussed her future bathroom needs:

I know its wheelchair accessible and uh everything is here for handicapped so if there is every such a time that I need something-and I’ve already asked about the bathroom, like you know a wall bar, in case I have problems taking a bath or shower.

Like Mary, Diane identified the benefits of choosing a unit with a spare bedroom, “if my health deteriorated I could see a possibility, I could still stay here and use my little second bedroom as a bedroom for somebody to live in with me. That would be a possibility-or quite a few people here have the We Care people to come in to help and that’s good too.” A response from a survey questionnaire from the Symphony noted that there were wider hallways in the unit, and that this could be beneficial in the future, if a wheelchair was needed.

These participants have been pulled towards these units because of their awareness of the declines that are associated with the aging process and that their units incorporate certain Adaptable Design features that may one day assist them. It does appear, however, that the addition of a grab bar in the bathroom will be one of the most needed features in the future. Jane sums this up by stating, “it is nice to know in future changes can be made, if necessary.”

Housing Amenities

The category “housing amenities” emerged as participants described the drawing features to their current residence. These included “environmental amenities”, “age of unit”, “services provided”, and “social atmosphere”.

Although participants described certain “environmental amenities” in the “planning ahead” category, these differ, as they are the amenities that pulled participants to their current location because they are needed immediately rather than in the future. This is the second category to emerge that highlights participant awareness of Adaptable Design and their understanding of how this could benefit them.

Mike looked at numerous units before choosing one in the Symphony. He had a difficult time as his wife is wheelchair bound and he needed a unit that would support her needs.

...when we decided we were going to move, we'd been looking for over a year and out of all the apartments we had looked at... We found this one had the most room...I saw it when it was unfinished...they had a display suite and we came and we looked several times and this was the type of unit, this particular one... We were concerned with the corridor leading into the bedroom, we even had her on the wheelchair going in. It was tight, it was really tight. So, the idea of where do we bathe became a second issue if we were try and bring her home.... Yes because my wife is in a wheelchair and I want the additional room for maneuverability of her. Even though the unit is 150 sq ft smaller, the unit has been designed properly so she can get around.

What “pulled” Mike to the unit were the wider hallways enabling a wheelchair to fit. Likewise, Patricia, who is bound to a scooter, noted that her previous unit was bigger, however, because of the design she is able to easily maneuver around her unit. The openness of the design is what also attracted Julie. She explains, “this was one of the places my real estate agent had brought me to and what really sold me was the openness of the design. This particular layout is just fantastic and that’s what I really appreciated about it.”

For Diane, the design features that aided in her safety were what drew her to Summerhill. She particularly appreciated the “grab bars, alarm pulls, non-skid flooring, and higher toilet seats.” Diane also mentioned that the age of the unit was a “pull factor”. When asked specifically what drew her to the Summerhill, she replied, “Well, it was kind of new.” Phil found this to be a “pull factor” as well. He mentioned, “For a start, this place is alright-new.” A response from the survey questionnaire elicited the same information, one respondent wrote, “Because it’s new, also the view is very nice.”

It appeared that the services provided were a “pull factor” for many of the participants residing in the Summerhill. Many of these participants specifically mentioned the advantages of the meal service and the housekeeping. Both of these tasks - meal preparation and housekeeping -- are IADLs and, as Lawton (1991) noted, it is the IADL functions that are the first to become impaired in older adults. Therefore, these participants may have chosen these units because of their lower instrumental abilities than those living in completely independent units and required these amenities in order to maintain a comfortable existence.

Diane explained that, “It sure helps to have everything else done by others, i.e. meals, housekeeping.” Sandy described her reasons for choosing the Summerhill, “Because it was clean, they come in here and they clean it every week, and yes they change your bed and anything you want. At the dining room they get for you right away, yeah they’re very helpful and everybody is so friendly. They are.” Phil described that he is able to cook his own breakfast, “but other meals and cleaning are part of the contract.” Likewise, Esther liked “the idea of the meals” because when she was living alone she was cooking for herself for a year and a half and says, “...it wasn’t good.” Esther also

discussed the housekeeping, “Oh yes, and I get my bed changed once every two weeks, I don’t see the point of having it changed every week.... Well I can’t lift the mattress anymore cause it’s a huge effort.”

Like “services provided”, only the Summerhill residents mentioned the “atmosphere” in the new location as a “pull factor”. This is possibly due to the increased level of interaction amongst the residents during the communal meals and the planned activities. Most residents found Summerhill to have a positive atmosphere and could tell this while viewing the location before they moved in. Diane mentioned that many people in the Summerhill have some sort of mobility issue and use assistive devices.

Probably the atmosphere in here, because I also had my name in Hollyburn House and Hollyburn House when I’d go over there to visit people it sort of seemed gloomy-nobody was around in the main rooms and there was a different atmosphere at Summerhill. There’s a sunny disposition here, people even though there in walkers and using canes, they mostly happy.

Esther’s former residence in Abbotsford was similar to the Summerhill, in that services were provided, but she noted that, “it wasn’t nearly as friendly as this place.”

For two of the participants, the idea of living with all older adults above the age of 55 was not a “pull factor”. In fact, these participants were quite hesitant about relocating to this type of environment. Both have since changed their perspectives on the matter. Phil described his experience:

I had never met so many old people together all at one time and when I walked through this place and saw people with their walking sticks and twisted vertebrae’s and all the other conditions-I was horrified, I suppose. And so I said, “I’m not going there!” and this led to another fierce family row, family saying, “You lazy bones, you’re doing nothing and we’re doing all this work for you”... I was in hospital all this time and I couldn’t go on living there, there were sort of murmurs of how you getting on with the search, and I said alright, I will move here. ...I had a choice of several places and the building has a very nice outlook,

the very nature of the thing is a tower so everybody above the fourth floor gets a long vista view...

Similar to the observations made by Diane, Phil mentioned the large proportion of people upon first glance who were using mobility aids. When Phil first moved to the Summerhill, he did not require a mobility aid. It was only after a fall this past summer that he began to use a cane. However, he was never asked about how he felt about that.

Jessica was less hesitant about moving, but was very used to being on her own, "so it's a little different coming and having people having around because I've been alone, but I like it now. There is such nice people here and the staff are just wonderful."

Melissa felt very strongly about the atmosphere, "If anybody complains, it's just too bad because there's something radically wrong with them-not with the environment here because I don't know-I don't think you could find a place that is so good to their people."

Rose, who lives in Quayside Village Cohousing, provided a positive description of the atmosphere in her building, "the main thing that attracted me was the attitude of the group-a positive attitude towards aging in place." However, in Quayside Village Cohousing, residents live in a more communal fashion than those in Alegria, Quayview, or the Symphony.

These responses indicated that those living in a more communal environment find that the atmosphere outside of the living unit is more important to their daily environment and is a larger "pull factor" than those living in a completely independent environment. It is possible that those living completely independently value their privacy more and do

not wish to live in a more collective environment. For instance, Jerry who resides in Alegria preferred to keep his living and his social environments separate:

I don't need social, when I do that I go down to the Legion. Just down stairs. We don't really have any functions in here at all as a matter of fact, they had a couple of Christmas gatherings and that, and I don't think it really went over that big because none of us really know each other. The people I know don't come here they come down to the legion. That's where I have my socializing.

Location of Building Within the Community

As stated previously, the majority of the participants relocated from areas nearby. Staying in a familiar location promises an environment where older adults understand the location, rhythms, and routines of life (Longino et al., 2002). Furthermore, homes and neighborhoods carry emotional and social significance for many older adults. For example, it is the place where the children were raised and the place where memories are embedded (Longino et al., 2002).

The category "location of building within the community" materialized when participants were asked to describe their previous location. Many described the area that they were living in now providing insight into what factors pulled them to find units in the same area.

The location of the building and familiarity to the neighborhood was the largest "pull factor". It is evident from the amount of responses describing the location, that this, rather than Adaptable Design, was the reason why older adults chose to live in Central Lonsdale. Jane was specifically asked if Adaptable Design features "pulled" her towards her unit, especially because her son is a paraplegic. She replied, "No, we liked this unit because of the location and the view."

Vince, who previously lived on Upper Lonsdale, describes why he thinks the location is, as Steve stated, “the best place in the world to retire”,

You can walk 50 yards, you can get on a bus that takes you to the sky train, you can get a transfer, you can get a pass, you can get on the sky train go around there, you can come back get out there, you can get on the bus up here and you can go to Horseshoe Bay from here. You can walk to the top of Lonsdale and get on the bus that takes you to Lynn Valley and there’s a shopping mall up at Lynn Valley that people use from here. My optometrist, my optician, it’s all within a half a mile of easy walking distance. That is A-1 about this place here.

This was repeated again and again by participants. Unfortunately, Julie was moving away from North Vancouver to tend to her ill mother. The following excerpt illustrates the bond she had to her community because of the amenities that Central Lonsdale offer:

Oh I loved it here, I’m of two minds on this move. If my mother wasn’t so ill, there’s no way I would be leaving North Van now. I’m so central to everything, there’s two grocery stores, there’s Shoppers Drug Mart, there’s the news place where you can get your paper. Everything is right here.

Jerry lived in a residence for war veterans located on Lower Lonsdale. The following is an excerpt discussing why Jerry decided to move to Central Lonsdale:

...this tower was built for veterans but as it turned out, we have the first 6 floors, but one of the agencies said oh no, you can’t just have veterans in there, you’ve gotta have a whole different people...Because basically of the area, I’ve got my bank across the street, I can get groceries across the street.

Melissa’s son lived approximately one and a half hours away, leaving her to rely on community amenities more than others to meet her needs, “It’s great, Shopper’s there, the banks over there and oh yes, I’m here alone. My son lives in Whistler...” Jessica was living in West Vancouver, she described her new location, “I realize that Lonsdale is quite convenient, there’s everything there.” Karen is originally from Ontario, had been

out to visit, and chose to migrate to this area because of the location of the amenities and her children.

Well I just thought the whole place was good when it was shown to me, you know, I like to be able to be handy to the banks and everything and you know and I like the stores and my son's here so I'm out in the country a lot.

Diane pointed out how easy it was for her to access the amenities, "I like the location in that I can use my walker and walk to places like Safeway and Shoppers drug mart and well I like the looks of things." Likewise, Art noted the walking distance to everything:

There's one good thing about this area is you can walk to the hospital, walk to the doctor's, walk to the dentist, walk to the eyeglasses guy, and uh-what else can I say....If I have to get to a hospital in a hurry, I should be able to do it in 15 minutes from here. Unless I can't walk, I can get there in 15 minutes.

Interestingly, Walters (2002) found that relocation was not dependent on the availability of general health care facilities, rather it appears to be the amount of other amenities. Nonetheless, there were other participants besides Art who mentioned the location of the hospital and other health care facilities in relation to the buildings. One respondent from the survey listed hospital, food, and a fire hall as the reasons for moving to Alegria. Similarly, a respondent from the Summerhill wrote that they relocated "principally to be near the hospital. My wife at that time was a patient."

Three participants were located in the Lower Lonsdale area which does not have the same level of services as Central Lonsdale. However, Lower Lonsdale has other benefits. Mary lived in a house in North Vancouver where she raised her children. She points out as reasons why they chose to build Quayside Village in that location:

We wanted Lower Lonsdale because we wanted to be close to Vancouver, closer to public transport, close to all the services, we have the stores, we've got

entertainment, we've got the theatre, we've got the movie theatre. It's just a short hop up to the recreation centre, the hospital, all the services were near by and we wanted to be able to not use cars a lot.

Residents of Quayside Village Cohousing ranged in age and were not experiencing age related declines like those in other locations, therefore, the distance to Vancouver appeared to be a larger factor than the nearness of amenities, many of which were located up a steep hill. Betty resided in Quayview Community Housing Project, and like Mary, was extremely mobile and had no problems walking up the hill to access amenities. In fact, Betty enjoyed the walk both up towards Central Lonsdale and down towards the quay.

Here, I have everything. I have all the streets I can walk on and I walk from here, I walk up...And I'll still have the walkway down there... they're going to put a ramp over it so it will take you right down to the Sea Bus and it only takes 5 minutes you know. Because before they started all this (construction of new condominiums, shops and services), I could go from here down there, and you could see between those two buildings there, there's a walkway over that takes you right into the quay and I can do that in 5 minutes and do my shopping and come back.

Kay lived in the same building as Betty, but appeared to be less mobile. She has found great difficulty accessing stores both in Central and Lower Lonsdale. Furthermore, she, unlike Betty, felt that change in the area is inappropriate and is not looking forward to future developments in the Lower Lonsdale area.

...I think they've ruined North Van, I moved over here from Vancouver because it was a nicer, smaller, more homey like, and I've only been over here for uh, maybe 5 years now and I can't believe the change. All the high-rises, they said they weren't going to have them over a certain height but there going up-I'd be really disappointed if I bought an apartment or a house down here and then all this went up.

Mike lived in the Symphony, located in Central Lonsdale, and, as stated previously, he viewed numerous apartments before making his decision. The following is an excerpt explaining why he chose to locate himself where he is now rather than Lower Lonsdale, which reflected the views of Kay:

...you go the couple of blocks that you are level (Talking about Central Lonsdale). We looked at 2nd where the Olympic Hotel, so here you are, you're limited to that street you can't go up or down. You're stuck, you're limited to going east-west and that's a big thing. That's why being down there right now of all those buildings that their building on Chesterfield, it doesn't appeal to me.

From this discussion, it is evident that Lower Lonsdale is not as accommodating to less mobile older adults than Central Lonsdale. Participants enjoy the flat streets and nearness of amenities. Ted provided an excellent summary by stating, "The location is beautiful-The location is unique; there is no doubt about that." The location of their former and current residence appears to be more important than the design of their units and is indeed the largest "pull factor."

Financial Status

Financial status has a substantial influence on decisions to relocate and where individuals relocate to. Responses that emerged to form this category came from participants living in Alegria and Quayview Community Housing Project, both of which contain subsidized units for those who are paying more than 30 percent of their income on rent. This indicates that for residents in the other buildings, which are geared towards those with higher incomes, financial status was not a "pull factor" influencing their decision to relocate.

Joanne explained that her previous location was owned by someone else who wished to move, and the rent was too high for her and Ted because they are low income.

Ted and Joanne explained why they chose Alegria:

Joanne: Yes, I think because, low rent, centre, we didn't have any choice (laughing)

Ted: And for private rentals, they keep on increasing the rent, and we have stability here. Yes for a reason that I could not afford to live or by a condo... We were told that the unit is rented on the basis of income. Rent will fluctuate on the basis of income.

They were not overly happy with their unit and felt that it was very small for two people, with not enough storage, especially since they owned a large house while living in Edmonton. When they moved to North Vancouver, they rented a large apartment that they lived in with their children. However, certain choices regarding their previous business caused them to lose most of their retirement savings.

Betty's financial situation changed after she stopped working. Additionally, she was living in a more expensive part of Vancouver. Here, she has a subsidized unit and is extremely happy.

Everything in here is absolutely fantastic. I can't believe it...I'm so lucky.... Well, I had two bedrooms there and I had my mother. She passed away at 102 and she lived with me, so I worked until I was 75, but she was okay, there was nothing wrong with her and so I thought I can't afford to pay the rent over there after I retired so I started to look for another place. My granddaughter found me-she found me that one-over in South Vancouver...the rent was very very high on the west side. It was okay over there, but when you're not working, you don't have any money.

Rose was the only participant who mentioned finances who did not reside in the buildings that provide rental subsidies. For Rose, the need to downsize, in combination with communal living, influenced her decision to relocate to Quayside Village

Cohousing. The following excerpt explained her decision, “part of it was financial, I thought I needed to downsize having recently retired without a great deal of pension and that was part of it and the other thing was I felt inexperienced in business matters and I felt that the companionship of other people going through the same thing would really good for me.”

Finances did appear to play a role in triggering participants to relocate or adjust their living situations, however, it appears to be minimal with many of the participants in North Vancouver choosing their buildings based on location, rather than price.

