

The University of Calgary
Arbour Village Housing Co-operative:
A Design Proposal

© Mona Kawano

A Master's Degree Project
Submitted to the Faculty of Environmental Design
in Partial Fulfillment of the Degree
of
Master of Environmental Design
(Architecture)

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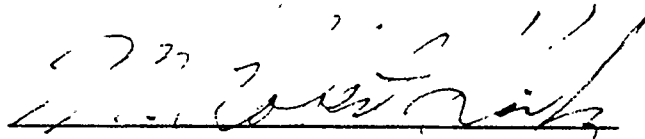
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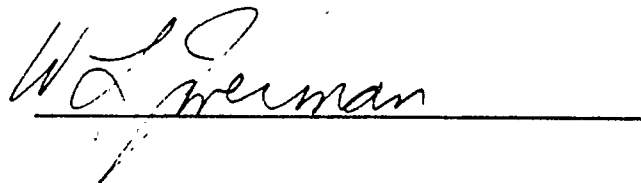
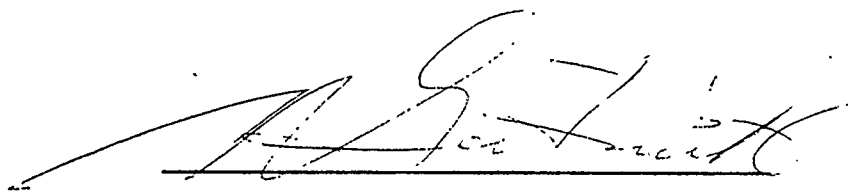
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The undersigned certify that they have read, and
recommend to the Faculty of Environmental Design for
acceptance, a Master's Degree Project entitled
Arbour Village Housing Co-operative: A Design Proposal
submitted by Mona Kawano in partial
fulfillment of the requirements for the degree of Master
of Environmental Design



Supervisor



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Abstract

ARBOUR VILLAGE HOUSING CO-OPERATIVE: A DESIGN PROPOSAL

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May 1987

Submitted in partial fulfillment of the requirements
of the M.E.Des. (Architecture) degree in the
Faculty of Environmental Design
The University of Calgary
Professor Robert Kirby, Supervisor

The design of a housing co-operative in the northwest of Calgary is offered as a community-oriented housing alternative for physically disabled persons. The general design objectives are as follows:

- 1) to accommodate the housing needs of physically disabled persons
- 2) to enhance a "sense of community"
- 3) to create a "sense of place"

The housing needs of physically disabled persons in Calgary are currently not being met. There is a shortage of accessible housing units and there is little choice in housing type. Because physically disabled persons have varying needs and preferences, it is important to develop a range of housing options. Consequently, a design for a housing co-operative is proposed because it provides an opportunity for innovation.

In this project, the residents of Arbour Village Co-operative are assumed to be comprised of various sub-groups within the general population (only 20% of the residents would be disabled). As a result, an attempt is made to enhance a sense of community by providing opportunities for people to meet and participate in community activities. Nevertheless, the notion of community should also support personal choices about desired levels of sociability and privacy.

Finally, the desire to create a sense of place is concerned with providing an enriching experience of an environment. There is an attempt to achieve a sympathetic relationship between the housing and its site, to provide open spaces of varied character

and use, and to provide opportunities for the residents to personalize their surroundings.

Keywords: accessible housing, community, co-operative housing, housing, physically disabled persons.

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Chapter 1

Introduction

A consultant for various residential agencies often asked her disabled clients why they were living in a particular setting. The most common reply was "there was no other place" (Wight-Felske in Marlett et.al., 1984, p.61). This describes the current state of housing for physically disabled persons in Calgary, whose needs and preferences are not being met. The types of housing alternatives that are available locally are basically limited to institutions, group homes, apartments and renovated dwellings (townhouses and single family dwellings). Much of this existing housing is poorly designed in terms of accessibility (inside and outside the dwelling unit) and many housing projects are often located in neighbourhoods with no shopping, services or recreational facilities nearby (Bridges, pers.comm., Mjierdrees, pers.comm.). Thus there is a need for more accommodation which is also better designed for disabled persons (Alberta Task Force on Services to Disabled Persons, 1983; Ministry of Supply and Services Canada, 1981; Coghill, 1985).

Project Objectives

The main objective of this MDP is to propose a design for an alternative type of housing for disabled persons, the integrated (disabled and able-bodied residents) co-operative. This is a relatively unexplored form of accommodation for physically disabled persons in Calgary. The programming and design of the project are intended to reinforce a "sense of community" which is inherent in co-operatives. "Sense of community" is described by the designer as having sentiments about belonging to a community and working together to achieve common goals e.g. keeping costs down, building community facilities or planning social programs and events.

The proposed design also offers housing which has a "sense of place". "Sense of place" refers to residents' perceptions of the unique qualities of a place which make it particularly memorable and enjoyable. These include the character of the streetscape, the quality of the landscaping, the community facilities and the use of open space. Fostering a sense of place is seen as desirable because it enhances the livability of the residential environment (Fliess, 1977). It can also foster a sense of pride in one's environment.

Methodology

First, a literature review was undertaken to gain an understanding of the current range of housing options for physically disabled persons in Europe and Canada. To supplement the literature review and to assess the housing needs of disabled persons, site visits were made to various housing projects in Calgary and Edmonton where disabled persons currently live. These include institutions, group homes and renovated townhouses and are listed in Appendix A. In addition, professionals involved in such housing projects and members of housing agencies representing disabled persons (some of whom are disabled) were consulted (see Appendix B).

Second, since there is no client and no formal building programme for this project, a hypothetical programme was developed from various sources. An existing feasibility study for a housing co-operative was used to identify various user groups who would constitute the residents of the proposed co-operative. Reference was also made to information on the philosophy and organization of housing co-operatives in Canada. Site visits to several local co-operatives were made (see Appendix A) and actively involved residents were consulted.

Finally, design objectives concerned with qualitative aspects of the programme were also formulated as part of the programming process. These objectives were developed through an understanding of the following: the housing needs of disabled persons, the concept of community, community-oriented housing precedents, user needs in multi-family housing, and the site (its context and characteristics). Design concepts were then generated and developed.

Scope

The parameters of this project are outlined below, and certain assumptions are documented as well.

1. This project focusses on the housing needs of physically disabled persons. Only disabled persons with mobility impairments (i.e. those who have difficulty walking or use wheelchairs) are being considered. This is because most of the disabled persons seeking housing in Calgary have these kinds of disabilities (Mjierdrees, pers.comm.).
2. In order to promote the integration of the disabled into the community, it is recommended that future housing complexes restrict the number of disabled residents to a maximum of 25% of the total resident

population (Toy and Drover, 1982). This would avoid creating a stigma that is usually associated with a high concentration of disabled persons living together in the same housing complex. In this project, it is assumed that 20% of the residents are disabled and the remaining 80% of the residents are comprised of various user groups (e.g. single parent families, elderly persons, young couples).

This project places a greater emphasis on the housing needs of physically disabled persons, consequently the particular housing needs of the other user groups are not researched to the same extent. Instead, the other user groups are considered within the broader context of the organization and activities of the co-operative. Therefore the activities suggested in the programme attempt to draw upon common interests of all residents of the co-operative, both able-bodied and disabled.

3. While housing co-operatives offer both social and economic benefits to their residents, this project places a greater emphasis on social aspects of the co-operative. There is some consideration of costs, in particular, those which can be controlled by the architect (e.g. cost of the housing unit), however, such costs have a small impact on the overall cost of any housing project (Fliess, 1977). However, the broader issue of affordability, which includes the consideration of mortgage rates and land prices is beyond the scope of this project.
4. The proposed co-operative is located in a relatively undeveloped area of northwest Calgary. A local developer has produced a plan for a new community called Arbour Lake. It is assumed that the co-operative would be developed within the context of this new community.
5. The success of any housing project for physically disabled persons will depend, to some extent, on the ability of residents to have access to a variety of services such as transportation, recreation, education, medical, employment, etc. There are many shortcomings regarding the delivery of these services, for example, the lack of accessibility of the public transit system, and poorly trained support service staff. Recommendations for improvement are summarized in the Klufus Report by the Alberta Task Force on Services to Disabled Persons (1983) and Obstacles, the Report of the Special Committee on the Disabled and the Handicapped (1981).

6. When establishing a housing co-operative, ideally its future residents should be involved in the design, construction and management of their housing in order to foster strong community ties. Since the design was produced without direct resident input, a different process is outlined which takes into account the participation of residents. The architectural program is therefore conceptual in nature. It is based on the designer's personal judgement about how such a community would be organized and the resulting architectural implications.
7. The design concepts are presented through schematic drawings. The community buildings are not fully developed, but their massing/form and programme activities are suggested.

Organization of the Document

The document is organized as follows: Chapter 2 describes the housing requirements of physically disabled persons. A summary of existing housing options in Europe and Canada is provided and the particular need for housing in Calgary is documented.

Chapter 3 discusses the concept of community and how this concept is inherent in the philosophy and organization of housing co-operatives. Some examples of related projects which are community-oriented are also described.

Chapter 4 includes a description of the assumed site and residents. This is followed by a set of design objectives and a description of functional components.

Finally, Chapter 5 presents design concepts and elements. There is also an outline of the design process which acknowledges the participation of residents and a brief section on cost considerations.

Chapter 2

A Summary of Housing Options

The following is a discussion of various housing projects that have been developed in Europe and Canada for physically disabled persons. The projects cited do not constitute a complete inventory, but rather represent examples of different approaches to housing. (Additional issues regarding designing for disabled persons are included in Appendix C).