Use and Satisfaction of Design Features

The above themes and codes provided insight into why participants chose to live in the five buildings, and, although the location of the buildings materialized as the main motivator for relocation, the goal of the study was to address client use and satisfaction of Adaptable Design on older adults living in the units. Consequently, the majority of the questions in the survey questionnaire and interview were aimed at eliciting information on these issues. The pattern “use and satisfaction of design features” emerged from the data and helped to identify whether the objective of Adaptable Design has been achieved.

There were six themes that provided information on the use and implementation of Adaptable Design: (1) whether participants were aware of the Adaptable Design features in their unit called “knowledge of Adaptable Design features”; (2) whether they liked the Adaptable Design features in their unit, labeled “design preferences”; (3) whether participants had made any changes to the unit, called “implemented modifications”; (4) whether they would like to make future changes to their unit, termed “potential for modifications”; (5) participants thoughts and ideas on who Adaptable

Design is geared towards, called “perception of Adaptable Design”; and, 6) whether the features provide comfort for the residents, entitled, “safety and security”.

The participant responses used to illustrate the themes and codes were directly related to Adaptable Design features. These are the features built into the unit and have been designed to assist in the daily functioning of people with varying levels of ability. Each unit has a different degree of adaptable features incorporated into the design and this has been taken into consideration when analyzing the participant’s responses.

Knowledge of Adaptable Design

This theme illustrates the participant’s awareness of the adaptable features in their units. From this theme, four codes emerged: aware of features; unaware of features; good design; and assists with daily life. There were three criteria used to assess whether participants indicated whether they were aware of adaptable features. The first criterion was if they mentioned specific features that assisted those with disabilities. The second criterion was if they indicated that they understood the concept of Adaptable Design, even if they did not mention specific features. The third criterion was if participants described why features were incorporated into the design of their unit. For this criterion, participants tended to indicate that these units were for “handicapped” people or for people in “wheelchairs”. The terminology used and the perceptions about Adaptable Design will be discussed later.

Nevertheless, rather than being aware of the features, some participants indicated quite clearly that they were “unaware of features”. In fact, some were surprised of its presence and one even denied the existence of it in their unit. Others indicated that,

whether they were aware of Adaptable Design or not, they thought their unit was built using concepts of “good design”.

Aware of Features

Two participants were aware before their buildings were constructed that Adaptable Design would be included. For Mary, she and others helped create Quayside Village Cohousing, “We were actually the developer, the people who started the group at the beginning, as people came in-we were the developer.” They worked alongside the City of North Vancouver to become the first building to include any sort of Adaptable Design. Mary explains below which features were integrated into the design of the units:

We weren’t able to do that right of the beginning of our construction so we had already made decisions but we were able to check and see what we had included, so we had included some things like wider doorways, rocker switches on the walls, wheelchair accessible bathroom downstairs.

Patricia was aware of Adaptable Design features in Alegria before it was constructed as she is an active member of the Adaptable Design Committee and watched council meetings on television. This prompted her to apply to Royal Canadian Legion 118 Housing Society because they were in charge of renting out the first six floors of the building. Furthermore, because of Patricia’s disability (she uses a scooter), she was very conscious of the features required in an adaptable washroom. She was even able to provide input into the design of her bathroom making it completely adapted to her needs.

Others participants, not part of the design team, were still aware of the concepts before they moved into the units. For instance, Betty’s granddaughter discovered Quayview Community Housing Project and informed Betty that “it was going to be handicapped plus seniors.” Betty was asked during the interview if she was aware of the

adaptable features built into the unit. She replied, “I was lucky to see the building before it was completed and could see the apartments were made acceptable to all types of handicapped people.” Likewise, a respondent residing in Alegria wrote that, “It is Level Two. That it was designed for people with disabilities, e.g. wheelchair friendly”. Another wrote that their unit was “flexible.”

When Julie was asked if she was aware of Adaptable Design, she replied, “I was”. She went on to explain who the units are designed for, fulfilling the third criterion, “But other than that, the whole place is set for, even the rugs that they use, this would not have been my choice, but when it was explained to me, you need a stronger rug for the wheelchairs. And then it made sense.” Additionally, a respondent from the Summerhill wrote in response to the question of being aware of Adaptable Design, “certainly when I investigated I asked questions about the building. The marketing agent in the facility explained all the built-in aids to a person as they aged, which are wonderful plus the added amenities”.

Other participants, when asked about their awareness of Adaptable Design, described the various design features. For example, an Alegria respondent wrote that the realtor informed them that units were, “wheelchair accessible, lower light switches, higher electrical outlets, more room to move around in a wheelchair, types of door handles, etc.” Additionally, Diane from the Summerhill wrote in her survey questionnaire that, “The rental manager pointed out the safety features in the unit” showing her “raised toilet seats, non-slip flooring, grab bars in bathtub, alarm cords to pull in several rooms, walker and wheelchair accessibility.” Similarly, another Alegria respondent supplied a

list of features that the real estate agent pointed out when showing the unit which include: large bathroom; carpets; light switches; door handles; and, front door.

When Esther was asked about the features, she explained, “Well, the toilets are higher, which is nice. I know when I go to visit my kids now, it’s quite a shock.” Jack is also aware of specific features, “I’m aware of all the alarms that we are supposed to pull if we get into trouble and I noticed that the switches are down low.” Melissa replied, “Well there’s a lot of plug ins and everything is so handy if you’re having problems health wise there are so many things here that help you.”

Jerry was asked if he thought he could stay in his unit if his health deteriorated. His answer indicated that he was aware of the design features and that they aid in the maintenance of independent living.

I think it has a lot to do with because if you notice the doors are very wide, all of them, the bathroom there is, got doors on both ends, you can literally go right through. Like a hallway almost, you can go right through it. Yah, they’ve got it...I know...It was the girl that cleaned the place, it was her first time here, my regular girl is off for a couple of weeks and she said she was really impressed with the way that these were built.

Responses indicated that many participants were aware of the features before they moved into the unit because many real estate agents were diligent in pointing out the features. Furthermore, these participants knew why the added features had been included, although the terminology used to describe the reasons may not always be appropriate, such as “it’s for invalids”. It is encouraging to see that so many older adults were aware of the features in the unit as it was an objective of City of North Vancouver. However, many participants were still “unaware of features” or how those features could be of assistance to them.

Unaware of Features

Kay did not notice any differences between her current unit and the one she was previously residing in.

this place is much the same as any other place I guess. Built a little differently in some units though...I like the light switches, they are easy to turn on and off and the doors and that. But as far as anything—it's much the same, the cupboards are the same, they're too short, you can't get your stuff the cupboards and then they're way to high anyway you know.

Afterwards, Kay explained that even if things were different, than it would not make any difference to her because she does not have any problems. A similar conversation ensued with Jessica, who stated, "I've just accepted them. I think I had most of them in my old place."

An interesting discussion took place with Phil, a retired architect. He appeared to notice the barrier free requirements which are the minimum standards that National Building Code of Canada requires in housing built specifically for older adults, but not Adaptable Design features.

Well, I was aware as an architect, I've been retired for over 10 years. There were a series of by-laws under the national health act, national building code, which covered buildings of this type so I was aware of it. Does that answer your question, yes I knew about the by-laws.

Later, a discussion developed on the lowered light switches, "Frankly, I didn't notice them and it was only when I received your letter that it reminded me, it jogged my memory of a long time ago, and I said to myself are these switches any lower than anybody else's? I don't think they are? Is it lower?" Phil also responded in the survey as having no idea that units were adaptable. He wrote, "This unit is designed for older people beyond that, this unit does not have 'adaptable' features. One rents and adaptations would not be allowed." Having been an architect, he was under the

impression that Adaptable Design was too expensive to implement, as others in the building industry have cited.

A comparable response was provided by a resident in Quayside Village Cohousing, who wrote, “I have no idea what this means. It is not wheelchair accessible or convertible. I am living in a ‘Co housing Community’. This is all I know. If my unit has been re-designed, it is without my knowledge or request or NEED.” It is understandable that someone from this building would write this as most units have incorporated minimal Level One Adaptable Design. However, there is a hint of animosity in the response that may be unfounded, especially since residents were unfamiliar with the concept of Adaptable Design. Another respondent from an Alegria survey questionnaire was also confused by Adaptable Design. The survey questionnaire asked, “Do you think it is important to be informed about this type of design?” They responded, “If we knew what it was? What are they?”

When Jane was asked if Adaptable Design influenced her decision to move into her unit, she replied that it did not have an influence. She was questioned again since her son is in a wheelchair and visits her often, and she replied again that Adaptable Design had nothing to do with her decision. She was then asked if she knew about it before she moved in, and she answered, “I didn’t realize that.” For her, it was a complete coincidence that she moved into a unit in the Symphony with Level Two Adaptable Design. When asked if she notices anything different about the unit, she answered that her son is able to easily maneuver around the unit and to get through the all doorways.

Good Design

A fear cited by the City of North Vancouver was that if residents were unaware of the features, they might not obtain all the benefits available to them. However, it is possible that they were using the features, reaping the benefits, and were still unaware that the features are called Adaptable Design. For example, a Summerhill resident wrote in their survey that, “I don’t notice the adaptable features only that the toilets are higher.” This, then, could be considered “good design”. Phil, the retired architect, was questioned about the fact that if one does not notice special features, but indicates that they are using them, would that be considered a feature of “good design”. He replied, “oh yes, we design buildings for human beings, so it’s uncontroversial. I was unaware; it didn’t strike me as any different as the last place I lived in. It probably is but I didn’t notice it.”

Mary was aware of the features from the moment she moved in so she was asked if she finds the features useful. She stated, “I think, for the most part, they’re invisible.” When asked if that was a good thing, she explained:

Yes, I think that’s fine. I think they’re just good design most of the time. A lot of adaptable things are, just good design. I mean even things like hand rails on the bathtub or toilet are good things for a lot of people, not just as your aging and becoming less mobile, but its useful for kids. I can see its not as you deteriorate necessary...uh, lever handles rather than doorknobs...you can have a child, you can have your groceries and you can open your door with your elbow...So, little things like that that really are sort of make a place more accessible are good design. That’s my theory.

A respondent from the Alegria questionnaire wrote in response to the question, “Do you think it is important to be informed of this type of design?”, “You shouldn’t have to-if the apartment is properly adapted then it will be part of the selling features.”

For these participants, Adaptable Design blended in with other features to make the whole unit a well-designed environment for living. Although it is important that people are aware of Adaptable Design, the responses indicated that even when

participants were not aware, some were still benefiting from these features. However, there are still those who must be informed of the concept to avoid feeling hostile towards to the concept.

These responses indicated that some of the participants were aware of the features and were using them for assistance in their daily lives, even if the features were not recognized as Adaptable Design. Furthermore, participants listed a variety of features that assisted them, such as lever door handles, rocker light switches, higher toilet seats, and wider doors.

Design Preferences

Participants were asked in both the interviews and the survey questionnaires if they were happy with the design of their unit. Even if participants were not aware of Adaptable Design, the responses to these questions were designed to elicit information on where, or if, participants were having difficulties with certain areas, what, if anything, needed changing in the design; and why things were or were not working for the participants. Four main codes emerged from the questions, participants either “liked the features”, “disliked the features”, “preferred a shower than a bathtub”, or found that features “assisted in independence”

Likes Features

When participants were asked if they were happy with the design of their unit, the consensus was very positive. One participant stated, “Everything is handy, very, very handy...Everything in here is absolutely fantastic. I can’t believe it, I’m so lucky.” Another said, “Everything is convenient.” When Jessica was asked if she would change anything, she replied, “No, I just like it the way it is. I like everything in here.”

Participants were also questioned on specific areas in their units, some commented on all areas at once. For example, Julie stated:

I just love the accessibility, you know, everything is right there, handy. The kitchen. The fact that the light switches are lower, I was ever to be in a wheelchair, the bathroom is immense, the doorways are huge, you can get a wheelchair through them. In the building itself, the front entrance is set for people with disabilities, the elevators are big, the hallways are big. It really is set up.

Mike, whose wife had a stroke and is wheelchair bound, also commented on all the collective design features:

Well yes, I think the fact that you have wide hallways, wide width getting around. So you can go right around the kitchen dining room into here. You can go into the bedroom. I mean it's great. I found that the in suite is too tight but the main bathroom has a lot of room in it; however, you may want to shower. We found that this was basically the best we could locate on the market...So everywhere we looked we could not get the features that we had in this building. ...also your going through the dining room and my wheelchair is right at the table...Its perfect your included with the group...you know with that extra room the way its laid out. So from that point were very happy.

Throughout the interview, Betty systematically went through all of the areas of her unit and made positive comments on each. She discussed her kitchen, laundry, and storage areas:

Oh, it's fantastic. I told the lady in charge here who interviewed me, who was in charge of the building at the time, that when I moved in here I thought I died and went to heaven, I'd never seen a kitchen like this. Next she discusses her laundry area...and of course I've got my washer and dryer, which is something, is out of this world. To have your own washer and dryer...there is no end of storage here, those are all cupboards there and down there, and big closets and big bathroom. You know its actually very comfortable and lovely place.

Interestingly, Kay, who is in the same building, did not find that there was enough storage. She said, “Well, there’s all that (she points to the closet along the wall), but you can’t get anything high into them though, just like the kitchen cupboards.”

Other comments related to specific areas of their unit. The ‘convenience’ of the kitchen, for example, was mentioned numerous times. Diane, from the Summerhill stated, “Oh yes, it’s so tiny and you miss dishwashers because you don’t have that many dishes anyways. That sort of thing. Yes, it’s a very convenient little kitchen.” Jerry, from Alegria, commented, “My kitchen is great, I have no problems there.” Rose was slightly more specific when discussing her kitchen, and noted a possible problem, “Yes, from a wheelchair, it would be a bit difficult for the taps, but I think you could do it-yep.”

Comments were also made about the light switches. One participant commented that it took her a while to get used to them being lowered, but now she finds them very “handy.” Kay liked the rocker switches, “I like the light switches, they are easy to turn on and off.” Mary also appreciated this feature and noted that it was especially useful because of the arthritis in her hands.

Additional comments were made regarding the wider doorways; Phil explained why he appreciated this feature:

The design, as far as I am concerned, I cannot think of anything in the place that particularly impinges upon me and is unhappy and actually if those doors were reduced to 2’4 it would be a damn nuisance because I have a walker and I park it in the bedroom there and I don’t use it all the time but I do need it sometimes, so that’s a good feature of design.

Mike also appreciated this feature as his wife was in a wheelchair. During the interview, Vince got up, pointed to the wider doorway, and explained, “That door is

recessed so that if you have a wheelchair or a walker you're not banging the wall. You don't have to, is that right, are you following me? Very few people would know that."

Participants also commented on the bathroom. Diane discussed the raised toilet seats, "I like the raised toilet seats. I'm spoiled there, I go out to a restaurant and you think, oh my gosh I'll never get up from here." For Jack, the removable showerhead was a unique feature. He explained, "it's all very good and you can move it up and down." Karen also commented on the removable showerhead, "you can move it when it's up or you can take it off and use it, which ever you want."

Prefers Shower Instead of Tub

From the following discussion, it is evident that participants preferred showers to a bathtub, especially those living in the Summerhill where the shower is a "walk-in". As the population may be slightly less mobile, this preference is probably due to the fear of falling. It has been found that most falls occur in the home setting, mainly when walking or from transferring from one surface to another (Resnick, 1999).

However, the preference for a shower was noted in other buildings as well. One respondent from the survey living in the Symphony wrote, "I would like a shower in the bathroom instead of a tub." Mike, who also resides in the Symphony found it especially difficult with a bathtub. Because of this, his wife must stay in a hospital, rather than live with him, because he is unable to lift her into the bathtub to bathe her. He explained:

I can't bathe her in here, you know, where would I bathe her...I have a bathtub. I don't know how to bathe her so I don't have...Jane was saying this morning her son is in a place that has...he rides up his wheel chair right into the shower, okay. That would be something to really consider, I don't know what's involved....If that could be converted at a reasonable price...

Summerhill residents who do have bathtubs find that they only use the shower part. Diane explained about her bathtub, “I have a tub, but I only use the shower part of it. I can’t sit down and get up again. At least, I think I would be scared stiff. I tried it once when my daughter was here and I went nope, I won’t do this again.” She explained how she would prefer a ‘walk-in’ shower, “But, I suppose it would have been better for me to have one-some of the apartments have showers and some have the tub, but the one that was available happens to be a tub. There’s a perfectly good shower in it, so that’s fine and I go very carefully and I can get out of there alright.” Karen made a similar statement, “Well, it’s a nice washroom, and it’s a big one and I have a bathtub although I find now I’m adjusted to the shower because it’s easier.”

Jack’s preference did not stem from the fear of falling, rather he found the bathtub too small for him, “I asked for a bathtub when we came in here. That was a mistake. The bathtub is not a standard size and it is too small so all I do is showers. I would have preferred to have a shower if I would have known.”

Participants from the Summerhill who have the ‘walk-in’ shower made positive comments and appeared to really appreciate the feature. Michelle, for example, noted, “Well, for one thing I like the shower. It’s a really good shower that can be adjusted and it has a railing that you can hold on to which makes it much safer.” Likewise, Sandy said, “I’ve got a walk in shower here which is lovely.”

Assists in Independence

Besides being happy with certain features, participants were asked in the survey if they felt that the design of their unit helped to make activities easier for them.

Participants provided answers indicating that there are certain features aiding in their independence and that they preferred to use.

Most Alegria respondents did not go into detail about how their unit made things easier for them. Nonetheless, a few did provide some useful information. One Alegria resident enjoyed the high toilet and found the washer and dryer very useful but did not use the dishwasher and believed that it could be a place for extra storage. Another resident enjoyed having her things where she wanted them, i.e. like the furniture. One resident wished to move to another unit because of the lack of space in her own, but initially chose hers because of the curved patio.

Summerhill respondents listed off many adaptable features that helped make their lives easier, such as the non-skid flooring and the abundance of plugs and light switches. They also mentioned the grab bars, the wide hallways, and the alarm pulls. One resident mentioned that they liked that there was space to park scooters in the basement and another wrote that they found the storage space “terrific.” One respondent noted that, “I make my own bed, water plants, wash a few dishes; it sure helps to have everything else done by others, i.e. meals and housekeeping.”

Symphony residents also listed off the adaptable features that helped to make their lives easier, such as hallways wide enough for wheelchairs, the large entrances, the ramps on the balcony, the large bedroom and bathrooms, the lever handles that make things easy to grasp, and the wide kitchen area.

Similar to the above two responses, Quayside residents named many adaptable features that helped to make things easier. One resident mentioned that the rocker switches were very beneficial as she had arthritis in her hands and that the outlets higher

on the wall allowed for less bending. Another resident found that the levered outside door handles were easier than knobs, but suggested that it would be better if the lever handles were on interior doors as well. As Quayside only has a few Adaptable Design features, this feature is now present in the current Adaptable Design Guidelines.

One wheelchair bound Quayside resident wrote that his unit made it easier for him because it offered a “larger space for days when I cannot go outside.” For another resident, it was the fact that the whole unit was wheelchair accessible that made it easier. Another resident enjoyed the sunlight that the unit gets, while another provided a suggestion that “protective corners should be installed before a tenant moves in.”

Dislikes Features

Many participants cited problems with certain features. Even those who liked some features, were unhappy with others. A major complaint, mainly from the women, was the height of the kitchen cupboards. An Alegria survey respondent wrote, “Can’t use all cupboards because they are too high or too far. Too much dead cupboard space.” Joanne, who also lives in Alegria stated, “I mean, it is a little bit high for me, but it is okay.”

Esther was asked if she found everything easy to use in the kitchen, she responded, “Mind you a lot of things that are up high up- I don’t use anyway.” Likewise, Jane indicated that, “I find some of it too high, I find the microwave a little to high for me because I’m 5’3 and it’s just a little to high. And also to reach the top, luckily I have my youngest son whose living with me temporarily and he’s able to get to the high shelving because its too high for me, either that or I have to get a little step ladder to use.” Mike

also noted that the cupboards were too high, especially for his wife who is wheelchair bound, he added, “while I’m here I am her arms.”

Besides the upper kitchen cupboards being too high, the lower cupboards were also mentioned in addition to the height of the counter tops. Jane found accessing the lower cupboards difficult, “because of my knees, bend down and then try and get up, I can...I can still do it but there will be a time when I won’t be able to get up (laughs).” In the following excerpt, Art discussed both the height of the cupboards and the height of the countertops:

The counters are three inches higher than normal and this looks liked a good thing, but in some cases its not. Sometimes your working you’re a little too high you can’t bear down on things on the counter...on the whole my wife is pretty down on the high counters and then the cupboards are really uh, they’re just a real pain in the bum, they’re too high and there’s not enough of them, there’s no storage and uh...its kind of a funny kitchen it’s...we have a big dishwasher and a big stove really and yet there’s not enough storage and things to do all your cooking at home-like our former kitchen in this house we had.

When asked about the counter height, Kay replied, “Well, they could be a little lower for me, because I’m not very tall.” A related issue is the height of the stove, raised by Mike,

I do all the cooking here when my wife comes home because she only has one good arm, the other one is paralyzed and her sight is impaired so I wouldn’t want her working, cooking anything on the stove. The stove is high for her too, to work off of. Anyway, because in a wheelchair, and if you had a pot on the counter on the stove, she wouldn’t be able to do anything. She just loves cooking, so she’ll tell me what to do and mix some of the things if their smaller, I can put on her lap and we can sort of tie it in.

It appeared that for many of the women, the kitchens have been poorly designed. Participants mentioned that lowering the countertops and cupboards and adding pull out drawers in the bottom cupboards would assist in making the kitchen a more accessible area for them. However, problems were cited in other areas of the units as well. Two

participants mentioned that there was not enough depth in the closets, while others mentioned that there were not enough closets. Vince felt very strongly about the depth of the closets:

...it's not wide enough, closets should be two inches wide...no depth, that's the way to describe them. You see what I mean, that's not right. If I hung a coat here, you can darn well jam that and break the buttons or shirts you can break the buttons-its serious. It's not just a mild inconvenience and the closet out there is just as bad. You with me? Look at this. I don't like having to do that. They should be two inches deeper. Don't you think that that would be reasonable?

Additionally, Mike, from the Symphony, wrote, "Would ensure the hall closet was wider so could take regular clothes hanger and would close better."

Responses also indicated that there was minimal storage space. Jane wrote in her survey that there was "not enough" storage space, while another Symphony resident wrote, "need more storage space." An Alegria resident wrote that the laundry area "needs more shelves", whereas Julie, from Alegria, wrote in her survey that the "bedroom closet is too small." Ted, who also resides in Alegria, commented that, "For two of us the closets are too small" and Joanne, his wife added, "Yah, bedroom a little larger closet"

Kay from Quayview Community Housing Project mentioned that she does not use half the cupboards in the hallway because "you can't get anything high into them though, just like the kitchen cupboards". Instead, she resorted to using her bedroom as storage space. Additionally, a resident from the Summerhill suggested that, "portable shelving is needed."

Interestingly, many participants from the Summerhill mentioned that the horizontal blinds were causing problems. Michelle wrote, "I just leave them like that all the time because when I first came I did have a problem with the blinds in the bedroom. I

couldn't get them down at night, so I just leave them like that." A similar conversation ensued with Esther:

The only thing I'd change is that long blind. I would have it be two instead of one, this one here is fine. But that is a long stretch, especially if your working on that end and have to adjust it on this end so therefore, I never use it...I didn't know how to work the darn thing. It was awkward, you know, I'd get it up on a slant, you know, and I gave up. Once I got it up it stayed up.

Diane also commented on the blinds:

Another thing, for improvements I would think would be for seniors, those blinds are rather cumbersome you go to raise and lower them and they'll come partly down and they won't go and you struggle with them so they could be slightly better quality I think for seniors. I would like to have them just up all the time but when the sun shines you must lower and it is awkward to lower them, they don't come down very well, they'll come down partway and you have struggle back and forth to get them down.

Other comments were made about the height of the ceilings. For example, Rose wrote in her survey that, "high ceilings make it very difficult to access light bulbs."

Likewise, Art wrote, "The high ceilings make it hard to change light bulbs or to adjust blinds." Sandy indicated that she was aware of the "16 foot ceilings", but she did not appreciate it because, "one daughter does a lot of macramé and I have a two tiered macramé shelf with a glass bottom and I put ornaments on there and a violet in there and there's another one that I can hang but I can't hang them with the big ceilings because the ceilings are big."

Another issue, raised by Mike for his wheelchair bound wife, was about the dryer. He noted, "The dryer is too high, both of the controls are way up top. They are on the top unit so both of them cannot be accessed, you cannot reach into the dryer and because the washer is a top load it is difficult to reach down." Rose, from Quayside Village Cohousing also noted that the washer and dryer "can be accessed by wheelchair but the

buttons cannot be accessed by a person sitting in a wheelchair.” However, Quayside has a communal laundry room, rather than laundry in the unit.

It is important to note the dislikes of the participants as they provide insight into what needs to be altered in the Adaptable Design Guidelines. Asking participants what they were not happy with allowed them to voice concerns that those who develop the policies may not be aware of, such as, the difficulty faced by women in the Summerhill in raising and lowering their horizontal blinds. For them, having to leave their blinds open all the time is an invasion of their privacy. Other issues, like a lack of storage space, may not be easily altered as units are only allotted a certain amount of square footage. However, it is important to understand this issue, which may be especially problematic for those who have recently downsized from a larger home and have more possessions than those who are used to living in smaller quarters.

Implemented Modifications

Participants were asked in both the survey questionnaire and interview if they had made any changes to their unit. The majority of the responses citing changes to the unit were elicited from the survey questionnaire as respondents had the opportunity to read through a list of areas in their unit and list the changes they made.

The findings indicated that the Summerhill residents did not make as many changes as the residents in other buildings. This may be due to Summerhill residents having more access to communal living space, thereby, requiring fewer changes as they spend less time in their units. Moreover, because all the Summerhill residents rent their units, they may not have felt comfortable making changes to something they did not own. However, residents from other buildings, who were renting their units, had made

changes, although, the changes reported were quite minimal, even for those who owned their units.

This section will provide an overview of the changes participants have made in each part of the unit. Particular attention will be given to the bathroom, as this is where the most notable changes have occurred by the addition of grab bars. The section will conclude with a brief discussion on the reasons given by participants for making these changes.

Modifications Made

The first part of the unit is the entrance, where very minimal changes have been made by the residents. Two Quayside residents noted in their survey questionnaire that the entrance door threshold had been raised one inch in all units to stop water from leaking into the units; however, this was not their choice. One respondent indicated that the entrance door thresholds initially complied with Adaptable Design Guidelines, whereas now they do not. Most of the changes to the entrance were made by Alegria residents. One resident added a dead bolt to the door after he was broken into. Another resident added a seat, while others made decorative changes, which include adding a mirror and an umbrella stand to the area. One resident from the Summerhill did change the entranceway; they removed the door closure mechanism in order to make the door easier to open.

More changes were made to the kitchen than to the entrance, however, most modifications were made to increase storage space, rather than for adaptability. Only one Summerhill resident made changes in the kitchen by installing a dishtowel rack. Both Symphony and Quayside residents installed pullout shelves in the cupboards to make

things easier to reach. Another change made in Symphony was the position of the pullout cutting board as it was right beside the stove and the resident found that dangerous.

Again, the majority of changes were made by Alegria residents. The changes made to increase storage space included adding shelves in areas designed for the dishwasher, or using the microwave space for storage. For example, the respondent wrote, “I use micro(wave) space for books. Micro(wave) on moveable cupboard and plugged into other outlet: surge protector plugged into outlet through micro(wave). Shelf to be used on counter beside sink.” Another respondent wrote, “I had a revolving corner shelf installed when the building was built.”

Nonetheless, there were changes made to increase adaptability. and once again, these changes were made by Alegria residents. They included: replacing the faucet with one easier to grasp; installing a low counter beside the fridge to have a place to put things down; adding more task lighting above the sink; changing the overhead lighting from spot to fluorescent; and altering the door on the wall oven to make it easier to open.

A common change in the bathroom was the addition of shelving. Some residents added shelves over the toilet, some added medicine cabinets, and others installed separate shelves on the walls. Additional changes made by Alegria residents included changing the shower curtain to a shower door and removing half of the overhead lighting as they found the lighting too bright.

Once more, the most commonly mentioned change in the bedroom was the addition of extra storage space. For example, an Alegria respondent wrote, “Added storage because there was no storage.” Most participants have installed extra shelves in the bedroom closet, while one resident installed more shelves beside the bed area. An

interesting finding was that residents in Quayside, Quayview, and Alegria have removed the closet doors. For example, Patricia writes, “In the bedroom taken off the closet doors and put in a closet organizer.” In Quayview, one resident also removed the bedroom door, while another took the door off the frame and re-hung it to swing outwards.

There were not many changes made to the living room, however, respondents from both the Summerhill and Alegria installed ceiling fans to increase air circulation. Alegria residents have also made some additional changes, such as installing light fixtures, because as one resident noted, “the rooms have poor lighting for an older person”. Additionally, like other rooms in the unit, more storage has been added in the area.

Similar to the living room, both Alegria and Quayside residents installed ceiling fans for increased air circulation. Additionally, three of the Quayview survey respondents indicated that they replaced the light fixture due to poor lighting in the area.

A common problem also cited in the laundry room was a lack of storage space. In Quayview, one resident added shelves above the washer and dryer for linen storage, this was also done by some residents in Alegria. Other changes Alegria residents made included removing the bi-fold doors (one installed horizontal blinds with a flow through string to aid opening), installing a lamp as the resident could not read the labels on the bottle, and turning the whole area into a storage space as they do not have a washer and dryer. Most changes have been made in Alegria and Quayview Community Housing project because the Summerhill and Quayside Village Cohousing have shared laundry and, therefore, no changes would have been made to this area. Furthermore, no changes were mentioned by participants in the Symphony.

Although many respondents wrote “added more” when asked about changes to storage spaces, many participants, such as those in the Summerhill, Alegria, and Quayview Community Housing Project, have a separate storage room that they have made changes to. For example, an Alegria resident converted his to a tool room. Residents in the Summerhill have a separate storage area, but it does not come with shelving so participants like Diane indicated that she added additional shelving. Another respondent from the Summerhill explained that she too added shelves, “because I can’t bend down to get the things off the floor.” Vince, who has added his own shelving and has properly secured it to the walls so that it will not fall over, provided further detail below:

I think they should put some type of shelving in here (storage space) because I happened to be improvising and we were going to throw this away (old dresser) see you soon find when you move, your furniture isn’t worth anything to anything else... You gotta just- this thing was heading for the junk yard but your going to have to build stuff to put stuff in so I keep my sheets and my towels and all this stuff in here.

There were not many changes reported with regard to lighting. The changes made by Alegria residents included relocating light switches in the kitchen and bathroom due to the poor location, adding brighter lighting, adding extra fixtures, and adding a dimmer. Quayside residents also made some changes that included adding lights that are more portable and changing the bathroom light fixture. Two of the Quayview respondents noted that the dining room lighting was too dim resulting in both respondents replacing the light fixtures.

Although many residents from the Summerhill complained that their windows did not open wide enough, only one respondent indicated that changes were made. Jack

explained that “we were just able to open them a little bit when we first came, they had a stop (shows me), we had the stop taken out so we can open them all the way. Very good.” Furthermore, only one resident from Alegria made changes to the windows. Patricia was unable to reach the blinds from her scooter, so she added extensions on the blind twirlers. Additionally, Patricia was also unable to open and close the window so she fastened a sturdy plastic loop to a wooden dowel allowing her to push open and pull close the window.

Respondents were told that “doors” in the survey meant the ones used to enter or exit the unit, rather than doors leading to a room, including balcony doors. Art, from the Symphony, explained the changes he made to his balcony doors, “These sliding doors, we had the guy come and have a look at them, it’s not too bad now-it’s pretty heavy. Sometimes they start sticking. My wife has a hard time opening these doors.”

Alegria residents also made changes to their balcony doors; one had a retractable screen installed, while another, “covered glasses with something to keep neighbours from looking in.” Patricia from Alegria tied a scarf onto the lever handle of various doors around the unit, including the balcony door, to make it easier to pull open and closed.