European Examples

Various European housing projects and support care service programs have been reviewed in Golden (1981) and Toy and Drover (1982). It appears that European countries have a more comprehensive approach to housing in that housing is seen as part of the rehabilitation process. In fact, Europe has a long history of home care assistance such as housekeeping, meal preparation and personal care, but excludes nursing. Home care is the most comprehensive support care service while transportation is the least developed (Golden, 1981).

One of the more well known housing projects in Europe is the Swedish Fokus apartments. The Fokus Society, which is a state-run, non-profit organization, has established apartments in major centres throughout Sweden. These apartments are intended to help disabled persons to develop independent living skills. Support care services are provided within the apartment complex for those persons who have lived in institutions and require a transitional form of accommodation.

The Fokus apartments are particularly known for the design of the kitchens and bathrooms. The kitchen counter is mounted on movable vertical tracks so that both a seated and standing person can be accommodated. Storage and counter components are also mobile, thus enabling storage and work space to be arranged to suit an individual. In the bathroom, the toilet is vertically adjustable to varying seat height requirements.

The integration of disabled persons into the community is also promoted. Disabled persons live with non-disabled tenants in the same housing complex and these are located close to services and places of employment.

Another well known project is Het Dorp in Holland. It is a self-contained village comprised of accessible housing, community centres and employment centres which was initially created for young, severely disabled persons. However, Het Dorp has been criticized for becoming a "ghetto" due to the high concentration

of disabled persons. It was found that only a small proportion of residents could find employment outside the village, and some residents who required more and more care over time were reluctant to move. Those individuals who wanted to move out found a lack of accessible housing elsewhere (Topliss in Toy and Drover, 1982).

In Great Britain, the Cheshire Foundation for the Sick has established numerous group homes for physically disabled persons. The Foundation purchases existing houses and residents participate in their administration. These group homes are considered as permanent residences. The support services required by the residents are provided by volunteers and service groups 24 hours a day.

Canadian Examples

The types of accommodation which exist for disabled persons in Canada include institutions, group homes, apartments, renovated dwellings and housing co-operatives.

Institutions such as auxiliary hospitals, extended care facilities and nursing homes are specialized facilities which offer medical treatment and related services e.g. physiotherapy. Institutions can help relieve the burden on a family who must care for someone who cannot care for himself. However, institutions are not considered to be an appropriate form of housing for disabled persons. In an institution, an individual must conform to systematic routines and it is difficult to reach a self-determined level of independence (Goldsmith, 1976). Based on personal observation, there is also a lack of privacy and limited opportunity for the personalization of rooms. Furthermore, in long-term care facilities, disabled persons may become dependent on the staff (Ontario Advisory Council, 1976). Finally, institutions such as nursing homes for the elderly are not appropriate environments for younger disabled persons whose needs differ from the older residents (Stock and Cole, 1975; Coghill, 1985, p.G.1).

Group homes are seen as the first step towards independent living for persons who have just left institutions or sheltered family environments (Toy and Drover, 1982). Group homes are relatively large houses which provide a family-like environment, thus offering mutual support for residents. Some group homes are designed for persons with specific disabilities. There is an average of 6 residents plus house managers or counsellors, with a maximum of 12 residents plus staff. Group homes are intended to develop independent living skills and to help integrate disabled persons into the community.

Group homes have been constructed throughout Canada. The Cheshire group homes in Ontario are perhaps the most well known. They are modelled on the Cheshire group homes of Great Britain and consequently residents participate in administrative duties. Other group homes employ staff for administration and the care of residents. In Edmonton, Alberta Social Services has developed several prototypical group homes which are staffed. These group homes appear to be successful in terms of being visually integrated into existing neighbourhoods. They have been successful in terms of social integration according to the staff. Nevertheless, a disadvantage of group homes is that people are sometimes asked to live together based on common disabilities without consideration of the basis on which people form friendships and share their lives (Wight-Felske in Marlett et.al., 1984). According to Falta (1977), some disabled persons have strong preferences to live with non-disabled persons. Another problem associated with group homes is similar to that of institutions, as residents may become dependent on the staff and therefore would find it difficult to progress to a more independent living situation.

Apartments are seen as a form of housing which approaches independent living (Toy and Drover, 1982). Apartment complexes either have a limited number of accessible suites located on a single floor or scattered throughout the building. The remainder of the building is occupied by non-disabled persons, therefore promoting the integration of disabled persons into the community. Support services such as home care (medical services, physiotherapy and occupational therapy), homemaking (meal preparation and housekeeping assistance) and personal care are sometimes provided within the building. The amount of support services varies, from 4.5 hours/day (e.g. Sir Douglas Bader Tower, Edmonton) to 24 hours/day (e.g. Ten Ten Sinclair, Winnipeg). The cost of such services is significantly less than the cost of institutionalization. The Ministry of Supply and Services Canada (1980) estimates the annual cost of caring for an individual in an institution is \$30,000 versus \$8,000 for independent living expenses.

Apartments which offer support services are modelled after the Swedish Fokus housing. Thus they are intended to prepare individuals for independent living and are not considered as permanent residences. However, residents in projects such as Ten Ten Sinclair have had an extended length of stay due to the lack of suitable accommodation elsewhere (Medicus Canada, 1982).

Because many of the existing apartment complexes are large in scale and contain approximately 50% or more accessible suites, they have been criticized by local disabled interest groups for creating "ghetto" environments (Toy and Drover, 1982). Projects such as Sir Douglas Bader Tower in Edmonton, Ten Ten Sinclair in Winnipeg, and Huston Heights in Regina are some examples. Furthermore, some government sponsored projects have a predetermined combination of residents including single parents, the elderly

and disabled persons. It is questionable whether there is a clear intention on the part of the government to group these persons together such that they can offer each other social benefits.

Housing co-operatives are a form of housing which have recently been developed across Canada for disabled persons. The Access Housing Co-operative in Vancouver and Deer Valley Co-operative in North Battleford are examples of apartment co-operatives. In Toronto, the Windward Co-operative is currently under construction and consists of 101 units of townhouses and apartments. There are 15 accessible suites and 73 suites can be made accessible in the future after minor modifications. The co-operatives in Vancouver and North Battleford have 100% units for disabled persons, however, this is not desirable from the viewpoint of disabled persons in Calgary (Marlett, pers.comm.; Bridges, pers.comm.; Toy and Drover, 1982). This is because of the stigma associated with the presence of a high concentration of disabled persons living in the same housing complex.

The benefits of housing co-operatives to disabled persons are described in Chapter 3.

The Availability of Housing for Disabled Persons in Calgary

In Calgary, there is a shortage of housing options for young, physically disabled adults. While local housing alternatives include institutions, group homes (e.g. the Fourth Dimension), apartments (e.g. Manchester cluster apartments), and renovated townhouses (e.g. MacLaurin Village), there are not enough group homes, apartments and other alternatives. Thus institutions for the elderly are the main form of accommodation. It is estimated that 150 disabled persons aged from the early teens to the late 50's live in institutions such as Dr. Vernon Fanning Extended Care Centre, Sarcee Auxiliary Hospital, Southwood Nursing Home and the Bethany Care Centre where the average age of residents is 80 years (Coghill, 1985). While some institutions try to accommodate their younger residents, local support groups for the disabled (such as the Calgary Action Group for the Disabled and Transitional Services for Physically Disabled Adults) feel that institutions do not go far enough in promoting integration of the disabled into the community. These support groups are requesting "more housing...more variety...and more choice...or else many people might find themselves trapped (in institutions) for a while to come" (Coghill, 1985, p.G.1). This need for additional housing will continue, if not increase due to the growing number of victims of industrial and motor vehicle accidents (Lamecka, pers. comm.).

There is also a lack of suitable accommodation for disabled persons with families and for non-related disabled persons living together (Bridges, pers.comm.). The present housing market does not provide living units with ground level access and sufficient space for these two user groups.

A recent survey conducted by the Calgary Action Group for the Disabled estimates that approximately 795 disabled adults under 65 years of age and confined to wheelchairs are either presently dissatisfied with their present housing or waiting for new accommodations (Coghill, 1985). Much of the existing housing is poorly located and poorly designed in terms of details. For instance, often the heights of windows, switches and electrical outlets have been overlooked. In some cases, apartments which are accessible to paraplegic persons are not adequate for quadriplegic persons who have larger wheelchairs and lesser arm strength (Lamecka, pers.comm.). Also, some accessible suites in subsidized public housing projects are being rented to non-disabled persons (Hubele in Toy and Drover, 1982) and landlords are reluctant to allow disabled persons to make major renovations to their suites (Mjierdrees, pers.comm.). Furthermore, while efforts have been made by the Accessible Housing Society and the Calgary Housing Authority to renovate townhouses, there is an inadequate number of single level suites.

In Calgary, the first integrated housing co-operative was proposed in 1983. The proposed Mountainview Heights Housing Co-operative consisted of approximately 90 units, of which 10% were accessible. Unfortunately the federal government did not commit itself to financing the project and it was not built. As a result, there are no housing co-operatives in Calgary with a significant number of physically disabled residents. Nevertheless, housing co-operatives are popular in Calgary. There are approximately 15 in total, ranging in size from 8 units to 380 units.

Summary

As disabled persons have different needs and preferences, no single form of housing is suitable for all. Therefore, it is important to develop a range of housing options. A review of the literature indicates that institutions are not considered to be an acceptable type of accommodation. However, group homes, apartments, renovated dwellings and co-operatives are suitable, provided that they are accessible, support independent living, and integrate residents into the community.