The changes cited by numerous residents with regard to the balcony was the addition of ramps. Two residents from the Symphony added ramps from the unit to the balcony. Although Jane had a ramp built for her son, who is in a wheelchair, he was still unable to access the balcony, “I had a ramp built so he could get out on the patio but he’s got a very heavy electric wheelchair and it gets stuck halfway so he can’t go out on the balcony.” Mike also mentioned that the ramp leading from the unit to the balcony is very flimsy and he does not always feel comfortable wheeling his wife onto the balcony over

the ramp. Similarly, an Alegria respondent wrote “Can’t get in and out (of balcony) on scooter because the ramp is too small and steep.” Patricia also found this to be a problem and termed the first ramp that was given to her as “Mickey Mouse”. She replaced the original ramp with a sturdy wood ramp and installed wood slats on the balcony floor to make it more level and easier to access by scooter.

Added Grab Bars

The most common change mentioned by all the participants from the face-to-face interviews and the survey questionnaire was the addition of grab bars in the bathroom. The following is an example of what was written in response to the question asking what changes were made to the units by Alegria residents in their survey questionnaires: “Added a shower door, hand rails”; “Grab bars in tub”; “Rail in bathroom”; “Handles for lifting at toilet and bath”; and “Installed handrails.”

Steve and Laurie from Alegria not only installed a grab bar, but also took extra precautions and laid down a non-skid mat on the floor of their bathtub. Kay, at Quayview Community Housing Project, also mentioned that she added grab bars to her tub area as she had difficulty getting in and out of the tub. Jane did the same at the Symphony. She explained, “Well I had to in the bathtub, because it’s kind of a high bathtub, sort of soaker tub. I had a bar put in on the wall and I find that very useful to get in and out. Because otherwise at my age it’s not so easy to get in and out, especially a high one.” Interestingly, Rose, from Quayside Village Cohousing did not add a grab bar, but did add a similar device, “I have a detachable handle for edge of tub at bath time when needed.”

Summerhill residents already had grab bars in the tub area but not around the toilet. However, the area around the toilet is reinforced in case a resident wanted to

install a grab bar in the future. The addition of a grab bar around the toilet area was only cited by Diane, who installed one in both of her bathrooms. One Summerhill resident added extra wall backing behind the towel racks as he was using it as a grab bar and it came off the wall. Patricia from Algeria also added extra wall backing behind the towel racks and changed hers to a grab bar because she found she used it more for that purpose. Because the City of North Vancouver earlier identified that residents were using their towel racks as grab bars, a provision for wall backing behind the towel racks it is now included in the 2001 Adaptable Design Guidelines.

The Reasons Modifications Were Implemented

It is important to find out the specific reasons why residents made changes to their units as they may not always be based on increasing the accessibility of the unit, but are purely aesthetic. Nonetheless, in general, it appears that changes were made to make the living spaces more adaptable for the participants.

In Alegria, more than one respondent mentioned the lack of storage space in the unit as their reason for making the changes. Other respondents wrote that they made the changes “for their convenience”, “for their own use”, “because it was too dark in spaces”, or “they aid disabilities”. One respondent wrote that the changes were made “to make the unit more accessible.” One respondent made only decorative changes in the unit and wrote that it was because “it adds to the resale value of the unit.”

Similar to Alegria, lack of storage and convenience were reported in more than one answer for reasons for making changes in the Summerhill. The resident who added wall backing behind the towel rack did so because he had pulled the towel rack off the wall. Another resident added the grab bar to make things easier and wrote that he

“couldn’t get along with out it.” Another resident wrote that they “made the changes to increase the livability of the unit.”

In the Symphony, changes to the kitchen area were made because of bad cabinet design and arrangement, “there was no cutlery drawer when one is needed” and “having the cutting board by the stove is a bad idea”. Other residents made changes to their units because their family members were in wheelchairs and needed to get around the unit easier.

Residents in Quayside who made changes did so because they “offered a better use of space”, “they enjoyed open spaces more” and “it was more to their liking” when the changes were made.

One of the residents of Quayview made changes in their unit because “it made accessibility easier”, another made the changes because “it is better for me” and others made changes because the lighting in the dining room was of a very poor quality.

A common change that participants mentioned was to increase storage space in a variety of unit areas, which does not increase the accessibility of the unit. However, the most commonly reported change was the addition of grab bars in the bathroom, which is a change that increases accessibility for many of the participants.

Potential for Modifications

Knowing the changes that residents are planning to make is just as important as knowing the reason for the changes they have already made. First, residents may want to make changes, but may not be able afford to make changes. Second, residents may be happy with their units, but they know that, in the future, they will have to make changes to accommodate their declining abilities. Other reasons may be that residents would like

new features because of the general wear and tear on the unit or upgrade features to add to the resale value. Similar to the section on “implemented modifications”, each space in the unit will be discussed in the order that it is listed in the survey questionnaire.

The first space is the entrance. Residents from both the Symphony and Alegria mentioned that they would like to change the flooring in the entranceway. One Summerhill resident wished to add a doorbell, while another would like to move the light switch location to just inside the door. A Quayside resident mentioned that they would like to add a ramp to the front door for a wheelchair and install a special lock with a chain for safety purposes. One resident from Quayview wished to remove the automatic door mechanism that has been installed in all the units.

The next area is the kitchen. Changes to the kitchen that Symphony residents indicated in the survey questionnaire included changing the tiles on the floor. Other residents from the Symphony, like Art, wrote that they would change the appliances and cupboards, lower the countertops and stove, and install pull out shelves in the lower cupboards of the kitchen. Quayside residents indicated that they would like to add an island for more preparation space, a higher shelf under the sink, more shelf space, slide out cupboards and shelves, and a fridge with a freezer below. Kay, from Quayview, initially stated, “It’s not my place, so I can’t do anything about it a lot of the things that I might change if I was here.” When asked what she would change if she could change anything regardless of it being her place or not, she replied, “Oh mostly the cupboard space, cupboard stuff. That makes a big difference to people you know.” Other comments from Alegria residents were that they would like apartment size dishwashers and fridges and would like to move the fan and light controls lower on the wall.

The common change made to the bathroom was addition of grab bars. Likewise, the most commonly reported potential for unit design modification was also adding grab bars to the bathroom. One Algeria respondent wrote that they would like, “more grab bars in the bathroom”. Jerry explained why he would like a grab bar:

I’m going to ask them if they’ll put a bar in the bathtub. They’ve put a chair in there for me, I can stand up and shower, but when it comes to washing my hair, sometimes if I get something in my eye, your balance isn’t nearly as good when you get older and I’m afraid. And if you fall I’m in trouble when you’re my age. So, they’re going to help me there, and they put a shower in where you can take off the showerhead.

Betty, from Quayview Community Housing Project, would also like a grab bar. She wrote in her survey, “I understand some units have grab bars in the bathtub, my unit doesn’t. I’m 82 years old and some point in time I may need a bar in order to get and out of the bathtub.” The interview took place three months later. At this point, she explained that, “I’ve already asked about the bathroom, like you know a wall bar, in case I have problems taking a bath or shower. I’ve already asked for that and the caretaker said it would be no problem because some of these people already have them.”

Mary, also from Quayside Village Cohousing, wrote in her survey that she would like to add grab bars. Similar comments were made by Rose who “had hoped that there would be the kind of wall in bathroom that would have been the precursor to a bar being able to installed”. She speculated that that has not happened, “but it may indeed have happened in the third floor apartment”, which is just below her. She further explained why she needed the grab bars, “I’m getting on now and I foresee the day when it might be a bit hard for me to get in and out the tub and stuff and I think I won’t be able to manage without that bar.”

As Summerhill residents already have a bar installed in the shower, some, like Joanne, realized that they were going to need one by the toilet area, “the only changes we’d like to make-I mean we’ll have to make is the bar in the bathroom.” It is fortunate for residents of the Summerhill, unlike Rose, that the proper wall backing has been provided. There were minimal changes listed for the bedroom, including installing brighter lights, adding a closet organizer, installing a ceiling fan, and adding carpet. Likewise, the only change that a resident in Summerhill would like to make in the living room was adding an air conditioning.

Two changes were listed for the dining room. Art, a resident from the Symphony, wanted to remove the rug and lay down hardwood flooring, while a Quayview resident wanted to add a lower table to the dining room to help with food preparation.

Changes to the laundry room included adding in suite washer and dryer and adding shelves to the area for more storage of detergent and linens. Kay explained, “there’s all that wasted space, they could have put some shelves up so that you could put your soap and stuff on it instead of on the dryer.”

Residents from Alegria, Symphony, and Quayview mentioned that they would like to add more shelves, while a Quayside resident wrote that they would like to install “more convenient shelves.”

Many Summerhill participants wrote that they would like to change the current windows to ones that open wider, while participants from Quayside wrote that they wished to add screens, install remote control blinds, and install an operable window in the living room. One Quayview resident wanted to replace the horizontal Venetian blinds with vertical blinds or curtains as vertical blinds are easier to maintain and clean.

Potential modifications to the balcony included adding screen doors, as was mentioned by Kay from Quayview and Joanne from Alegria. Julie from Alegria mentioned, “the only thing that I would change if I were in a wheelchair is the doorway out to the patio, because there’s nothing there, you’d be “thunk thunk” over that to get out on to the patio, you know I’d have a little ramp built or something.” Another Alegria survey respondent wrote that they would like to change the flooring on the balcony because the “floor is very rough, it’s almost impossible to clean.” Art, from the Symphony, wrote that he wanted to install a wind barrier on his balcony so that he would be able to enjoy it more.

Only one participant commented on the electrical features. An important change that a Quayside resident, Rose, wanted to make was the installation of a visual alarm system. She stated, “I probably should have one in the bedroom and should keep the fire department alert that I could get trapped by a fire on the fourth floor as I cannot leave by the windows.”

It is evident that when it comes to potential unit modifications, many participants were thinking about the future when their abilities might start to decline, especially with regard to potential bathroom modifications. Other changes they would like to make, similar to the changes already made, were purely for aesthetics or convenience.

Perception of Adaptable Design Features

Although participants were never asked about their perception of who or why Adaptable Design was implemented, it appears that many have opinions on the matter. Some are correct in their assumptions, although many tend to use inappropriate terminology. Others are completely misguided or uninformed on the matter.

Steve and Laurie were aware of the Adaptable Features, but said that they were told that the “units were designed for ‘wheelchairs and invalids’.” They also wrote in their survey that, “it was built with handicap people in mind, and good for use of wheelchair.”

Another respondent saw the special features that were built into the unit, but was told that the unit was for “handicapped.” Betty explained that her granddaughter checked out the unit for her “because she knew it was going to be handicapped plus seniors.” One Alegria respondent wrote, “I know its wheelchair accessible and uh everything is here for handicapped so if there is every such a time that I need something.” Julie described who the unit is geared towards using terminology that is more appropriate. She explained that, “One of the things with the ad on this unit was that it was set up for a person with disabilities.” Similarly, an Alegria respondent wrote that the unit “was designed for people with disabilities, e.g. wheelchair friendly.”

It appears that participants were not aware of the immediate value of the features and tended only to see the ones that are in place for people who use mobility devices such as wheelchairs. For example, Jack and Jill described their unit as “for people in the wheelchair” where “everything is fitted for a wheelchair.” Kay explained that she is not “handicapped” and that the doors are designed “for the wheelchairs to come in and out.”

Some participants realized that the features are not just for “handicapped” people or people in “wheelchairs”. Mary explained that, “I mean even things like hand rails on the bathtub or toilet are good things for a lot of people, not just as your aging and becoming less mobile, but its useful for kids. I can see it’s not as you deteriorate necessarily but for everyone” Although, a resident from the same building wrote, “I have

no idea what this means. It is not wheelchair accessible or convertible. I am living in a 'Co housing Community.' This is all I know. If my unit has been re-designed, it is without my knowledge or request or NEED.”

Adaptable Design creates environments for a wider range of individuals (of all ages) with all types of abilities and disabilities than the current housing design permits. This includes people who use wheelchairs as their main mobility device. These responses demonstrate the lack of knowledge that tenants have when moving into their unit. It is evident that tenants need to be educated on Adaptable Design. If tenants knew about the features and who they were intended for, fewer comments like, “it’s for handicapped people” or “I don’t need Adaptable Design” might be reported. Tenants who do have Adaptable Design features in their units need to know why the features are there and how they can use them to assist them in their everyday lives. This would indeed help to alleviate the negative terminology and misconceptions associated with Adaptable Design.

Safety and Security

Many of the adaptable features in the units, regardless of participant’s level of use, were designed to enhance the residents’ safety and security. Two codes of safety and security emerged from the data. The first was based on the physical safety features, like alarm pulls and grab bars. Second, was the psychological comfort felt by participants knowing that they have these features; additionally psychological comfort was also influenced by the building type. Most of the illustrative responses came from participants who lived in a more communal environment, like the Summerhill and Quayside Village Cohousing.

Diane, from the Summerhill, explained, “this place here I like because of the safety and you know all the fire things and the alarm pulls and this is a much newer building.” She also enjoyed the physiological comforts of living in a unit within a building like the Summerhill that has 24 hour staffing. Staff place phone calls to the unit if an individual does not show up for a meal. Diane explained:

That’s a secure thing. Yes, that’s a great feeling that if your living alone in an apartment you could collapse and no one would ever know, here you wouldn’t be down for long-they’d know. Its one of the reasons I moved, it’s not just the mobility but that feeling-when there are two of you, you can look out for each other and I know that my husband, I don’t know what he would have done when he was on his own like the last year of his life because I had to call 911 several times and he’d just fall and he couldn’t get up.

Jessica, who also resided in the Summerhill, felt that she could maintain her independence and privacy while feeling safe and secure. She explained, “you can come and go when you want, you just have to go for lunch and if you’re not going to be here you just let them know. You don’t have to be there as long as you let them know, cause they count to see if everybody is down for meals, I guess they have to.” Like Diane, Melissa, pointed out the physical features that provided her with a sense of security along with the psychological comforts attached to the features, “Well, in the bathroom there’s a contraption that you pull if you’re stuck in there and they come right away. Your toaster burning a little bit, you get a phone, ‘What’s wrong?’ They have that contraption on the wall.” Melissa mentioned, however, that she had never used them because she had “been fairly healthy.”

All the residents of Quayside Village Cohousing knew each other and as Mary stated live in a more “neighbourly way”. This was comforting to Rose, “Well, I just like being here, for me it’s ideal because I’m not an extroverted person and its helps to have

people around that I know and I think it's a bit of a safety thing too in terms of theft or something like that.”

CHAPTER FIVE: DISCUSSION

Summary of Findings

Using an adapted version of the behavioral migration model initially proposed by Wiseman (1980) allowed the qualitative findings to be presented in a comprehensive and organized manner. In effect, it appeared that the patterns “type of move” and “triggering mechanisms” contributed to “the use and satisfaction of Adaptable Design”. Furthermore, it was found that the descriptive statistics complemented the results found in the qualitative inquiry and provided insight into the research questions: (1) For older adults living independently in the City of North Vancouver’s Adaptable design guidelines, do the special features in the housing units facilitate in the maintenance of independence? And (2) What changes have residents made to their units and why?

The findings of this study supported the literature that documented declines in functional independence in older adults. However, as this was an exploratory study on the use and satisfaction of Adaptable Design, in addition to how design may be used to maintain independence levels in older adults, the literature on how design features impacted or maintained independence levels was scarce, making it difficult to apply.

Independence Levels

Both the descriptive and qualitative inquiry revealed that participants were aware of the adaptable features and were using the features, although many participants were still unaware that the features they mentioned they used, and appreciate were “Adaptable

Design.” Some respondents just considered the added features in their unit “good design”. This is not a negative attribute. In fact, this suggests that the goal of creating livable environments that include adaptable features, without looking institutional, has been achieved. Furthermore, to help answer the first research question, this population perceived themselves to be very independent who did not appear to require the full adaptations available from Adaptable Design to function independently. However, the data indicated that these participants were beginning to experience some age related loss related to their independence levels and may require more of the features in the future.

Currently, participants in this study were reporting increased declines in their ability to perform IADLs as compared to ADLs. This confirms observations made by Lawton (1991) who argued that the ADL and IADLs are two separate domains and that IADLs are usually the first to become impaired in older adults. However, it is not until ADL functions begin to deteriorate that the task of living independently becomes more difficult (Lawton, 1991). Additionally, it has been demonstrated that ADL decline can also lead to a decline in time use, social behaviour, subjective quality of life, and overall psychological well-being (Lawton, 1991). The descriptive statistics indicated that almost all the ADLs listed were being performed by over 80% of the participants except the task of moving around outdoors, which could be performed by at least 77% of the participants. Longino (1991) cited Lawton (1980) and Kahana (1982) who noted that before participants relocate or make environmental modifications, they try to increase their capabilities. This was displayed by participants through their high use of mobility aids to access both indoors and outdoors.

With regard to the performance of IADLs, difficulty with housekeeping was most commonly reported and, for participants for which housekeeping became too big of an issue, they hired outside assistance or relocated to the Summerhill where the task is performed by others. Furthermore, difficulty with meal preparation was a concern only for those who currently resided in the Summerhill, where meals are prepared for them. These participants were fortunate enough to be able to afford private services to assist in the maintenance of IADLs. Again, the residents of North Vancouver were more affluent compared to the rest of British Columbia.

Other losses noted by participants that were not considered ADLs or IADLs was the ability to drive. Lawton (1991) found that this behaviour loss, among others, such as working, also contributed to declines in perceived functional status and declines in aging well. Many of the participants reported a lack of freedom and independence that accompanied this loss. Additionally, it appeared that the Summerhill residents experienced more age related losses and were less independent than those living in other buildings. For them, the features appeared to help in the maintenance of their independence, specifically with regards to features in the bathroom. Such as, grab bars, raised toilet seats, and walk in showers. Other features residents from the Summerhill mentioned as aiding in their maintenance of independence were wider doorways, alarm pulls, and non-skid flooring. This may be because Summerhill residents were living in the highest level of Adaptable Design units where there are more features visible and available to them.

Overall, participants had high levels of perceived independence as specified in interview responses. This appears to be unrelated to whether they were living completely

independently or in a more specialized environment, like the Summerhill. For many, the environment seemed to complement the participant's capabilities which has been shown to delay frailty and maintain independence levels (Seeman et al., 2000). Participants also indicated that they were aware and used the features supporting the finding that control over one's environment is positively related to health, self-esteem and functioning levels (Heusmann, 1978; Seligmann, 1975, cited in Moos, 1981). Nevertheless, participants indicated that they were unhappy with some spaces, made changes to spaces, and wished to make future changes to spaces. Some of these changes and future changes reflected the need to maintain independence levels, while some were purely for aesthetics.

Unit Design Features

Results from both the descriptive and qualitative analysis indicated that, overall participants were happy with the design of their units. However, there were some problem areas in the units such as the storage areas, kitchens, and bathrooms.

The findings indicate that 18.9% were not happy with the amount of storage space and provided comments like "not enough storage space." As these participants have all moved within the past six years, many may have downsized from a larger location. This may be the cause of unhappiness for many of the participants as they lack adequate space to store all of their possessions. Although results indicated that 26.4% of participants have already made changes to storage spaces and the qualitative data revealed that storage space additions have occurred all over the unit, not just in the designated storage spaces. These changes included additional shelving in the kitchen, hallway, bathroom, and living room. However, only 13.2% indicated that they were planning on making future changes to this space. This is likely as there may already be a lack of space within

their unit and no more options are available to increase the amounts of storage space. Nevertheless, storage space was not a contributing factor to the maintenance of independence; rather it is an inconvenience for the participants.

Another finding that may contribute to the maintenance of independence was that the upper kitchen cupboards were too high for many of the participants, mainly women, while some participants found lower cupboards difficult to access. Additionally, many noted that the countertops were too high. The descriptive data revealed that 17% were unhappy with the design of their kitchen and 15.1% have made changes, even though these changes were mostly to increase storage space. A few participants recommended or installed pullout shelves and drawers in the lower kitchen cupboards, which are specified in Level Three Adaptable Design units. However, most of these participants reside in Level One or Two if they are not residing in the Summerhill.

The descriptive data indicated that 17% of the population was unhappy with their bathroom, while 43.4% had already made changes, and 18.9% planned on making changes. Although some of the changes included additional shelving to increase storage, qualitative data revealed that many participants added grab bars to both the toilet and the tub area and wished to add additional grab bars in the future.

Zimmer and Chappell (1994, cited in Edwards, Lockett, Aminzadeh, & Nair, 2003) reported that almost one quarter of community-living seniors they interviewed had difficulty getting in and out of the bathtub which may be a motivator for purchasing a grab bar. Furthermore, studies found that grab bars help to mediate the effects of many age related deficits, such as impaired balance, coordination, and strength which increased

the risk of falling during bathing activities (Axtell & Yasuda, 1993; Tideiksaar, 1997, cited in Edwards et. al., 2003).

With regards to grab bars located near the toilet, difficulty toileting independently is common among elderly (Sanforch, Arch, & Megrew, 1995). However, over 90% of the participants indicated that they could toilet independently, and it is important to remember that Jackson et al. (1991) cited various issues, such as underreporting, when using self-reported measures of ADL and IADL functioning and this may be the case for these participants. Furthermore, participants may not have understood the term “toileting” and indicated that they do not require assistance when, in fact, they are having difficulty raising and lowering themselves on and off the toilet. Nonetheless, loss of independence in toileting has been shown to be a key predictor of relocation from community residency to a nursing home (Sanford et al., 1995). The installation of grab bars is a change that increases the accessibility of the unit and, therefore, participants were making changes for this reason. Furthermore, grab bars appeared to be one of the most important Adaptable Design features that permit individuals to live independently in the community.

Another finding relating to the above issue was that participants preferred showers to bathtubs. It is possible that this stems from a fear of falling. A fear of falling is an ongoing concern for older adults that can limit their performance of ADLs and IADLs (Tideiksaar, 1997). This preference was reported mainly by participants from the Summerhill, although one participant from the Symphony mentioned this preference as well.

The majority of changes participants were making increased storage spaces. However, other changes were being made, besides the addition of grab-bars that assisted in the maintenance of their independence. These changes included ramps being placed on balcony doorways so that those using mobility devices may access the space and replacing faucets on taps to make them easier to grasp.

Negative Perceptions of Adaptable Design

A problem that has emerged from the data is that many participants were aware of the term Adaptable Design, however, they have somehow been misled about its uses and were unaware of the potential role these features have to support their future independence. A fear cited by the City of North Vancouver was that because of this misinformation, the users may not be able to fully benefit from Adaptable Design, as they do not understand its intention.

This misinformation has most likely been disseminated from those in the real estate industry, and building and rental managers. However, it is important to note that many of the participants were correctly informed about Adaptable Design before they moved into their unit by realtors and building managers. Rather than thinking that Adaptable Design can be used to assist people of all ages and all ability levels, there is the notion that it is only for “handicapped” people in “wheelchairs.” If the correct information on Adaptable Design was being disseminated fewer negative comments might be heard. This misinformation should be addressed by the City of North Vancouver so that the negative terminology used to describe whom the features are for can be eliminated and that the features may be used to their full potential by the people who can benefit most from them.

Nevertheless, 67.9% of participants were aware that they had Adaptable Design and that participants indicated that certain features were being utilized to help assist them in their daily lives regardless of the negative perceptions of Adaptable Design.

Location of Building within Community as a Motivating Factor for Relocation

It appears that the location of the buildings was the most important factor for moving to their current residence, rather than the inclusion of adaptable features. Only for those in Summerhill, who are less independent, did adaptable features play a larger role. For Summerhill residents, the adaptable features added both physical and psychological comfort not available in 'regular' buildings.

As illustrated in the section describing the location of the buildings within North Vancouver, Central Lonsdale is a thriving area for older adults offering them all of the shops and services they need within a short radius on flat ground. Although not part of the design features, the location actually assists in the maintenance of independence levels; most do not have to rely on others for their basic shopping needs and are able to easily access the outdoor areas themselves. This is especially true for those who reported that they had recently lost the ability to drive or had given up their vehicle, which emerged as a major stressor in their lives, making participants feel that they had lost some of their freedom and independence. For some in Lower Lonsdale with slight mobility issues, their feelings of independence was being challenged by the steep hills, making it difficult to access the shops and services near their location.

Most of the participants were already aware of the benefits offered by their location before they relocated as they had lived in or close to the area previously. Besides the amenities, other reasons reported for moving was to be closer to family,

mainly children, who were living in North Vancouver, as well as being closer to doctors' offices or the hospital.

The City of North Vancouver realized the impact that older adults have on their community which is one of the reasons they established the principles and objectives that support older adults in their day-to-day activities through housing related strategies and community based guidelines (City of North Vancouver, 1998). These included the Adaptable Design Guidelines. Moreover, Lower and Central Lonsdale neighborhoods, where older adults are currently concentrated, are natural focal points for City future initiatives responding to housing and services needs (City of North Vancouver, 1998). If these older adults are choosing Central and Lower Lonsdale, it is beneficial to include housing that can support their independence and keep them there longer, whether they realize it or not.

Carp and Carp's (1984) Complementary/Congruence Model

Part one of the Complementary/Congruence model (Carp and Carp, 1984) was used as a framework to help interpret the meaning participants made of living in Adaptable Design units and the role ADLs and IADLs play in independent living. There were both advantages and disadvantages for using this model as a framework.

The advantages was that this model was applicable to the general population of older adults, whereas many models concentrated on the institutionalized and frail elderly, because the belief that they impose a greater cost to society and are more at risk (Carp and Carp, 1984). Therefore, this model can be applied to the elderly who choose to live independently in the community and it provides a way to assess the extent to which a

person's (P) competence levels, by way of ADLs and IADLs, meets the environmental (E) demands that are necessary for independent living.

This framework allowed for the findings, in terms of patterns, themes, and codes, to be connected in a comprehensive manner. For example, behavioural adaptation depended upon P competence and E demand and on complementary (e.g. strong, agile P and E with stairs, or poor vision P and well-lighted and well-signed E) or compensations (e.g. wheel-chair P and specially designed kitchen) (Carp and Carp, 1984). The goal is a match between the individual and the environment with respect to the degree of similarity between P and E (high P need for privacy and high E provision of privacy). The ultimate outcome is continued independent living. In this study, use and satisfaction Adaptable Design is the E that can be either complementary or compensatory, depending on P competence, measured in terms of ADLs. The findings of this study, when applied to the framework, indicated that the majority of the participants were high in P competence and found the environment complimentary, whereas participants in the Summerhill, who were slightly lower in P competence found the environment more compensatory.

It is postulated that P and E affect outcomes directly in that some people are able to adapt to almost any E, whereas others are incapable of adapting. In addition, some Es facilitate the conduct of ADLs for nearly everyone and others exert demands or include barriers that cannot be overcome. It appears that the goal of Adaptable Design, to benefit all ability levels, has been achieved and fits the competence levels of all the participants, where everyone has been able to adapt and, for some, facilitates the conduct of ADLs. This is seen through the high participant ADL ability, minimal changes made to increase accessibility of the unit, except with regard to the bathroom, and an overall happiness

with unit design features. As the participant's age and competences change, Adaptable Design should be able to both complement and compensate for the declines in P competence.

Other advantages to this model are that it allows for the consideration of the geographic domain of interest, which is termed the Living Units (LU). Carp and Carp (1984) define physical E at the LU level as the residential structure and surrounding land parcel, exclusive of interiors. Suprapersonal E at the LU level comprises the number and characteristics of other household members. This translates to the building types that participants are living in, in addition to their living arrangements, which for the majority of participants is alone. The local area is also taken into consideration, as a review of literature identified that the immediate neighbourhood may be more important to well-being than the residence (Havighurst, 1969, cited in Carp and Carp, 1984). This has revealed itself to be true of this population. The location of the buildings in North Vancouver on Central and Lower Lonsdale is the main reason participants have chosen to reside in their particular units, rather than the adaptability of the building units.

There are mediating variables, called modifiers, included in the model that facilitates or inhibits the ultimate outcome of independent living. One is the social support system which is comprised of individuals or organizations with which the respondent interacts (Carp and Carp, 1984). These include both informal and formal supports that assist with the maintenance of daily tasks, in addition to providing companionship. For these participants, family plays a large role in terms of where they live as many participants mentioned that their family members live close by. For those in the Summerhill and Quayview Community Cohousing, the communal environment

allowed for companionship and a sense of shared experiences. In terms of formal support, it was indicated by many that help was needed with the IADL housekeeping. As will be discussed later, assistance with this task is one that the Province of British Columbia has deemed less important than others, although it is the one required most by older adults. Without these supports, participants may have lower competence levels and a harder time adjusting to their environment.

Another mediating variable coinciding with both the model and the findings is status resources, defined as financial resources in the study. These participants are generally well off compared to the rest of the province, especially those residing in the Symphony and the Summerhill. This results in higher environmental satisfaction and continued independent living.

Recent life events also play a role. In this study, participants mentioned recent illness and injuries, loss of spouses, and loss of driving ability as some of the recent life events that have occurred. Sense of personal competence in another mediating variable and, for some, like Betty, being completely independent without the help of her family provided her with an increased sense of well-being.

Coping style is another mediating variable that relates to the views that people have of themselves and their circumstances (Campbell et al., 1976; Harris, 1976, cited in Carp and Carp, 1984). For those in the Summerhill, many viewed their atmosphere as extremely positive; one even said that she could not understand how anyone could say otherwise. It became evident throughout the interviews that the Summerhill had an extremely high turnover rate with people moving in and out regularly. This issue emerged so often that there was serious consideration about including “high turnover

rate” as a category in the beginning stages of qualitative analysis. After probing participants for more information, it was found that if one’s ability level dropped below a certain point; they were no longer allowed to live in the building. However, it was unknown to the participants what the exact level was. There was speculation that the point may be when one cannot independently go to the dining room for meals. This leads one to believe that Summerhill residents were painting a rosier view of themselves and their environment. As Carp and Carp (1984) found, persons with a strong tendency to support or deny unpleasant events will give more sanguine responses about their environments and their well-being.

The final mediating variable in the model and emerging from the qualitative results is the personal perception of current health. Participants were not directly asked about their perceived physical health as much as they were about their ADL and IADL abilities.

The combination of the models’ predictors and the modifiers leads to the outcome of independent living and it is apparent that it can be applied very effectively to these participants and their adaptable environments. If this framework was not applied, it would have been more difficult to understand why participants were not yet using the adaptable features. This model revealed that participants currently have high P competence in combination with a complimentary E that has low demand leading to continued independent living and because Adaptable Design can be modified to compensate declining levels of P competence, the outcome of independent living may continue for a longer period of time with the eventual outcome of delaying institutionalization.

Still, there were some disadvantages to using this framework to interpret the findings. Although the model helped to draw connections between patterns, themes, and codes, the model is very complex and there was the need to consider the higher order needs of P and E that facilitates/enables/inhibits an individual's satisfaction, where the congruence is one of similarity between the strength of need and amount of E supply (Carp and Carp, 1984). Furthermore, other outcomes were not considered, such as behaviour in perception and satisfaction with E and life satisfaction/mental health. Moreover, this model was designed using objective measures of the environment, people, and things, rather than the subjective measures used in this project. Carp and Carp (1984) suggested the measurement scales that have previously been utilized to objectively measure P competence and the environmental components that make it easier to apply Part Two. As Part One of the model is based on the Environmental Docility Hypothesis model proposed by Lawton and Nahemow (1973), although operationalized with somewhat different measures, it is probable that this simpler model could be more effectively applied to this type of study utilizing the whole model to predict the outcome of independent living.

Implications of the Research

There are three major areas in which this research has implications. The first is with respect to municipal housing policies for older adults, the second deals with the potential for partnerships between the Provincial Health Authorities and North Vancouver community organizations, and the third deals with the formal assistance provided to older adults mainly with regard to homecare.