In Calgary, there is a shortage of accessible housing for young, physically disabled adults, disabled persons with families and disabled persons living who share accommodation.

Chapter 3

Housing Co-operatives and the Concept of Community

The community aspect of housing co-operatives is an important feature which distinguishes co-operatives from other forms of housing. Co-operatives therefore offer a significant alternative to disabled persons because they are intended to provide a way of life rather than so many units of accessible shelter.

In this chapter, there is description of housing co-operatives - their philosophy, organization and why people choose to live in this particular form of housing. Included are examples of community-oriented housing precedents and a description of their unique characteristics. While the notion of community is seen as having a social basis, the physical environment is considered as an important means of enhancing or reinforcing a sense of community.

A Description of Housing Co-operatives

There are two main types of housing co-operatives, building co-operatives and continuing co-operatives. Building co-operatives consist usually of single family dwellings which are collectively constructed but are owned by individual members of the co-operative. Continuing co-operatives are usually a form of multiple housing such as rowhouses, townhouses or apartments. The housing is collectively owned and managed by members who rent the housing units, thus providing more security of tenure than that which is in the normal landlord-tenant situation. The majority of housing co-operatives for disabled persons in Canada are continuing co-operatives.

Philosophy

Continuing housing co-operatives are based on the following principles:

1. self-help and mutual aid through co-operation
2. democratic control: each member has equal voting rights regardless of the extent of his or her investment
3. limited return on capital: co-operatives are not

operated to yield a return on investment, but rather for the benefit of those who use them

4. open membership to all segments of society and to persons of all income levels (this enhances the integration of disabled persons into the community)

Thus, co-operatives have both a social and economic purpose. However, the economic purpose is rooted in a deeper social objective because it is based on the principles of co-operation (Van Dyk and Whitlock, 1982). Residents must work together to keep costs down and they must pool their resources in order to acquire desired goods and services which would otherwise be unaffordable to individual households.

The Establishment and Organization of Housing Co-operatives

Unlike other forms of housing, co-operatives provide the opportunity for residents to be involved in the decision-making processes of planning, design and management. In the early stages of development, members of a co-operative are recruited and trained for specific tasks. When there are a minimum of ten members, the co-operative is formally incorporated (Van Dyk and Whitlock, 1982). These members form a "core" working group.

The first task of the co-operative members is to determine the economic feasibility of their housing project. This includes an assessment of need, site selection and a preliminary design. Occasionally an architect is hired to assist in site selection and preliminary design and residents are consulted for initial design input. At this stage, additional residents are recruited. It might also be useful to bring potential residents together so they can become acquainted and in this way, positive attitudes towards each other can be nurtured. This is an important considering the heterogeneous composition of the resident population. Once the project is determined to be feasible, its long term viability must be established. The design then proceeds through to construction.

Once residents move in, they must further organize themselves. Co-operatives usually consist of a board of directors and a number of specialized committees (e.g. maintenance, membership orientation, social events). In some larger co-operatives, block captains are elected to keep members informed. In order to help offset operating costs, volunteers are relied upon to fill these positions. However, if the skills or time necessary to carry out all the work cannot be found amongst residents, staff are hired and/or work is contracted out.

The various committees meet approximately every two weeks. On the other hand, general meetings of the entire co-operative are less frequent, varying from once a month, to once every three months, to once a year (Skinner, pers.comm.). At the general meetings, residents are informed of the activities of the co-operative and decisions which affect the co-operative are collectively made. Initially, residents must agree upon bylaws which establish policies for the organization, management and maintenance of their housing.

Ad hoc meetings have also been held to accommodate residents' particular interests. These have been held as day and night seminars and topics have included home energy conservation, gardening and the Neighbourhood Watch program (Skinner, pers.comm.).

What Attracts People to Housing Co-operatives?

People live in housing co-operatives for a variety of economic and social reasons. These include:

1. Housing co-operatives are a viable housing solution for those persons who cannot afford to own their own home. Co-operatives qualify for subsidized financing from the federal government. Mortgage payments are subsidized from the the current market rate to as low as 2% and rental supplements can be negotiated for low income members (rental charges are geared to income). However, co-operative housing is not intended to replace public housing.
2. Rental charges are relatively stable because they are not affected by market conditions. Rents only increase when operating costs rise (e.g. municipal taxes, hydro) and these increases reflect only actual costs.
3. Housing co-operatives are one of the results of the early 1970's surge of citizen activism, reflecting a desire by residents to gain control over their communities (Wilson and Goldblatt, 1985). The ability to have input in the design and management of co-operatives has resulted in more physically appropriate housing (especially for disabled and elderly persons) and housing which accommodates particular community needs (such as recreation, day care).
4. Co-operatives offer a community-oriented lifestyle.

Co-operatives are attractive to those persons who enjoy being actively involved in community activities. They also provide social opportunities for those persons who have limited social contacts.

However, housing co-operatives are not considered to be the ideal form of housing for all persons. Those persons who live in housing co-operatives must accept the philosophy and policies of co-operatives. As a result, potential residents are informed of all aspects of living in a co-operative before they join a co-operative.

Problems Experienced by Housing Co-operatives

Some of the major problems facing co-operatives in general have been identified by Lips (1977). These include a lack of organization within the co-operative itself, the excessive length of the development process, difficulty in obtaining land and a lack of available government financial resources. More specifically, problems have arisen from the lack of managerial skills and experience of members of the co-operative, the dependence on members to volunteer for various committees within the co-operative, group dynamics, and having to deal with long term maintenance (Bird, pers.comm.; Skinner, pers.comm.). Nevertheless, within recent years resource groups have been established whose services include helping co-operatives with project development (e.g. purchasing land and arranging financing) and organizing the co-operative (e.g. orientation and training of members) (Wilson and Goldblatt, 1985).

What is Community?

There are many descriptions of community within the field of sociology. They can be grouped into two general categories, those which describe community as a social system and those which describe community as sentiment (i.e. "sense of community"). They are as follows:

Community as a Social System

1. Community as locality: a community is described in terms of a geographic area (Clarke, 1973). (However, a community can also have a non-local basis according to Webber in Soper, 1979).

2. Community as social structure: a community is described in terms of a network of social relationships (Clarke, 1973).
3. Community as social activity: a community is identified through special events, ceremonies or customs (Clarke, 1973).
4. Community of interest: a community is identified by groups which gather because of common ties. These include shared beliefs, values, concerns, interest in activities, experiences, financial or other resources (Tilly in Soper, 1979).

Sense of Community

1. Community as sentiment: a community is described in terms of a complex set of emotions which an individual feels towards the surrounding world and his fellows (Clarke, 1973). Another description is a feeling of belonging or friendship shared among others (Soper, 1979).

According to Clarke (1973) the essential elements of community are a sense of solidarity and a sense of significance. A sense of solidarity refers to all those sentiments which draw people together such as courtesy, sympathy, gratitude and trust. The strength of solidarity or social cohesion depends on the commitment of group members to each other. On the other hand, a sense of significance refers to sentiments such as a sense of achievement or a sense of fulfillment, which contribute to the larger whole. It is the feeling of each individual in a group that he has a role to play. These two elements of community are closely linked i.e. a person who feels a sense of belonging to a group also feels a sense of significance. Thus, "the strength of community...is determined by the degree to which its members experience both a sense of solidarity and a sense of significance within it" (Clarke, 1973, p.37).

The variation in the above descriptions of community suggests that different kinds of communities exist and consequently no single description is sufficient. Therefore, instead of attempting to define community in a new way for this project, the above descriptions are used to describe the aspects of community which are inherent in housing co-operatives.

Housing Co-operatives and Community

The organization and philosophy of housing co-operatives reflect various aspects of community. For example:

1. Social structure: residents organize themselves into various committees in order for the co-operative to function.
2. Social activities: residents are brought together through special events (e.g. Halloween and Christmas parties) or ad hoc gatherings (e.g. garage sales, car washes, workshops).
3. Common ties: in Clarke's (1973) terms, a sense of solidarity and significance are fostered by involving residents in the planning, design, development and management of their housing.

Co-operatives, then, provide the opportunity for communities to develop. Soper (1979, p.12) suggests that the development of a sense of community also depends on the following factors which are related to the individual:

1. the motivation of residents
2. the perceived risks of interactions among neighbours
3. residents' resources for finding alternative sources of interaction outside their immediate residential area.

These factors therefore play a role in determining the success of any housing co-operative.

Why is the Notion of Community Important?

Fostering a sense of community can have many benefits as described below:

1. Fostering pride in one's community can result in people taking better care of their environment. Because residents of co-operatives are part owners of their housing, they are likely to develop a more

responsible attitude towards maintenance of their dwelling units and site. Cooper (1975) has found that residents of co-operatives and condominiums tend to treat their environment more carefully than renters. Also, in some co-operatives, some people preferred to maintain their sidewalks even though a maintenance person had been hired for this task (Skinner, pers.comm.).

2. A community provides a personal support system for people who have difficulty coping with isolation or stress due to a lack of social contacts. Such people may include those who are unemployed, retired, persons with limited physical mobility, single parents or persons returning to the community after years of living in institutions (Cornell University Housing Research Centre, 1958; Kosny, 1985). They depend on the community for day-to-day contact with neighbours and require certain services and facilities to be in close proximity to their homes.
3. A sense of community can also enhance a sense of social responsibility. According to the Co-operative Housing Federation of Canada (1984), in some co-operatives, higher income members volunteered to pay a rental surcharge in order to reduce the rental charges of lower income members.
4. A sense of community can foster a sense of security. According to one resident of a co-operative, "It's knowing that your neighbours will be on the lookout and will recognize a stranger. I know, too, that if I yelled for help, there'd be half-a-dozen volunteers on the scene very fast, as opposed to the total anonymity and apathy of high-rise living" (Kome, 1985). Another resident notes, "people take care and look in on you. We look after one another...it gives you a good feeling. It is nice to know that people are interested in seeing how you are" (Whitmore, 1984).

The Role of the Physical Environment

Soper's (1979) study of the relationship between sense of community and the physical environment of residential areas acknowledges that the physical environment affects the formation of community, but it does not do so in a deterministic way. According to Harper (1986),

physical design cannot create or animate community development. This can only be done by the people who develop, construct, manage and reside in the new housing...The best a physical design for housing can hope to accomplish is the maximum facilitation of opportunities for community and personal development (p.13).

Furthermore,

the factors involved in local community formation appear to be... complexly interrelated and continuously changing. [Thus], separation of the individual effects of each aspect of the environment is a precarious task (Soper, 1979, p.88).

Nevertheless, certain features of the environment which contribute to the creation of a sense of community have been identified. They are as follows:

1. Providing a balance between appropriate levels of community and privacy increases tolerance among neighbours (Soper, 1979; Cooper, 1975). "A sense of community arises from meeting and knowing neighbours, having basic values in common, [and] being able to distinguish residents from strangers... A sense of privacy arises from being able to control physical, visual and aural access to one's private living space, having complete freedom of choice regarding behavior in the home, not being intruded upon, and not experiencing forced social encounters with neighbours outside the dwelling when these are not desired" (Cooper, 1975, p.220) Also, since people vary in their need for local social contacts, a variety of orientations should be provided e.g. dwellings facing streets vs. dwellings facing courts (Cooper, 1975).
2. The provision of public and semi-private spaces offers opportunities for repeated informal meetings among neighbours (Soper, 1979; Harper, 1986). Such space may in the form of shared play areas, communal mailboxes, communal laundry facilities, communal notice boards, gardens and porches.
3. The provision of meeting spaces for community activities enhances resident satisfaction and residents' involvement in self-government (Harper, 1986).
4. The provision of a series of open spaces helps give a physical identity and uniqueness to a development

in the eyes of the residents. The recognition of a common open space as the territory of a group of dwellings also provides a needed sense of place and belonging. People will feel that this is part of their daily living space especially if they walk through this space frequently and if it is clear who maintains this space. Furthermore, a series of connected spaces of varied configuration and appearance is more suitable than one large one or several identical spaces (Cooper, 1975). The provision of open space also enhances personal privacy by offering a means of "getting away" from ones dwelling (e.g. going for a walk) (Harper, 1986).

5. "The more self-contained a cluster of dwellings is, the more likely residents are to look out for each other, the more likely they are to feel a sense of proprietorship and responsibility over the whole site, the less likely strangers are to intrude into that territory and the more secure residents will feel about their own safety" (Cooper, 1975, p.221).
6. People feel more pride and have a sense of identity with their dwellings when they can make changes and improvements in their physical appearance e.g. painting, gardening, rearranging furniture, adding shelves (Cooper, 1975).

Examples of Community-Oriented Housing Projects

The following are examples of housing projects which reflect a sense of community. These projects have not been evaluated on a sociological basis (i.e. in terms of to what degree does a sense of community exist) but rather are described in terms of their unique characteristics.

Varsity Courts Student Housing, University of Calgary (Figure 1)

Cohos DeLesalle & Evamy, Architects

Varsity Courts is a family housing complex located on the University of Calgary campus. It consists of approximately 200 units grouped around a series of 12 courtyards. Most of the units are single aspect and access to them is through the shared courtyards. Parking is completely separated from pedestrian movement and play areas for children.

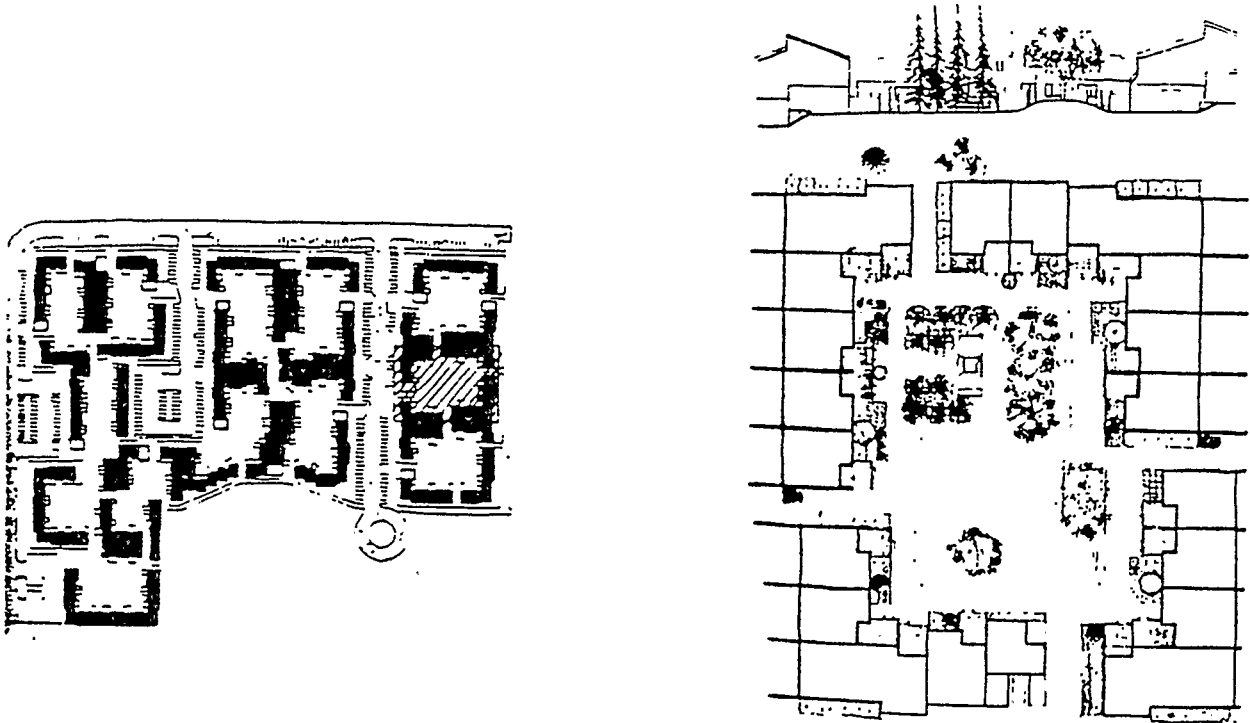


Figure 1. Varsity Courts, site plan

A playground is located along one edge of the development. In addition, a communal laundry room, mail box area, washroom and notice board are located at the entrance to each court. Party rooms are provided in some of the courts.

The following comments describe how a sense of community is apparent in Varsity Courts. They are based on informal interviews with residents, personal observation, and Harper's (1986) description (which is based on his personal experience from living there and informal interviews with residents).

1. The communal nature of the courts, mailboxes and notice boards are seen as positive design features which provide places for informal meetings. Residents have expressed that they found it easy to make friends quickly and to find playmates for their children.

2. Residents identify strongly with their particular court. When referring to their home, residents say they live in court "X" rather than unit "X". Also, defensible space characteristics of the courts work well. Strangers are quickly recognized and unacceptable activities are easily controlled.
3. Residents have personalized and have displayed a sense of proprietorship of the shared courtyards. In some courts, residents have planted flowers between shrubs (which were part of the intended landscaping) and have displayed hanging flower boxes.
4. The party rooms are well used and appreciated by residents. Activities which have occurred include exercise classes, play schools, pre-natal classes, garage sales, private and community parties, and community council meetings.

Les Vignes Blanches, Cergy Pontoise, France (Figure 2)

Lucien Kroll, Architect

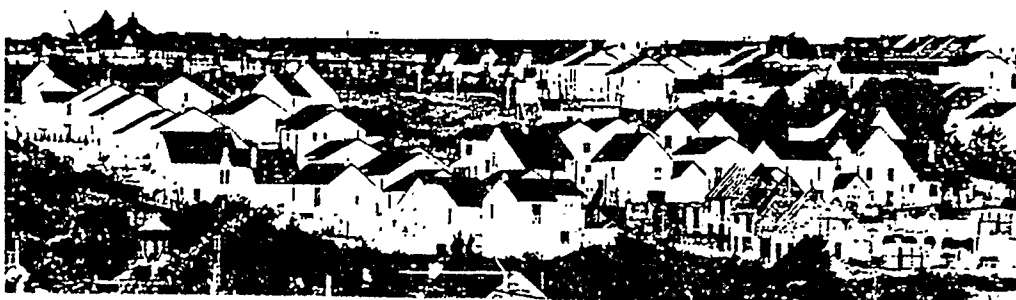


Figure 2. Les Vignes Blanches

Les Vignes Blanches is a co-operative housing development consisting of approximately 130 single family housing dwellings. In this project, the architect was invited to participate in a competition sponsored by the new city of Cergy Pontoise. The mandate set out in the competition was to explore the process of community participation and of evolution after construction.

After being awarded the commission, the architect contacted potential residents. Their suggestions regarding the design of their individual dwellings and of the overall site were solicited. Since the dwellings are owned individually, residents selected their own parcel of land, whose boundaries were not predetermined. The result was that residents "instinctively" situated themselves in an informal pattern without conflict. Figure 3 illustrates the initial design proposal while Figure 4 shows the final design.