As stated previously, the City of North Vancouver undertook a leadership role with regard to the creation of Adaptable Design housing policy guidelines in 1997. In 2004, the provincial government released, *Planning for Housing: an overview of local government initiative in British Columbia*, which documents key housing planning tools and practices by local governments and how they are being used. This document included a section on adaptable and accessible housing and distinguished the two by defining adaptable housing as having flexible design features that can be adapted to meet the needs of any person, whereas accessible design has a fixed design and typically targets those with specific disabilities (Province of British Columbia, 2004). To date, six local governments have already included guideline requirements for adaptable housing, while 15 are considering it (Province of British Columbia, 2004). Additionally, other local governments have incorporated these design guidelines for the development of new seniors housing and some have adopted voluntary adaptable design guidelines for all new housing, including single family detached homes (Province of British Columbia, 2004). This information is encouraging as it displays the growing awareness of local governments to the housing needs of those with various ability levels, including older adults.

As the City of North Vancouver was one of the first to fully implement Adaptable Design in to building practices in 1998, in addition to their guidelines being used as a model by other municipalities, including the City of Vancouver, District of North Vancouver, and Saanich (Kathler, 2003), it was ideal to conduct the evaluation in this city as most residents had been living in their units for over a year and would be able to report any differences or changes they had made to their units. The results of this study

may help to inform both the City of North Vancouver and other local governments on how older adults are utilizing their Adaptable Design units and the importance of changes they are making or would like to make. It is also important to note that participants indicated that they felt, at this point, that they did not need all the features available to them. Yet, they were aware that the features were there when future disabilities may arise.

This study began in May 2003 and before its completion, Ms. Kathler released a report to Council entitled, *Adaptable Design: Potential policy revisions*, in June 2003. The purpose of the report was to provide an update on the City's Adaptable Design policies and submit several recommendations to Council based on the experience of implementing this policy over the past six years (Kathler, 2003). However, the recommendations of this report were based upon positive responses from the development sector regarding requirements of Adaptable Design in developments on City sites as opposed to the opinions of the residents.

The proposed recommendations were to extend the 20% Level Two Adaptable Design requirements, increase Adaptability requirements for City sites, and provide incentives in terms of additional square footage for the provision of Level Two and Level Three Adaptable Design. Results of this study informed how the design features, fixtures, and finishes were being used by residents and, although the recommendations to the City did not focus on that pattern, they were still able to compliment the results of this study.

Two major findings of this study were that participants believe there to be a lack of storage space and have installed or wish to install grab bars. If the recommendations were implemented, more square footage would be required for the inclusion of Level

Two and Three Adaptable Design to enable ease of access for wheelchairs and other mobility aids (Kathler, 2003). As the results indicated, this was an independently mobile population who were not yet using wheelchairs. Therefore, this extra space could be used for storage in areas like the kitchen, bathroom, and bedroom until it is required.

Furthermore, participants indicated the necessity of grab bars in bathrooms. As of 2001, all Levels of Adaptable Design units are required to have solid blocking provided in the walls of the bathtub/shower, toilet, and towel bars, enabling participants living in units built post-2001 to safely and securely install grab bars without fear of the bars falling off the wall. The recommendation proposing that the number of adaptable units be increased will allow all future residents the option of safely and securely installing grab bars. This would inevitably allow older adults to maintain ADL performance with regard to toileting and bathing, and, delay institutionalization for some.

The Central Lonsdale area in North Vancouver is fast becoming a Naturally Occurring Retirement Community (NORC), which are generally buildings, apartment complexes, or neighbourhoods, not originally planned or designed for older people, without admission restrictions based on age, and where over time the majority of the residents have become older adults (Bassuk, 1999). NORCs evolve in three ways, the first is due to in-migration of older adults, second is due to the out migration of younger adults, and the third is caused through aging-in-place. Both the first and the third way have been occurring in North Vancouver, mainly in the Central Lonsdale area.

The City of North Vancouver can help to facilitate this through community planning by implementing neighbourhood design that is conducive to the needs of older adults. This includes increasing the density of the area so that it is less car dependent

with more shops and services nearby, provide shading on bus stops and more frequent sheltered bus stops, smoothing out uneven sidewalks so that older adults feel safe while walking in their community, and overall trying to make the community a more attractive place for older adults to reside.

NORCs also have the potential to assist in the reduction of provincial health care costs. The provincial Health Authorities now have a set area with which they can partner with the City of North Vancouver to target health services, as NORCs have been proven to facilitate cost-effective and efficient delivery of health care and social services to older adults (Pine and Pine, 2002). Present (1999) has found that NORCs have the capacity to provide retirement and assisted living services encompassing three important industry success factors: choice, convenient location, and affordability. For example, Present (1999) has estimated that an older adult can age in place in an NORC for about 58-67 percent less than in an assisted living facility.

NORCs in combination with Adaptable Design housing represent a method by which older adults can remain in their own homes while receiving services necessary to live independently and to meet their individual expectations (Pine and Pine, 2002). This will only occur through partnerships with the Provincial Health Authorities who have the capacity to provide these services, the City of North Vancouver who is able to promote this type of neighbourhood, and local community groups who can establish a steady client base and build trusting relationships with their clients.

The third implication is related to the above and deals with the findings regarding the IADL ability of these participants. Participants indicated that they required the most assistance with housekeeping, meal preparation, transportation, and shopping. Adaptable

Design units may only go so far in assisting older adults with these tasks. For example, cooking meals is made easier in a kitchen that has pullout shelves, cutting boards, and lower countertops. However, many older adults, due to illness, injury, or other age related losses, become unable to accomplish these tasks and require the assistance of others. This assistance can take the form of home support services that help with meal preparation, housekeeping, shopping, and transportation.

Since the mid-1990's, many provincial governments have noted that because they are under fiscal constraint they have been forced to eliminate crucial home support services by narrowing the concept and scope of what constitutes "health" services (Hollander, 2003). It has been found that cleaning services, meal preparation, and shopping assistance are critical in helping people to maintain their independence (Hollander, 2003). These same tasks were identified by the study participants as those required the most assistance. Yet, these are the exact non-medical services that are being eliminated by the provincial government. For example, in 2002, the provincial government announced that senior support services that serve the frail elderly were facing a 30% cut in 2002, along with the proposal that all funding be eliminated in the following three years (Holland, 2002). Hollander (2003) specified that there is a growing body of Canadian evidence that identifies home support services as a cost-effective intervention that can reduce demands on the institutional sector, thereby increasing overall efficiency in the health care system. As Adaptable Design is able to assist older adults with tasks such as cooking for oneself, in combination with modest investments and a revalidation of non-medical home support services (Hollander, 2003), it is possible that there can be even greater efficiency in the health care system than if each works alone.

Suggestions for Future Research

This study presented a qualitative evaluation of the use and satisfaction of Adaptable Design. However, there are a number of other possibilities available for future exploration. As this study did not separate the participants into Adaptable Design levels, because it was an exploratory study looking at the general use and satisfaction of the features regardless of level, there is a possibility that there could be differences between the participant's use and satisfaction based on which Adaptable Design level unit they reside in. Furthermore, levels of independence could differ between Adaptable Design levels, as was displayed by those living in the Summerhill, which is Level Three Adaptable Design.

One of the findings was that women were dissatisfied with the height of the kitchen cupboards. However, gender differences were not examined any further and it is possible that there were other areas in the unit in which women utilized their units differently than men. As there are more older women than men living alone, this could have implications for the design of future units.

Another finding from this study suggested that the location of the buildings in North Vancouver, rather than Adaptable Design, was the deciding factor for most participants to relocate to their present unit. Future research could examine other locations with high concentrations of older adults to determine what drew residents to those areas. This could help determine where future locations of Adaptable Design buildings should be constructed.

As there is an expected increase in Adaptable Design units in the City of North Vancouver, especially with regard to Level Two and Three units, there is an opportunity

for larger sample sizes and increased availability of a random sample in order to conduct a multivariate analysis on the effects of Adaptable Design on the independence levels in older adults. Along with a qualitative evaluation, this would provide more concrete results on the effects that design has on the functional independence of older adults and answer questions relating to the possibilities of keeping older adults at home for longer periods of time with maintained independence levels.

Limitations

The current evaluation had a number of methodological problems. The first limitation was sample size. This project utilized a non-random purposive sampling technique which involved selecting the sample based on characteristics that meet the project's requirements (Del Balso & Lewis, 1997). This method is fine for qualitative analysis, as it an optimal way to provide rich data, however, this study could have integrated a quantitative component which would identify if those with lower levels of independence were making more changes to their units. However, this is best used with a random sample in order to be able to generalize results to a population. There are 304 units and the goal of the evaluation was to achieve a 33 percent response rate. This would require 100 completed questionnaires. This study obtained 53 questionnaires yielding an 18% response rate making the statistical power of the results extremely low.

There is an understanding that in order to achieve the conservative level of statistical power of .80, which is the probability that statistical significance will be reached given that there really is a treatment effect (Wister, 1993), the ideal sample size would have to be 400 participants in each group. Therefore, even if a 100 percent

response rate were achieved, a non-random sample and the small sample size would limit the overall statistical power of any findings.

As the study began during the summer of 2003, and part of it was conducted for the City of North Vancouver, there was only a four-month time frame for the survey questionnaires to be distributed and collected. The sample size may have been increased if more time had been given for initial data collection. Furthermore, certain building representatives and Strata Councils in two locations were unsupportive of the project which hindered questionnaire distribution and, therefore, reduced sample sized.

Nonetheless, after the completion of the study for the City of North Vancouver, a second round of questionnaires was mailed to residents in the Summerhill during the winter of 2004 to try and increase the sample size. After this was done, participants from all buildings were contacted for interviews. This poses another methodological issue, as there was a sixth month lapse for some participants between completing the survey-questionnaire and being contacted for an interview. In this time, some participants had moved, passed away, or did not remember filling out the survey questionnaire or indicating that they would like to participate in the study. To aid the participants, their survey questionnaires were given to them before the start of the interview to help them recall what they wrote. However, as a snowball technique was utilized after the start of the face-to-face interviews to obtain more participants in the Summerhill, nine of the participants in the interviews had not previously filled out a questionnaire limiting their frame of reference.

Another limitation was the method used to illicit descriptive data. Part A of the questionnaire was employed to gauge the demographics of the population, awareness of

Adaptable Design, the changes made to the units and why, and future changes made to units. This questionnaire was never pre-tested with a similar population to detect any survey problems nor was the reliability or validity of the questionnaire tested. In other words, the questionnaire was never assessed to see if it actually measured what set out to measure, or the extent to which the questionnaire would yield the same results if repeated on a similar population.

However, Part B of the questionnaire, used to assess levels of functional independence, was adapted from the Canadian version of the Minimum Data Set-Home Care (1999) and has been tested for validity and reliability. Landi et al., (2001) evaluated the impact the MDS-HC on the functional status and hospitalization rates of frail, community-dwelling older people and concluded that the MDS-HC could provide a cost-saving approach to reducing institutionalization and functional decline in older people living in the community.

Likewise, Morris et al. (1997) tested the reliability of the MDS-HC and its identification system using older home care clients from five different countries, namely Japan, United States, Canada, Australia, and the Czech Republic. In general, the reliability of items from the MDS-HC drawn from the MDS 2.0 was comparable to those found for other highly rated nursing home assessments. Similarly, high reliability values were also found for items newly introduced in the MDS-HC. In future studies, the results from this evaluation can be used as the pre-test group and used to evaluate the reliability and validity of the questionnaire.

A methodological issue also emerged through the participation of residents from the Summerhill. The manager of Summerhill initially self-selected ten participants to

participate in a group setting to fill out the survey-questionnaire. These participants may not have been representative of the rest of the residents in Summerhill. The ten participants seemed to be fairly independent and healthy. If they were not, they may not have agreed to participate in the group setting that the questionnaire took place in. Furthermore, while the questionnaire was being filled out, the manager of Summerhill was present which may have caused some participants to express the opinions of the group, rather than reflect their own thoughts or opinions. Threats to external validity should be considered for future research.

Conducting qualitative analysis includes other limitations, such as the influence that the researcher has on the participants during the interview. Many of the participants have grandchildren, some of which are in university. These participants may have viewed the researcher as a family member, such as a “granddaughter” figure, and tried to answer the questions in ways that would please the researcher and assist what they perceived the objectives of the study. Also, as the researcher had limited experience in conducting interviews, it is possible that some of the prompting questions asked by the researcher that were not listed in the interview guide were somewhat leading, eliciting the response the researcher wanted to hear. Steps were taken to try and rephrase questions when it was thought this had occurred. Furthermore, the data collected for this study was not of an extreme personal nature and would not greatly affect the results even if some leading questions were used.

Conclusion

This was the first qualitative evaluation undertaken to assess how well the Adaptable Design Guidelines were working for residents of adaptable units who were

over the age of 50 years old. This evaluation integrated Part One of Carp and Carp's (1984) Complementary/Congruence model as the guiding theoretical framework and found that it worked well in predicting the outcome of continued independent living. However, it is recommended that a simpler model, such as Lawton and Nahmehow's (1973) Environmental Docility Hypothesis be used with this type of qualitative evaluation as Carp and Carp's (1984) model was quite complex and designed to utilize objective measures.

In addition, data from the interviews related well to concepts found in the behavioral model of migration proposed by Wiseman (1980). The interviews revealed that there are multiple factors that interact and influence participants to move to their current units, such as their health status, environmental incongruence, and pressure from their families. For many participants, the location of the building unit in North Vancouver was the major "pull factor" as opposed to its adaptable features. Results also indicated that participants were very independent and did not yet utilize all of adaptable features in their units. However, in the future, participants are likely to need the features. Participants were also aware that the features were there and they found that the features assisted them in carrying out their daily activities.

The results study can be used to inform the City of North Vancouver, and other municipalities who are considering implementing this type of design, how older adults are utilizing their units and how the units help contribute to independence. For example, many older adults are installing or wish to install grab bars and by having wall backing in the bathroom, bars can be safely installed, thereby assisting seniors to toilet and shower independently.

Furthermore, this study also illustrates how when deciding to build housing with Adaptable Design geared towards seniors, it is important to factor in the location of the building within the community and the surrounding services as the Central Lonsdale area can now be considered a NORC due to the amount of seniors living in the area. The City of North Vancouver can further benefit from this by forming partnerships with Health Authorities and other community groups, whereby cost-effective and efficient delivery of health care and social services can be administered.

Overall, it appears that the current Adaptable Design Guidelines were meeting the needs of residents of adaptable units. This may change with the aging of the City of North Vancouver's population. A similar evaluation conducted every few years will provide insight into the changing needs of City residents and may lead to revisions to the Adaptable Design Guidelines requirements.

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APPENDIX A: STRATEGIES TO SUPPORT SENIORS HOUSING

City of North Vancouver Strategies to Support Senior's Housing

1. The City's housing priority is development of affordable rental housing, particularly where City funds or land are involved.
2. The City supports seniors' housing initiatives which are based on partnerships and innovative uses of resources, including projects which incorporate services or retail components.
3. The City supports initiatives which assist seniors with resources (equity) to meet their housing needs.
4. In order to promote adequate design of seniors' housing which ensures that "aging in place" is possible, the City's development, review and assessment processes will utilize locational and design guidelines developed by local seniors' organizations.
5. The Central Lonsdale and Lower Lonsdale areas will be maintained and enhanced as liveable neighbourhoods through careful urban design which recognizes seniors' limitations and needs for accessibility and convenience.
6. Projects which have considered in their concept and design the integration of services with housing will be given priority in City processes, and their amenity areas will be considered for FSR exclusions.
7. Member organizations of the Services to Seniors Coalition will be considered potential resources to the City regarding seniors' housing concerns or development proposals.

Adopted September 1994

APPENDIX B: CITY OF NORTH VANCOUVER: FIRST ADAPTABLE DESIGN GUIDELINES



CITY OF NORTH VANCOUVER ADAPTABLE DESIGN GUIDELINES

“Adaptable design” will create liveable residences for a wider range of persons than current housing design permits. The design will allow for adaptations required by residents with varying or changing needs, and allow for independent living for those with moderate disabilities.