Figure 3. Les Vignes Blanches, initial site plan

According to Kroll and his design team,

"We projected a personal model but one that was undefined, more like an attitude; the model was then built progressively from discussions, was nourished by arguments and culminated in an organic form. This model was made from complexities, from non-repetitions and a refusal to let a hard form dominate the landscape. It was inscribed by the inhabitants, it became their material and finally their architecture" (Kroll in Gosling and Maitland eds., 1984, p.35).

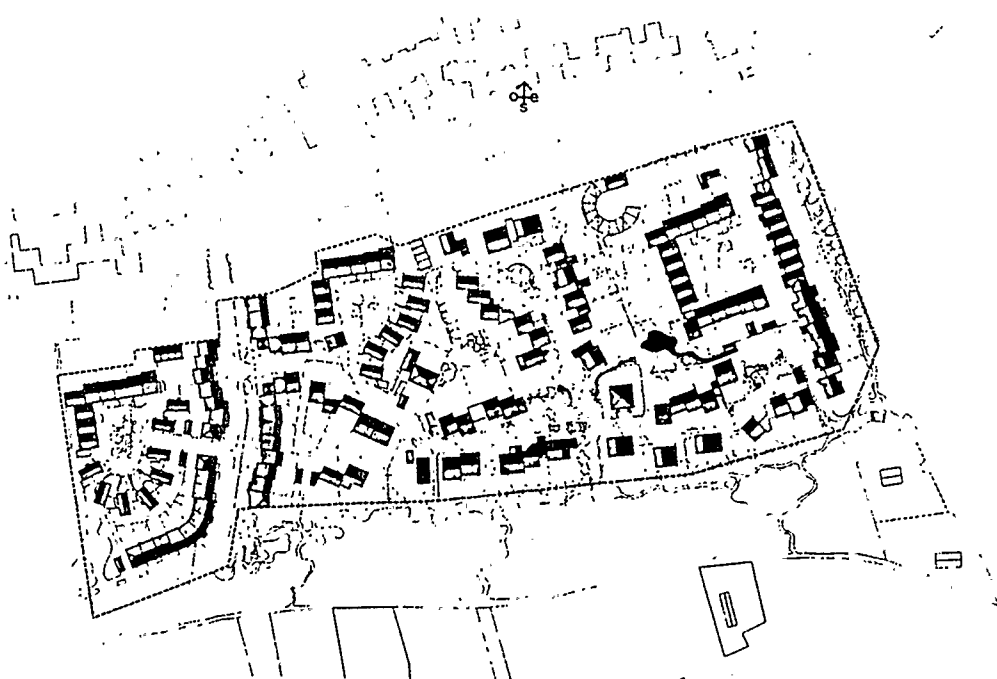


Figure 4. Les Vignes Blanches, final site plan

Thus, while the residents influenced the architect, the architect also influenced the residents during the design process.

Upon returning to Les Vignes Blanches after construction, Kroll found evidence of personalization. Residents planted gardens, they planted in public spaces, and added fences, sheds and awnings. In some instances, people were influenced by their neighbours. One resident created a particular balcony railing which his neighbours liked and imitated.

In Les Vignes Blanches, the arrangement of houses and the spaces between are an expression of a process. This process required the cooperation of residents and required a sensitivity on the part of the architect to help create housing which enhances a way of life.

Byker, Newcastle, Great Britain (Figure 5)

Ralph Erskine, Architect

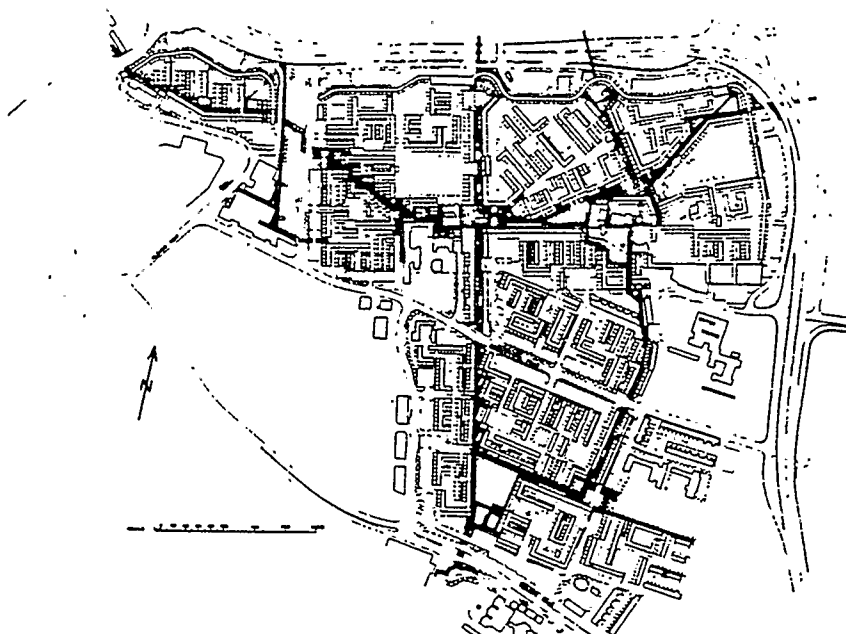


Figure 5. Byker, site plan

Byker is a large-scale urban renewal development with a population of 10,000. The challenge presented to the architect was how to maintain historic and community continuity when a physical fabric of the city must be almost entirely replaced (Trancik, 1986). Erskine's response was to retain the scale, density and important landmarks of the existing neighbourhood while adding new amenities and creating new architectural forms and landscape elements. To Erskine, the creation of place was the overriding concern.

Erskine actively involved residents in the design process. He established an on-site office where participatory workshops were held. The project was carefully phased in order to minimize the impact of redevelopment, and it was found that the feedback from the initial group of residents was beneficial in the design of subsequent housing, correcting deficiencies in the layout of units and public spaces. Each phase consisted of 250 units.

Even though people were moving within the same community, the issue of family relocation was considered. Tenants were informed ahead of time of the location of their new house, and those of neighbours, relatives and friends.

Erskine's approach to the design of the housing was to create a framework of community identity which also allowed for individuals to adapt and alter their personal environments. Buildings consist of a basic shell which is embellished with add-on elements such as galleries, balconies, porches, pergolas and railings. Residents were encouraged to participate in the creation of the landscape by various means. A tree nursery was established as a source of affordable landscaping material and landscape architects were available for free advice on gardening. A tree-planting program for school children was also initiated in order to foster responsibility for the public spaces. Furthermore, hedges were planted between public and private spaces and tenants were allowed to trim them according to the degree of privacy that they desired.

Byker appears to be successful as a community. According to Buchanan (1981),

Byker was not only designed for an existing community but as a community... Things belong thanks to the care in design of buildings and landscape and the clues as to how to respond to them... people belong because they have roots in the area... because they were allocated their home during the early stages of building and ...watched it go up... and because they have created and maintained a garden which is not only their private world but is also a contribution to the public domain... Strangers are recognized, though... they usually feel welcome because of the residents'... pride in their surroundings (p.342).

Byker has a sense of place which has resulted from the interaction between residents and their environment and the integration between old and new buildings. A sense of place is also created by urban-scale elements. To the north and northeast of Byker is a mile-long perimeter wall of housing which defines the edge of the community. Within the wall, interior blocks of low-rise housing have a village-like character (Figure 6). Patterns of irregular public spaces respond to the topography of the site, preexisting streets and landmarks, spatial sequences and sight lines (Trancik, 1986).



Figure 6. Byker, walkway

Summary

The notion of community is inherent in the philosophy and organization of housing co-operatives. Creating a sense of community is important because it can enhance a sense of social responsibility and a sense of security. It can also provide a personal support system for those in need and can result in people taking better care of their environment.

In addition, the physical environment can contribute to a sense of community in various ways. The three examples of housing developments illustrate how different aspects of community can be enhanced through the arrangement of housing, the provision of communal facilities, the involvement of residents in the design process and through the creation of places with distinctive characteristics and identities.

Chapter 4

Programme for Arbour Village Housing Co-operative

This chapter presents the architectural programme for the proposed housing co-operative. A description of the site and its context and the various types of residents is provided. Design objectives which consist of social goals and desired qualities are also documented. Finally, the functional components of the project are described.

For the purposes of this project, the housing co-operative is named Arbour Village Housing Co-operative.

The Site and its Context

Location

The site selected for Arbour Village is a portion of undeveloped land located west of the intersection of John Laurie Boulevard and Nose Hill Drive in northwest Calgary (Figure 7). The site is surrounded by the neighbourhoods of Hawkwood to the northwest and Ranchlands to the east. Immediately south of the site, commercial development is taking place. Presently there are two small shopping centres which contain medical and dental offices, a bank, two large grocery stores and some fast food outlets. The lands west of the site are undeveloped.

Context

Arbour Village is hypothetically developed in the context of a proposal for a new residential community, Arbour Lake, by Melcor Developments Ltd. (Figure 8). Melcor has planned a series of residential neighbourhoods which surround a north-south recreational/open space spine and village centre; a regional shopping centre; and a regional employment centre (Arbour Lake Community Plan, 1985). This new community covers 377 ha (931 ac) of land bounded by Country Hills Boulevard (north), Nose Hill Drive (east), Crowchild Trail (south) and a transportation/utility corridor (west). The focus of the community is the village centre, which fronts onto a man-made lake. An additional amenity is a 9-hole executive golf course.

The City of Calgary plans to extend the LRT along Crowchild Trail, immediately south of the proposed employment centre.

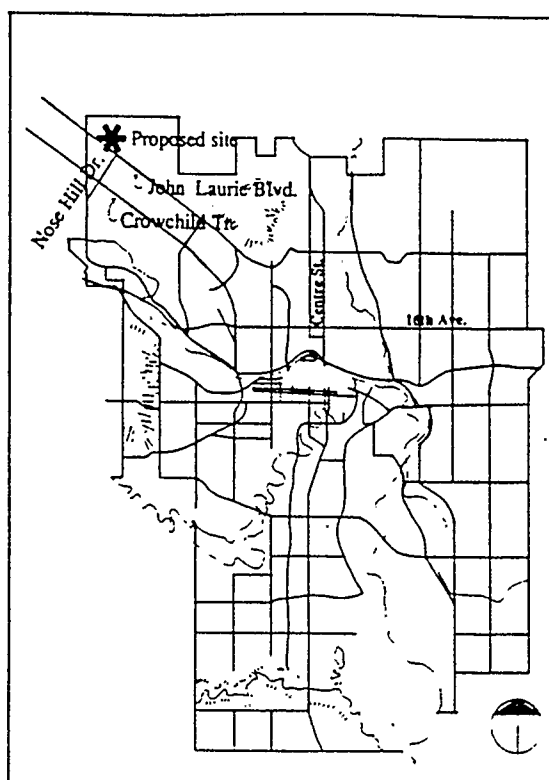


Figure 7. Location of Arbour Village

The site of Arbour Village is part of a 24 ha (59 ac) parcel of land owned by the City of Calgary. The Crowchild Phase 2 Policy Report and Design Brief (1977) suggests that a regional recreational and educational complex be constructed on this land, however, it is suggested that a more feasible location would be to the west of the proposed regional shopping centre. It is suggested that this complex (which includes aquatic and fitness facilities, ice rinks, playing fields, community multi-purpose spaces and a library) could be linked to the shopping centre and that the alternate location has a more suitable topography for playing fields (Ostrinsky, pers.comm.). It is assumed then, that the Arbour Village Co-operative would negotiate with the City to lease its required portion of the 24 ha of land.

Rationale for Site Selection

This particular site was chosen for several reasons:

- 1) Proximity to the proposed regional shopping centre. This criterion was identified through consultation with a members of various agencies representing disabled persons such as the Accessible Housing Society and the Calgary Action Group for the Disabled. The need to be close to shopping, and

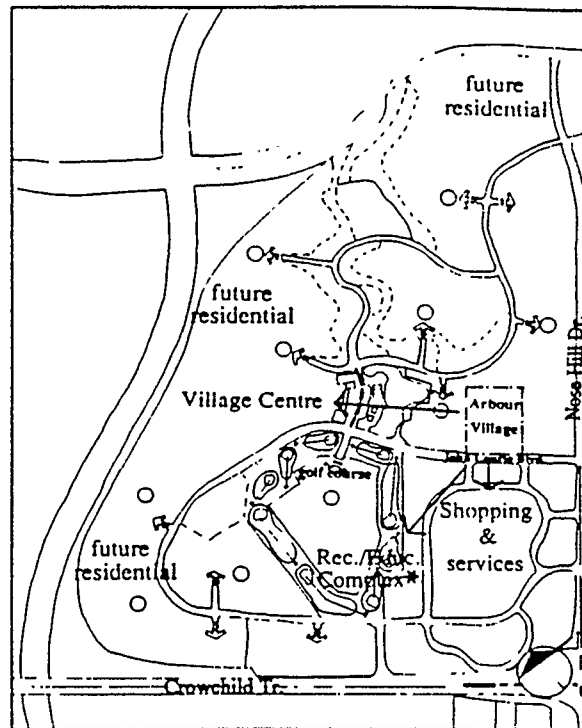


Figure 8. Context

services e.g. medical, dental, banking is very important for disabled persons. The shopping centre has the convenience of a large selection of stores and services in a climate-controlled environment. Theatres are also offered in the shopping centre, thus providing a source of entertainment in close proximity to Arbour Village.

It is recognized that disabled residents would have to cross John Laurie Boulevard in order to visit the shopping centre. While this is a less than optimal situation, it is somewhat unavoidable because regional shopping centres generate a significant amount of traffic and therefore are usually surrounded by streets on all sides. Also, the land immediately north of the shopping centre is more suited for commercial development. Consequently, in order to remedy the situation, it is suggested that a pedestrian crosswalk with warning lights be installed, which allows sufficient time for a disabled person to cross. Sidewalk curb cuts would also have to be provided.

- 2) Proximity to recreational, educational and leisure facilities. The proposed regional and educational complex can facilitate the integration of disabled

persons into the community by providing the opportunity to participate in various activities.

- 3) Suitable topography. A slope analysis (Figure 9) reveals that a good portion of the site would be accessible to disabled persons i.e. having a slope of 1:12 (8%) or less.

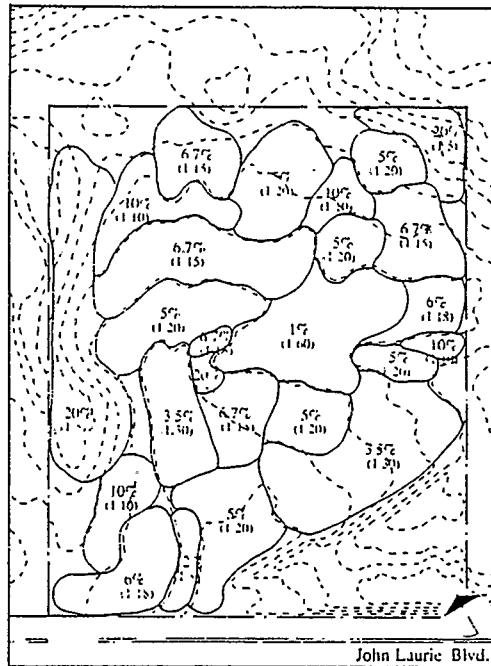


Figure 9. Slope analysis

- 4) Proximity to future residential neighbourhoods. It is important that people perceive that they are a part of a residential precinct so that they can identify with their neighbourhood and hence feel a sense of belonging. Therefore the proposed site is an integral part of a series of neighbourhoods (Figure 8).

Physical Description of the Site

As shown in Figure 10, the site has a gently rolling topography, with steeper slopes along its western boundary and in the southeast corner (as the result of a landfill). These slopes are greater than 1:6 (15%), which is unsuitable for development. It is assumed that these slopes would be designated as environmental reserve. This is consistent with design guidelines set out in the Crowchild Phase 2 Policy Report and Design Brief (1977) which



Figure 10. View of site looking north

suggests that future development should maintain the inherent character of the land.

Preliminary soil surveys indicate that the land is suitable for conventional residential construction. The surficial geology consists of Balzac Till, which is covered with topsoil ranging in thickness from several centimetres to half a metre (Arbour Lake Community Plan, 1985).

Aspen Poplar is the predominant tree species in the region. There are two small stands of Aspen near the northwestern corner of the site, which have been identified as being of poor quality. It is recommended that there be selective thinning and planting of additional species to improve their quality. A larger stand of Aspen is located at the eastern edge of the site, however, it is healthy and should be retained. The ground cover is native grassland, with a variety of shrubs (shrub willow, rose, snowberry, gooseberry, saskatoon berry and dogwood) (Arbour Lake Community Plan, 1985).

From January to April, the winds are from the north with Chinook winds coming from the west. Winds are from the northwest from May to September, and for the remaining part of the year, winds are from the west (Crowchild Phase 2 Policy Report and Design Brief, 1977).

Views of the Rocky Mountains can be seen to the southwest and to the north, one can see grass-covered rolling hills.

The Residents

The following user groups were identified in the feasibility study for the Mountainview Heights Housing Co-operative (1983). For the purposes of this project, the same user groups are assumed to be the future residents of Arbour Village.

- 1) Established families.
- 2) Young families.
- 3) Single parent families, with low or fixed incomes.
- 4) Singles and young professional couples.
- 5) Elderly persons with no family living at home. Some of these persons would be retired.
- 6) Disabled persons.

The resident population then, is a heterogeneous group. This is often the situation in most co-operatives where there are people with varying incomes, ethnic backgrounds and occupations. Mixing incomes has been successful and has evoked virtually no negative response from neighbours or within the co-operatives themselves (Wilson and Goldblatt, 1985).

Having a mixture of residents is also desirable because it may help remove the stigma associated with specialized housing. Furthermore, disabled persons and single parent families prefer to live in ordinary residential neighbourhoods instead of special "projects" (Bridges, pers.comm.; Marlett, pers.comm.; Anderson-Knief in Keller, 1981).

The demographic structure of society is also changing. There are increasing numbers of elderly persons, single person households and smaller families (Frenette, 1984). The traditional concept of the family is losing its validity, thus one cannot expect a homogeneous resident population in future multi-family housing complexes.

Finally, "as the population progresses through the stages of the life cycle there will be a greater dependency on social services and facilities and on non-family contacts" (Ibid., p.38). Thus the potential exists for residents to benefit from each other within a heterogeneous group. In Arbour Village, elderly and disabled persons who are not employed could possibly provide child supervision for single or two parents who are employed. An "Adopt-A-Grandparent" program could be initiated, which could benefit both the elderly and children. In addition, residents

could gain a better understanding of each other's lifestyles by simply being their neighbours and by participating in various activities of the co-operative.