In June 1997, Council endorsed the **“Adaptable Design Guidelines”** for use on a voluntary basis for one year. After an assessment of the Guidelines, revisions and implementation procedures will be defined.

The Guidelines have three levels: **Level I** which are simple design and feature elements, and **Level II** and **Level III** elements which provide the aspects for a greater range of adaptability. In addition to the Barrier-Free requirements of the current Building Code, the Adaptable Design Guidelines are applicable to Multiple Unit Buildings which have common corridors.

Initial experience in use of the Adaptable Design Guidelines has shown that in some cases it is possible to install a fixture or adaptation in future as required:

****** denotes a fixture or feature which can be added in future when and if required.

The Guidelines will also be applied with the awareness that through new developments in technology it may be possible that the intent of a specified design requirement can be met by an equivalent.

It is proposed that in future the City of North Vancouver amend its Zoning Bylaw or Building Bylaw to include these design guidelines and also to include provision for barrier-free stalls for all Multiple Unit Buildings. As more and more people with chronic disabilities live in the community, residential design can support their independence. Thus it is important to include some stalls in each new residential project, or provide for their future provision in the parking area of a proposed residential building (i.e., illustrate

that the column spacing of the parking garage will allow for three regular sized spaces to become two barrier-free spaces.

A. Adaptable Design: Level I

It is proposed that future City policy require Level I Adaptable Design elements in all multiple unit buildings with common corridors:

1. 3' suite doors
2. Lever door handles on all amenity and suite doors
3. Flush thresholds throughout the building
4. Wall backing provided in tub/shower and toilet areas
5. Pressure balanced tub/shower valves

B. Adaptable Design: Level II & Level III

It is proposed that inclusion of Level II and Level III Adaptable Design be guided by future policy, subject to rezonings and promoted through incentives. Level I elements are requirements in Level II and Level III Adaptable Design.

I. OUTSIDE THE BUILDING:

** *fixture/feature can e added in future*

LEVEL II	LEVEL III (in addition to LEVEL II)
1. Parking and Building Access: - pathways and curb cuts have tactile and visual cues	
2. Public Entrance: - good lighting inside entrance and outside the entry door (double bulb fixtures inside entrance) - accessible intercom - provision of wiring for automatic door opener	- canopy over entrance (900mm/3' x 900mm/3') - easy to read building address numbers (100mm/4" high in contrasting colours)

II. INSIDE THE BUILDING:

1. Common Areas: - accessible mailboxes	- provision for strobe lighting to be tied into emergency alarm system
2. Circulation: - Slip resistant floors (including slate, brushed concrete, carpet)	- corridors minimum 1,200mm or 4' wide entryways with setbacks at unit entries to 1,500mm ** colour contrasting exit doors

III. INSIDE THE UNIT:

LEVEL II	LEVEL III
<p>1. Doors:</p> <ul style="list-style-type: none"> - entry doors 900mm or 3' leaf - interior doors 850mm or 2'10" leaf - beveled thresholds 13mm or ½" high - accessible handles and closures - pocket doors in small spaces 	<ul style="list-style-type: none"> - door lock easily operated - peepholes at two different heights
<p>2. Dwelling Entry:</p> <ul style="list-style-type: none"> - provide 5' turning radius within the corridor at each dwelling entry by recessing the unit entry 	
<p>3. Floor Surfaces:</p> <ul style="list-style-type: none"> - slip resistant - non-glare <p><i>(Refer to CMHC Barrier Free Options & Adaptable Housing, Appendix A, for summary of accessibility provided by various types of flooring)</i></p>	<ul style="list-style-type: none"> - carpet and underlay maximum 13mm/1/2" ** hard surfaces for dining/eating areas
<p>4. Patios & Balconies:</p> <ul style="list-style-type: none"> - minimum 2'10" clear door opening - balcony floor and adjoining room of same level, and threshold is sloped and no higher than 13mm/1/2" - adequate outdoor lighting - minimum 5'/1500mm patio/balcony depth to ensure usability by wheelchair users 	<ul style="list-style-type: none"> - electric outlet provided - adjustable door closure to reduce force to open door to maximum 22N or 5 lbs.
<p>5. Electrical:</p> <ul style="list-style-type: none"> - switches maximum 1,200mm/4' above floor - electric outlets, cable outlets, and telephone jacks not lower than 450mm/18" above finished floor - telephone and electrical outlets in close proximity - 3 way switches in all circulation areas - wiring for strobe lighting - rocker switches 	<ul style="list-style-type: none"> - double bulb ceiling fixtures - duplex outlets beside phone jacks - electric outlet inside unit entry for future installation of automated door system - provision for 2-way intercom system
<p>6. Windows:</p> <ul style="list-style-type: none"> - kitchen and bedroom sills 1,000mm /3'4" above floor; other sills maximum 750mm/2' 5.5" from floor - easily grasped mechanisms for opening and locking windows 	
<p>7. Kitchen (see attached generic designs):</p> <ul style="list-style-type: none"> - task lighting at sink, stove and work areas - pull-out work boards - easy to use facets (lever handles) and cabinet handles - provision for removal of sink cabinet and lowering of counter height - adjustable shelves in all cabinets - provision for plumbing services to adjust to 4" drop 	<ul style="list-style-type: none"> - turning radius 1,500mm/5' diameter - sink counter minimum 800mm/2'8" wide with provision for knee space under sink, and with insulated pipes - adjustable height work counter minimum 800mm/2'8" wide - upper cupboards 1,350mm/4'6" above floor

<p>in sink height</p>	<ul style="list-style-type: none"> - pull-out and pull-down shelving in key areas - provide 800mm/2'8" wide work space beside stove or cooktop plus pull-out work board beside wall oven - provide sufficient space for future installation of cooktop and wall oven - some electric switches and outlets provided at front of counters - where regular refrigerator installed initially provide adequate space for side by side refrigerator - water temperature regulation
<p>8. Bathrooms (see attached generic designs):</p> <ul style="list-style-type: none"> - wall reinforcement at toilet and tub surround areas - 900mm/3' wide space beside toilet, tub/shower, sink - slip resistant tub/shower surfaces - provision for plumbing services to adjust to 4" drop in sink height - provision for removal of cabinet and lowering of counter height 	<ul style="list-style-type: none"> - turning radius 1,500mm/5' diameter beside sink/toilet/tub - space under sink minimum 800mm/2'8" width, with insulated pipes ** - water temperature regulator on tub/shower faucet - 1,000mm/3'4" towel bars, ground-fault interrupting receptacle, lower edge of wall mirror - shower accessible to wheelchair user (13mm/1/2" maximum threshold) ** ceiling heat lamp next to tub/shower ** adjustable height shower head or hand-held shower head on adjustable bracket
<p>9. Living Rooms:</p> <ul style="list-style-type: none"> - one switched electrical outlet 	<ul style="list-style-type: none"> - extra electrical outlets
<p>10. Bedrooms:</p> <ul style="list-style-type: none"> - 3-way switched outlet at bed area and doorway - ceiling light fixture - telephone jack 	<ul style="list-style-type: none"> - sufficient maneuvering room around double bed ** adjustable height clothes rod and shelf
<p>11. Storage Space:</p> <ul style="list-style-type: none"> - light in closets 	<ul style="list-style-type: none"> - electrical outlet provided - adjustable height shelving
<p>12. Laundry Facilities:</p>	<ul style="list-style-type: none"> - 1,200mm/4' maneuvering space in front of washer and dryer - controls easily reached and operated (i.e., front loading washer)

APPENDIX C: CITY OF NORTH VANCOUVER: LIST OF ADAPTABLE DESIGN UNITS

1. **Quayside Village Co housing:** 510 Chesterfield Ave.
Owned and some subsidized rental units.
Completed 1998
Level 1 and Level 2 in some units and common area
Total: 19 units
1997 Guidelines
Developer: Bob Mann

2. **Alegria (Legion Towers):** 121 West 15th St.
Completed April 2000
Level 2: 52 owned units
BC Housing requirements: 25 subsidized rental Adaptable Design units; 8 wheelchair accessible units *
Total: 85 units
1997 Guidelines
Developer: Bel-Tar Holdings
*Will be considered Level 2 design for the purpose of this project.

3. **The Symphony:** 120 West 16th St.
All owned units.
Rezoned 1999; completed 2002
Level 2: 46 units
Level 3: 5 units
Total: 51 units
1998 Guidelines
Developer: Reza Salehi, Palladium Group

4. **The Summerhill:** 135 West 15th St.
All rental units.
Rezoned 2000; completed 2001
Level 3: 107 units
Total: 107 units
1998 Guidelines
Developer: Rainer Adam Muller Management
Supportive housing

5. **Quay View Community Housing Project (non-profit):** 150 W.2nd
Some market rental and some subsidized rental units.
Completed 2001
Level 1: 8 units
Level 3: 34 units
Total: 42 units
1998 Guidelines

Developer: NS Assoc. Mentally Handicapped

Total:

Level 1: 27 units (9% of total units)

Level 2: 131 units (43% of total units)

Level 3: 146 units (48% of total units)

Total units: 304 units

APPENDIX D: ADAPTABLE DESIGN GUIDELINES

Design Elements

	LEVEL ONE	LEVEL TWO	LEVEL THREE
BUILDING ACCESS	Outside stairs – maximum degree of colour contrast on nosing of each stair	Outside stairs – maximum degree of colour contrast on nosing of each stair	Outside stairs – maximum degree of colour contrast on nosing of each stair
BUILDING ACCESS	Curb cuts have tactile and visual cues	Curb cuts have tactile and visual cues	Curb cuts have tactile and visual cues
BUILDING ACCESS	Unobstructed access to main building entrances from street/sidewalks	Unobstructed access to main building entrances from street/sidewalks	Unobstructed access to main building entrances from street/sidewalks
BUILDING ACCESS	Unobstructed access from parking levels containing accessible parking (5' or 1520mm corridors; 2' or 610mm clear wall space adjacent to door latch) •	Unobstructed internal access: - from parking levels containing accessible parking (5' or 1520mm corridors; 2' or 610mm clear wall space adjacent to door latch) • - garbage and recycling receptacles and storage lockers	Unobstructed internal access: - from parking levels containing accessible parking (5' or 1520mm corridors; 2' or 610mm clear wall space adjacent to door latch) • - garbage and recycling receptacles and storage lockers
BUILDING ACCESS	Canopy over main building entrances (3' or 915mm or 3' x 915mm) and enterphone	Canopy over main building entrances (3' or 915mm or 3' x 915mm) and enterphone	Canopy over main building entrances (3' or 915mm or 3' x 915mm) and enterphone
BUILDING ACCESS	Provide wiring for automatic door opener for building entry door	Provide automatic door opener for building entry door	Provide automatic door opener for building entry door
BUILDING ACCESS	One accessible parking stall per 25 or less required stalls up to 50 unit buildings, and one additional stall for every 50 parking stalls in building with more than 50 units	Two accessible parking stalls per 25 or less required stalls up to 50 unit buildings, and two additional stalls for every 50 parking stalls in building with more than 50 units	Two accessible parking stalls per 25 or less required stalls up to 50 unit buildings, and two additional stalls for every 50 parking stalls in building with more than 50 units
BUILDING ACCESS	2'8" or 800mm building and suite entry doors	3' or 915mm building and suite entry doors	3' or 915mm building and suite entry doors
BUILDING ACCESS	Flush thresholds throughout the building (maximum ½" or 13mm height)	Flush thresholds throughout the building (maximum ½" or 13mm height)	Flush thresholds throughout the building (maximum ½" or 13mm height)
BUILDING ACCESS	Accessible building enterphone, call buttons and, where provided, suite door bells •	Accessible building enterphone, call buttons and, where provided, suite door bells •	Accessible building enterphone, call buttons and, where provided, suite door bells •

	LEVEL ONE	LEVEL TWO	LEVEL THREE
CIRCULATION	Corridors minimum 4' or 1220mm wide (except for service access areas) *	Corridors minimum 4' or 1220mm wide (except for service access areas) *	Corridors minimum 4' or 1220mm wide (except for service access areas) *
CIRCULATION		Provide 5' or 1520mm turning radius inside and outside the entry corridor of each dwelling unit *	Provide 5' or 1520mm turning radius inside and outside the entry corridor of each dwelling unit *
BUILDING & UNIT CIRCULATION		Provide automatic door opener or 2' or 610mm clear wall space adjacent to door latch where door swings toward user (entry doors, bathroom, bedrooms, patio / balcony, storage) *	Provide automatic door opener or 2' or 610mm clear wall space adjacent to door latch where door swings toward user (entry doors, bathroom, bedrooms, patio / balcony, storage) *
COMMON AREAS		Accessible mailboxes for all AD Level 2 units, and 5' or 1520mm turning radius in front *	Accessible mailboxes for all AD Level 3 units, and 5' or 1520mm turning radius in front *
DOORS		Interior doors 2'10" or 860mm clear opening	Interior doors 2'10" or 860mm clear opening
DOORS		Pocket doors in small spaces (provide 2'10" or 860mm clear opening; heavy duty, double-guided hardware and D-handle) *	Pocket doors in small spaces (provide 2'10" or 860mm clear opening; heavy duty, double-guided hardware and D-handle) *
PATIOS & BALCONIES		Minimum 860mm or 2'10 clear door opening	Minimum 860mm or 2'10 clear door opening
PATIOS & BALCONIES		Balcony doorsill level with suite floor level and sloped threshold no higher than 1/2" or 13mm **	Balcony doorsill level with suite floor level and sloped threshold no higher than 1/2" or 13mm **
PATIOS & BALCONIES		Minimum 5' or 1520mm turning radius on patio / balcony	Minimum 5' or 1520mm turning radius on patio / balcony
WINDOWS		Opening mechanism maximum 46" or 1168mm above floor (provide notation on window schedule)	Opening mechanism maximum 46" or 1168mm above floor (provide notation on window schedule)
WINDOWS		Sills maximum 2'6" or 750mm above floor	Sills maximum 2'6" or 750mm above floor
KITCHEN		Continuous counter between stove and sink *	Continuous counter between stove and sink *
KITCHEN			Sink cabinet minimum 2'8" or 810mm wide.
KITCHEN			Provide sufficient space for future installation of cooktop and wall oven.
KITCHEN			Adjustable height work space minimum 2'8" or 810mm wide.
KITCHEN			Lower edge of upper cupboards 4'6" or 1350mm above floor

	LEVEL ONE	LEVEL TWO	LEVEL THREE
KITCHEN			Minimum 4' or 1220mm floor space between base cabinets / walls (possible with removal of sink cabinet) *
MIN. ONE BATHROOM		Toilet located adjacent to wall (min 3' or 915mm length) •	Toilet located adjacent to wall (min 4'6" or 1370mm length) •
MIN. ONE BATHROOM		Provide turning radius within bathroom (may result from removal of vanity cabinet)*	Provide turning radius within bathroom (may result from removal of vanity cabinet)*
MIN. ONE BATHROOM		3' or 915mm clearance along full length of tub *	3' or 915mm clearance along full length of tub *
MIN. ONE BATHROOM		Tub control valve placed at outer edge of tub, with tub spout remaining in central position *	Tub control valve placed at outer edge of tub, with tub spout remaining in central position *
MIN. ONE BATHROOM		Accessible storage •	Accessible storage*
MIN. ONE BATHROOM			Provide door swing out, or pocket door *
MIN. ONE BATHROOM			Space under sink minimum 2'8" or 810mm wide *
MIN. ONE BATHROOM			Provide for future installation of shower accessible to wheelchair user (maximum 1/2" or 13mm threshold) *
MIN. ONE BEDROOM			Sufficient maneuvering room between closet and double bed *
MIN. ONE BEDROOM			Provide 3' or 915mm access to window opening *
LAUNDRY FACILITIES			Provide front loading side-by-side washer / dryer in-suite or in common area
LAUNDRY FACILITIES			4' or 1220mm maneuvering space in front of washer / dryer

Fixtures and Finishes

	LEVEL ONE	LEVEL TWO	LEVEL THREE
BASIC	Easy to read building address numbers (min. 4" or 100mm high in contrasting colours)	Easy to read building address numbers (min. 4" or 100mm high in contrasting colours)	Easy to read building address numbers (min. 4" or 100mm high in contrasting colours)
BASIC	Good lighting outside and inside main building entries and unit entries (min. 80 lux)	Good lighting outside and inside main building entries and unit entries (min. 80 lux)	Good lighting outside and inside main building entries and unit entries (min. 80 lux)
BASIC	No polished finish on building entry flooring	No polished finish on building entry flooring	No polished finish on building entry flooring
BASIC	Lever door handles on all doors (provide notation on door schedule)	Lever door handles on all doors (provide notation on door schedule)	Lever door handles on all doors (provide notation on door schedule)
BASIC	Signage throughout common areas has well contrasted colours	Signage throughout common areas has well contrasted colours	Signage throughout common areas has well contrasted colours
BASIC	Elevators have well contrasted control buttons	Elevators have well contrasted control buttons	Elevators have well contrasted control buttons
BASIC	Duplex outlets beside telephone jacks	Duplex outlets beside telephone jacks	Duplex outlets beside telephone jacks
BUILDING ENTRY			
		Provision of wiring for automatic door	Provision of wiring for automatic door
CIRCULATION			
		Slip resistant flooring	Slip resistant flooring
CIRCULATION			
		Colour contrasting exit doors	Colour contrasting exit doors
EMERGENCY PROVISIONS			
		Provision for visual alarm signal to be tied into fire alarm system	Provision for visual alarm signal to be tied into fire alarm system
COMMON ROOM(S)			
		Provide carpet and drapes to absorb sound and lessen echoes	Provide carpet and drapes to absorb sound and lessen echoes
UNIT ENTRIES			
		Adjustable door closures to reduce force to open door to maximum 22N or 5 lbs.	Adjustable door closures to reduce force to open door to maximum 22N or 5 lbs.
UNIT ENTRIES			
		Door handle @ 35" or 900mm to 39" or 990mm from floor with deadbolt immediately above	Door handle @ 35" or 900mm to 39" or 990mm from floor with deadbolt immediately above
UNIT ENTRIES			
			Two door viewers: 3' 5" or 1050mm and 5' or 1520mm
UNIT FLOORING			
		Non-glare kitchen floors and slip-resistant bathroom flooring	Non-glare kitchen floors and slip-resistant bathroom flooring

	LEVEL ONE	LEVEL TWO	LEVEL THREE
UNIT FLOORING		High density, low level loop carpet and underlay maximum 1/4" or 13mm height	High density, low level loop carpet and underlay maximum 1/2" or 13mm height
PATIOS AND BALCONIES		Outdoor light fixture provided	Outdoor light fixture provided
PATIOS AND BALCONIES		Electrical outlet provided	Electrical outlet provided
ELECTRICAL		Switches and thermostats maximum 3'6" or 1,100mm above floor	Switches and thermostats maximum 3'6" or 1,100mm above floor
ELECTRICAL		Electrical outlets, cable outlets, telephone jacks not lower than 18" or 450mm above floor	Electrical outlets, cable outlets, telephone jacks not lower than 18" or 450mm above floor
ELECTRICAL		Three-way switches in unit circulation areas	Three-way switches in unit circulation areas
ELECTRICAL	Wiring for visual alarm system in living room and minimum one bedroom, connected to fire alarm system	Wiring for visual alarm system in living room and minimum one bedroom, connected to fire alarm system	Wiring for visual alarm system in living room and minimum one bedroom, connected to fire alarm system
ELECTRICAL		Rocker switches	Rocker switches
ELECTRICAL			Double bulb ceiling fixtures
ELECTRICAL			Provide wiring for automatic door opener and strike at unit entry
WINDOWS		Easily grasped and operated mechanism for opening and locking windows.	Easily grasped and operated mechanism for opening and locking windows.
KITCHEN		Task lighting at sink, stove and work areas	Task lighting at sink, stove and work areas
KITCHEN		Pull-out work boards at 2'8" or 810mm height *	Pull-out work boards at 2'8" or 810mm height *
KITCHEN		Lever handle faucets and "D" cabinet handles	Lever handle faucets and "D" cabinet handles
KITCHEN		Adjustable shelves in all cabinets	Adjustable shelves in all cabinets
KITCHEN			Drawer storage in key areas*
KITCHEN			Provision for removal of sink cabinet and lowering of counter height
KITCHEN			Provision for plumbing services to adjust to 4" or 100mm drop in sink height (offset plumbing)

	LEVEL ONE	LEVEL TWO	LEVEL THREE
KITCHEN			Some electrical switches and outlets provided at front of counters
KITCHEN			Where regular refrigerator installed initially, provide adequate space for side by side model
KITCHEN			Contrasting knobs on stove / cook top
MIN. ONE BATHROOM	Solid blocking provided in walls of tub / shower and toilet areas, and behind towel bars •	Solid blocking provided in walls of tub / shower and toilet areas, and behind towel bars •	Solid blocking provided in walls of tub / shower and toilet areas, and behind towel bars •
MIN. ONE BATHROOM	Pressure balanced tub / shower valves	Pressure balanced tub / shower valves	Pressure balanced tub / shower valves
MIN. ONE BATHROOM		Offset plumbing for vanity	Offset plumbing for vanity
MIN. ONE BATHROOM		Provision for vanity sink removal	Provision for vanity sink removal
MIN. ONE BATHROOM		Adjustable height shower head or hand-held shower head on adjustable bracket*	Adjustable height shower head or hand-held shower head on adjustable bracket •
MIN. ONE BATHROOM			Water temperature regulator on tub / shower faucet
LIVING ROOM		One switched electrical outlet	One switched electrical outlet
BEDROOMS		Three-way switched outlet at bed area and doorway	Three-way switched outlet at bed area and doorway
BEDROOMS		Light fixture above closet	Light fixture above closet
BEDROOMS	Telephone jack	Telephone jack	Telephone jack
IN-SUITE STORAGE		Light and electrical outlet provided	Light and electrical outlet provided

APPENDIX E: INTRODUCTION LETTER AND CONSENT FORM

To Whom It May Concern:

In 1997, the City of North Vancouver developed a new type housing design, which allows people to “age in place”. This type of housing is set out in the ‘Adaptable Design Guidelines’. These guidelines have now been implemented in numerous buildings throughout the city. Your building is one of these buildings.

We are now in the process of studying how well these units are working for the people who live in them. The goals of our evaluation are to find out if you are happy with the design in your unit, what you have changed in your unit, and what you would change in your unit. We also want to assess if adaptable design results in more accessibility for you and to find out what is missing or requires changes in the guidelines.

We understand that you live in one of the adaptable design units and we would appreciate your participation in our project. It will consist of an initial group meeting and a survey, which you may do on your own or in a group setting. Upon the return of the surveys, we would like to interview you to find out a little more about adaptable design in your unit. This interview would last no longer than 1 hour. Your confidentiality is guaranteed, meaning your name will not appear on any written publications and the research material will be held confidential to the extent provided by the law.

Please feel free to contact me with any questions or concerns that you may have at (xxx) xxx-xxxx. Thank you for your consideration.

Sincerely,
Sara Danziger
BASc, MA Candidate, SFU

Informed Consent by Subjects to Participate in a Research Project or Experimentation

Simon Fraser University and those conducting this project subscribe to the ethical conduct of research and to the protection at all times of the interests, comfort, and safety of subjects. This research is being conducted under permission of the Simon Fraser Research Ethics Board. The chief concern of the Board is for the health, safety and psychological well-being of research participants.

Should you wish to obtain information about your rights as a participant in research, or about the responsibilities of researchers, or if you have any questions, concerns or complaints about the manner in which you were treated in this study, please contact the Director, Office of Research Ethics by email at hweinber@sfu.ca or phone at 604-268-6593.

Your signature on this form will signify that you have received a document which describes the procedures, possible risks, and benefits of this research project, that you have received an adequate opportunity to consider the information in the documents describing the project or experiment, and that you voluntarily agree to participate in the project or experiment.

Any information that is obtained during this study will be kept confidential to the full extent permitted by the law. Knowledge of your identity is not required. You will not be required to write your name on any other identifying information on research materials. Materials will be maintained in a secure location.

Title: ADAPTABLE DESIGN IN FIVE HOUSING PROJECTS IN NORTH VANCOUVER: CLIENT USE AND SATISFACTION

Investigator Name: Sara Danziger
Investigator Department: Gerontology

Having been asked to participate in a research project or experiment, I certify that I have read the procedures specified in the information documents, describing the project or experiment. I understand the procedures to be used in this experiment and the personal risks to me in taking part in the project or experiment, as stated below:

Risks and Benefits:

There are no risks. The benefits include providing knowledge that will inform the City of North Vancouver and other communities of key Adaptable Design features that may assist in maintaining independence levels in older adults.

I understand that I may withdraw my participation at any time. I also understand that I may register any complaint with the Director of the Office of Research Ethics or the researcher named above or with **GLORIA GUTMAN** Director of the Department of Gerontology at Simon Fraser University at (xxx) xxx-xxxx

I may obtain copies of the results of this study, upon its completion by contacting:
Sara Danziger

I have been informed that the research will be confidential.

I understand that my supervisor or employer may require me to obtain his or her permission prior to my participation in a study of this kind.

What the Subject is Required to Do:

The subject is required to complete a survey questionnaire. There is also a face to face interview component which clarifies answers from the survey questionnaire in which the participant has the option of participating in.

Subject Name

Subject signature

Date

() -

Address

Contact number

Witness name

Witness signature

Date

APPENDIX F: ADAPTABLE DESIGN SURVEY QUESTIONNAIRE

This survey questionnaire will help us to understand how you use your unit and assess your level of independence; it will also address how your unit can affect independence. Please fill out as much of the survey questionnaire as you can. For items with () please use a check mark or an x. If you run out of writing space, please use the back of the survey questionnaire or extra paper.

*Confidentiality is guaranteed.

Thank you for your time.

PART A

1. Questionnaire number: _____
2. Building name: _____
3. Unit number: _____
4. Name & phone number (optional)

5. Age:
 Under 25
 26-35
 36-45
 46-55
 56-65
 66-75
 76-85
 86 or above
Please state age if above _____
6. Gender: Male () Female ()
7. Do you live with a:
 Spouse/Partner
 Roommate
 Alone
 Family member _____
 Other _____
8. Length of residence in unit: _____
9. Did you know you were living in an adaptable unit?
 Yes () No

Additional comments:

10. If yes, did you choose to live in this type of unit for a reason?

11. Did anyone inform you of the type of unit you would be moving into?

Yes No

12. If yes, who was it?

13. If yes, what did they tell you about the unit?

14. If no, would it have made a difference if you were informed of the unit type?

15. Do you think it is important to be informed about these types of designs in the unit?

Yes No

additional comments:

16. Do you have any suggestions as to how we can inform future residents about the adaptable design features in their unit (i.e. little sign posted on the back of the door)?

17. Are you happy with the design of the unit?

Entrance:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Kitchen:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hallway:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bathroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bedroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Living room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Dining room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Laundry room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Storage spaces:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Lighting:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Windows:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Doors:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Balcony:	<input type="checkbox"/> Yes <input type="checkbox"/> No

18. Have you make any changes to any of these spaces? If yes, please describe the changes you have made?

Entrance:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Kitchen:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hallway:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bathroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bedroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Living room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Dining room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Laundry room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Storage spaces:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Lighting:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Windows:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Doors:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Balcony:	<input type="checkbox"/> Yes <input type="checkbox"/> No

19. Why did you make these changes?

20. Do you expect you might make future changes to your unit? If yes, please describe.

Entrance:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Kitchen:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Hallway:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bathroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Bedroom:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Living room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Dining room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Laundry room:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Storage spaces:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Lighting:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Windows:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Doors:	<input type="checkbox"/> Yes <input type="checkbox"/> No
Balcony:	<input type="checkbox"/> Yes <input type="checkbox"/> No

PART B*

1. Think about the **last three days** and then check off how independent you were in performing the following activities (ADLs). Your choices are:

Independent (IND): Can do on my own.

Some help: Need help some of the time.

Full help: Need help all of the time

By others: Performed by another person.

Don't know (DK).

	Independent	Some help	Full Help	By others	Don't know
Transferring: Moving to and between surfaces (Bed to chair, Chair to standing position). Excludes toilet.					
Moving around in housing unit					
Moving outside of home					
Dressing upper body					
Dressing lower body					
Eating					
Using the toilet					
Bathing/Showering					
Grooming					

2. What is your primary method of moving around **indoors**?
0. No need for assistive device.
 1. Cane
 2. Walker/crutch
 3. Scooter
 4. Wheelchair
3. What is your primary method of moving around **outdoors**?
0. No need for assistive device
 1. Cane
 2. Walker/crutch
 3. Scooter
 4. Wheelchair.
4. Can you use the stairs in your building, if needed?
0. Yes, without help
 1. Yes, with help

2. No
5. In a typical week, how many times do you leave your unit?
0. Every day
 1. 2-6 days a week
 2. 1 day a week
 3. No days a week.
6. How many hours of physical activity have you done in the last three days?
0. Two or more hours
 1. Less than two hours.
7. Think about the **last seven days** and then check off how independent you were in performing the following activities (IADLs). Your choices are:

Independent: Can do on my own.
Some help: Need help some of the time.
Full help: Need help all of the time
By others: Performed by another person.
Don't know.

	Independent	Some help	Full Help	By others	Don't know
Preparing meals					
Ordinary housework					
Managing finances					
Managing medications					
Using the phone					
Shopping					
Transportation-how you go places.					

8. If you do the following activities independently, how difficult is it for you to perform the following activities?

- No difficulty**
- Some difficulty**
- Great difficulty**

	No Difficulty	Some Difficulty	Great Difficulty
Preparing meals			
Ordinary housework			
Managing finances			
Managing medications			
Using the phone			
Shopping			
Transportation-how you go places.			
Transferring: Moving to and between surfaces (Bed to chair, Chair to standing position). Excludes toilet.		+	
Moving around in housing unit		+	
Moving outside of home			
Dressing upper body			
Dressing lower body		+	
Eating			
Using the toilet			
Bathing/Showering		+	
Grooming			

PART C

1. Do you believe that you are more capable of increased functioning?

Yes

No

2. Do you feel that the design of your unit helps to make things easier for you?

Yes

No

3. If yes, in what ways?

4. Would you be interested in participating in an interview related to the contents of this questionnaire? (Please give your name and number) _____

APPENDIX G: FACE-TO-FACE INTERVIEW GUIDE

1. Describe where you lived before you moved into this unit?
2. Describe how independent you were in performing activities of daily living and instrumental activities of daily living before moving into this unit?
3. Describe how independent you are now in performing activities of daily living and instrumental activities of daily living?
4. Do you find that you use the Adaptable Design features built into the unit?
If so, which ones?

How do you use them?
5. Have you made any changes to the unit?
6. If your physical capabilities change in the future, do you feel the Adaptable Design features might be helpful for you?

APPENDIX H: ADDITIONAL LETTER TO SUMMERHILL RESIDENTS

Sara Danziger
Gerontology Research Centre
Gerontology Program
515 West Hastings Street
Vancouver, BC
V6B 5K3

Dear Summerhill Resident,

My name is Sara Danziger and I am a MA student in the Gerontology Program at Simon Fraser University. I am conducting a research on “Adaptable Design” in seniors housing. “Adaptable Design” refers to certain design features that are available in many units at Summerhill. I am interested to know if you use these features and if so, how are they helping your functioning. “Adaptable Design” includes some of these features, which you may or may not notice in your unit:

Lower light switches

Easy to turn on and off light switches

Raised electrical outlets

Wider doorways

Non-skid flooring

Room for a wheelchair

Easy to access cupboards and counters

No stairs in your unit

Raised toilet seat

I hope that you can take 10-20 minutes of your time to fill out the attached questionnaire. Also included is another form for you to sign that requests your permission to participate in filling out the questionnaire.

When you complete the survey, please place both the questionnaire and the permission form in the return envelope and drop it in the self-addressed stamped envelope. Every person who fills out the questionnaire and mails it back will be entered in a draw to win \$35. If you have any question, please contact me at (xxx) xxx-xxxx.

Thank you very much for your time,

Sara Danziger
BASc, MA Candidate (SFU)