Design Objectives

The following design objectives were generated from consideration of the existing housing options for physically disabled persons (Chapter 2), the notion of community (Chapter 3), how the physical environment can enhance a "sense of community" (Chapter 3) and community-oriented housing precedents (Chapter 3).

The first objective is to respond to the need for accessible housing in Calgary. Rather than provide additional units of existing forms of housing for physically disabled persons, a new housing option was considered. The housing co-operative is seen as:

- 1) increasing the choice of accessible housing forms for particular subgroups within the disabled population i.e. singles, non-related disabled persons living together and disabled persons with families
- 2) providing an opportunity to promote the social and physical integration of disabled persons into the community.

The second objective is to enhance a sense of community that is rooted in the philosophy and organization of housing co-operatives. Thus there is a desire to:

- 1) involve residents in the design and management of their housing
- 2) provide the housing co-operative with a unique identity
- 3) provide a sense of security
- 4) provide communal facilities
- 5) provide spaces for casual meetings among neighbours
- 6) support personal choices about desired levels of sociability and privacy

The third objective is to enhance a sense of place. Sense of place is described as the physical and social characteristics of a setting which determine its character and quality (Steele, 1981). These characteristics can make a setting particularly memorable and enjoyable. A sense of place can also help reinforce community identity by fostering pride in one's environment. Therefore the design should:

- 1) achieve a sympathetic relationship between the housing and its site
- 2) create spatial sequences which enrich people's experience of the environment
- 3) provide a richness in the pattern of buildings and landscaping
- 4) provide opportunities for residents to personalize their environment

Functional Components

Since there is no formal building programme for this project, the size and density of Arbour Village were determined by the City of Calgary Land Use Bylaw (1980) requirements for the RM-1 (Residential Low Density Multi-Dwelling District) designation. The RM-1 zoning is intended for comprehensive townhouse developments, primarily within outer city areas. The development requirements are as follows (pp.84-86):

- 1) maximum allowable density is 44 units/ha (18 units/ac)
- 2) buildings must be located a minimum of 6m from a property line and cannot exceed 9m in height at any eave line
- 3) parking requirements for townhouse units are 1.50 spaces/unit and for stacked units are 1.05 spaces/unit
- 4) a minimum of 40% of the site must be landscaped

The number of unit types (based on the number of bedrooms) was determined by firstly allocating 20% of the units to be accessible. (Accessible units in this project are single level

dwellings or have at least one bedroom at ground level). Within this 20%, a mixture of 1, 2 and 3 bedroom units are offered. The remaining 80% of the townhouses consist of two storey 2 and 3 bedroom units. Thus these basic unit types accommodate a variety of lifestyles and also allow residents to remain within the co-operative during their life cycle if they desire. The sizes of dwellings are based loosely on Alberta Housing Corporation's "Community Housing: Guidelines and Requirements" (1983) and CMHC's "Housing Disabled Persons" (1982). However, these guidelines suggest minimum dimensions and were not strictly adhered to in order to provide better quality spaces.

A daycare/community building is proposed in the site plan, however, it is presented at a conceptual stage of design only. It is felt that the residents of Arbour Village should be involved in the design of this building, as well as any future expansion of community facilities. The first phase of the community building is suggested to contain a large multi-use space for daycare activities, co-operative meetings and short term workshops (e.g. arts and crafts, gardening, energy conservation, block watch, fitness classes and pre-natal classes). Washrooms, a kitchen, and an administrative office should also be provided. Future spaces would be built as the need arises and as financial resources become available. Such spaces might include a greenhouse, workshops (for messy activities such as light carpentry, painting and other hobbies), offices based on the "work-at-home" concept, a small coffee house and recreation facilities (such as racquetball and squash courts). The community building should serve as a focal point for Arbour Village and should therefore be located in a prominent position on the site.

Provision should also be made to accommodate additional activities which promote the socialization of residents and enhance a sense of place. The following list suggests possible means of achieving these goals:

- * walking paths
- * sitting areas
- * children's play areas
 - sandboxes
 - tree houses
 - hard surface play areas
- * communal (theme/specialty) gardens
 - flowers, herbs, fruit trees and vegetables
 - children's garden
 - raised (accessible) garden
- * group mailboxes
- * community notice boards

- * car wash/maintenance stations
- * yard sales
- * street hockey
- * tree planting program
- * special outdoor events e.g. Stampede barbeque

Chapter 5

The Proposed Design

This chapter describes the proposed design for Arbour Village. First, design concepts which respond to the design objectives and considerations presented in the previous chapter are described. This is followed by a description of design elements and unit designs. A brief section on the design process and cost considerations is also included. A summary of functional components and their spatial areas can be found in Appendix D.

Design Concepts

The main concept for this project is that the housing environment should be village-like in character (Figure 11).



Figure 11. Village concept

It is felt that many of the characteristics of villages are considered to be appropriate for this particular housing co-operative such as:

- * being small in scale and having a "small-town atmosphere" which implies friendliness and a sense of community (e.g. having common ties, participating in local social events). This characteristic serves as an expression of community which is inherent in the philosophy and organization of

housing co-operatives.

- * being an enclave with a distinct identity. This enhances community identity and a sense of place.
- * having a rural-like quality, with humble and modest buildings and lower street standards than found in most neighbourhoods. This relates to the rural quality of the site/landscape.

A secondary concept is that of providing a "framework" of buildings and landscaping to which changes can be made (Figure 12).

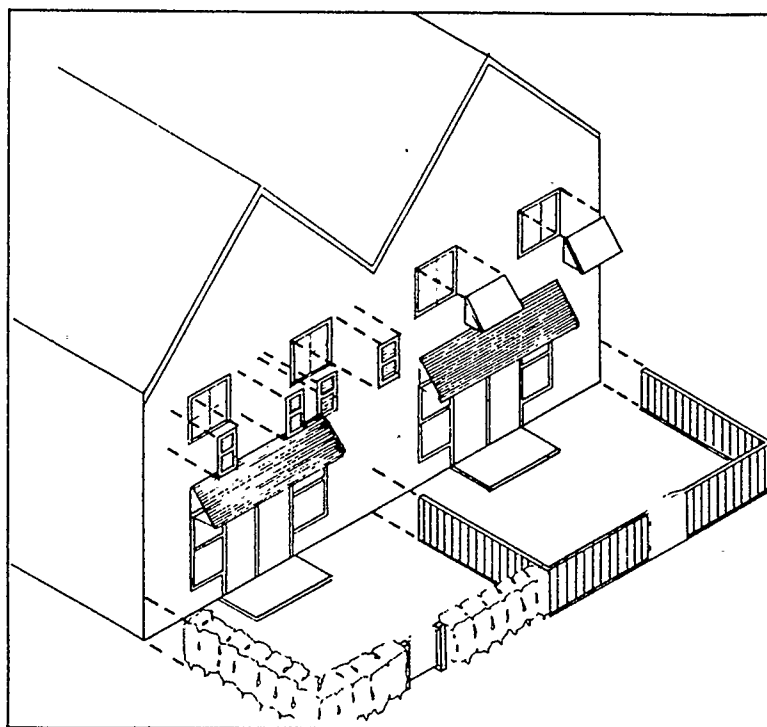


Figure 12. Concept of framework

It is felt that people should have the opportunity to personalize their environment, however, in order to maintain a sense of order and overall integrity in the design, it is necessary to establish certain "fixed parameters". These parameters consist of boundaries of:

- * shared open space and private yards

- * connections between open spaces
- * the provision of space for future building (either new buildings or for the expansion of existing ones)
- * the provision of space for landscaping
- * the provision of housing units which can be easily modified for example, by the addition of awnings, shutters, fences and hedges

Design Elements

The overall design of Arbour Village consists of the following elements:

- 1) Row housing - The organization of dwelling units consists of an organic, linear form. This configuration:
 - is sympathetic with the landscape's contours and responds to topographic features (Figure 13)
 - generates two kinds of courts, car courts and open space courts (Figure 14). Each court has a unique identity (as determined by the pattern of unit types) and thus facilitates one's orientation within the housing complex.
 - allows for choices in unit orientation and degree of privacy as some units front onto car courts and others front onto the main street (Figure 15)
 - creates a street pattern which changes orientation to create views and vistas (Figure 16)
- 2) Semi-public open space courts - The provision of open space serves the following functions:
 - the landscaped courts provide an amenity to the development as a whole as all dwelling units have their living rooms oriented towards them

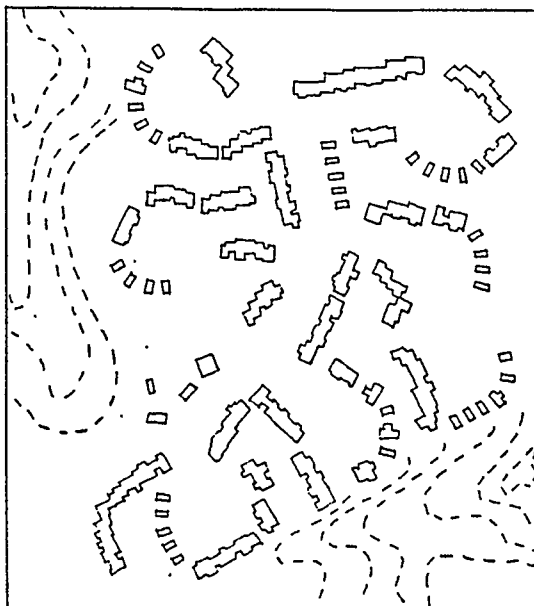


Figure 13. Topographic context

- they provide the opportunity for residents to modify their environment. Each open space court will be the unique product of the surrounding residents and will therefore enhance a sense of pride in the place.
 - they reinforce a sense of community:
 - residents will collectively maintain these courts
 - residents will collectively decide how they would like to use them i.e. they will determine their functions according to their needs and desires
 - the courts divide the community into a number of identifiable enclaves
 - they provide a communal play space for children
- 3) Public car courts - The parking areas are considered to play an important social role within the co-operative. Therefore they are designed for many



Figure 14. Car courts and open space courts

activities other than simply storing the car.

- all parking areas are landscaped with trees and hedges in order to create a pleasant environment
- parking stalls are delineated by hedges and are grouped in order to provide a setting for casual meetings between neighbours
- parking stalls are staggered wherever possible in order to create patterns which complement the organic pattern of housing
- the car courts (cul-de-sacs) have localized traffic (versus through traffic) and are therefore considered appropriate for:
 - street hockey
 - yard sales
 - washing and cleaning cars: a hose bib and drain are provided within each parking "island" and trees provide shade

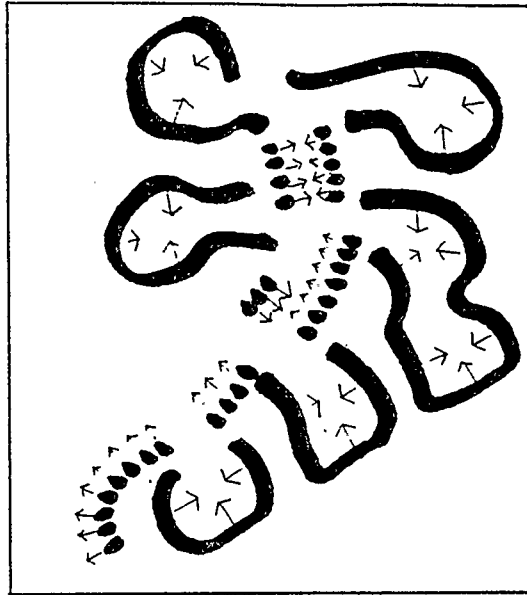


Figure 15. Unit orientation

- special events such as a Stampede barbeque: a single court can be temporarily closed off
 - views from kitchen windows into parking areas provides a means of surveillance
- 4) Community facilities - Shared facilities provide settings where residents can socialize and participate in community activities.
- the community/daycare centre enhances community identity by acting as a landmark. It is located along the main street, at the edge of the "Village Green", which has been designated as the location for for all major community buildings (Figure 17).
 - the community/daycare centre is also located near a hill which could be used for tobogganing in the winter
 - it is suggested that future community facilities be constructed as needed and as separate

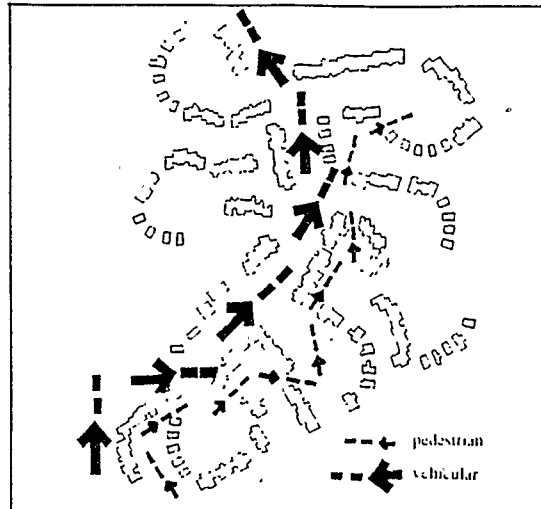


Figure 16. Views and vistas

buildings. Figure 18 illustrates one possibility of how these buildings can be arranged. The buildings are oriented with their axes parallel to the edge of the main street to the south and parallel to the slope to the west. A covered walkway connects the buildings.

- these buildings would form a "Village Centre" and would become a "place to go"

- group mailboxes and community notice boards are located along the main street as shown in Figure 19.

- 5) Path system - A walking path is provided along the perimeter of the development. Residents could, over time, establish their own network of paths to connect courtyards and to link up with the perimeter path as shown in Figure 20.

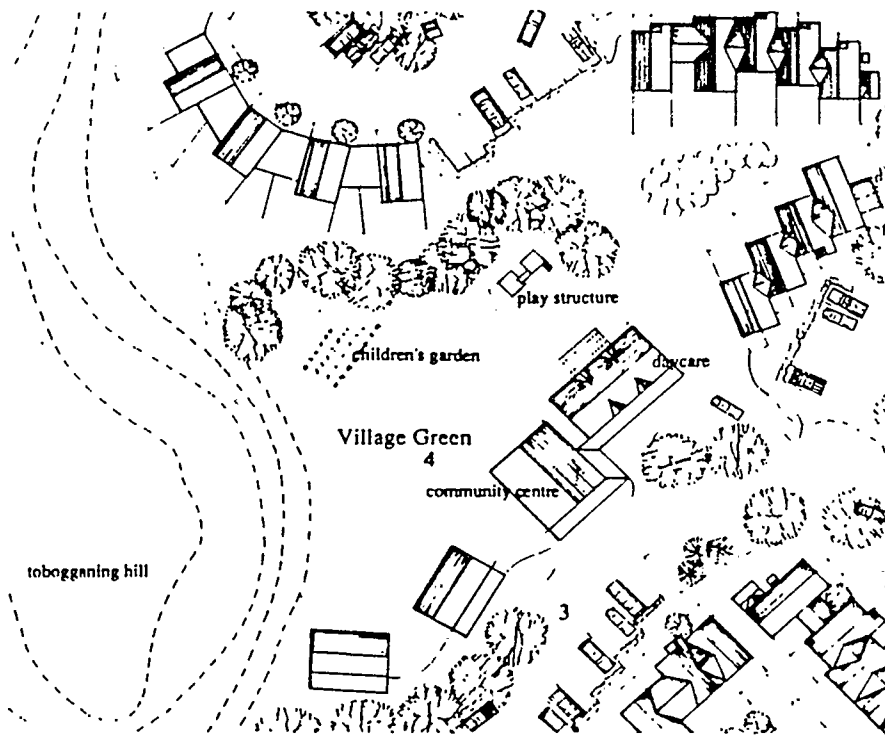


Figure 17. Village green

Unit Planning

The following types of dwelling units are provided to accommodate the various resident groups:

- Unit A - 2 bedroom
- Unit B - 3 bedroom
- Unit C - 2 bedroom with finished attic
- Unit D - 1 bedroom apartment
- Unit E - 1 bedroom apartment, single level (accessible)
- Unit F - 2 bedroom, single level (accessible)
- Unit G - 3 bedroom with 1 bedroom on ground level (accessible)

In order to unify these different unit types, the following strategy was employed:

- * 2 basic plan configurations were generated: rectilinear (Units A,B,C) and T-shaped (Units D,E,F,G) (Figure 21)
- * Units A,B, and C share common dimensions
- * all units have a simple form and have similar semi-private front entry courts
- * all units have similar gable forms (Figure 22),

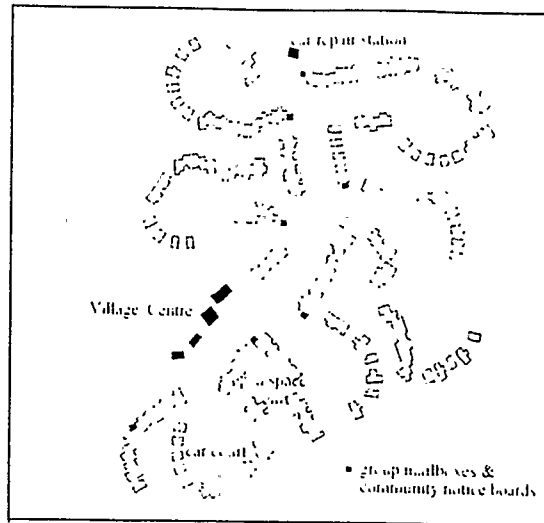


Figure 18. Community facilities

therefore integrating single storey units with double storey units

- * Units D and E are stacked to give the appearance of a double storey unit (Figure 23)

- this provides another means of integrating single storey accessible units and provides some efficiency in the site plan

- adequate soundproofing measures would have to be taken to reduce impact noise generated from Unit E

- * all units can be arranged in any combination, however, Units F and G make more efficient use of the site when placed at the end or at the corners of rows

In order to provide some diversity in the design of the housing units, the following strategy was employed:

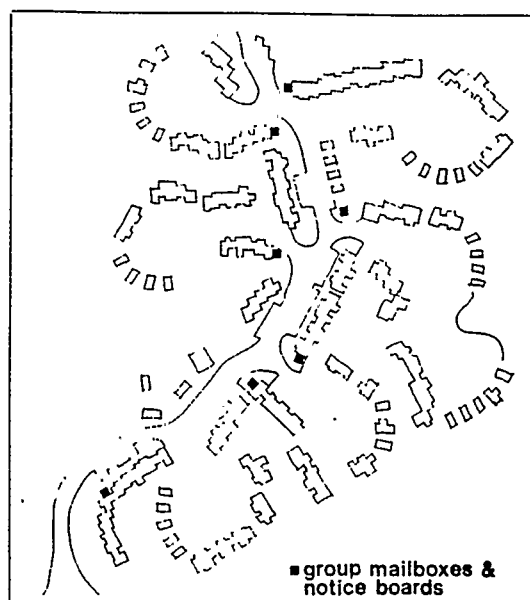


Figure 19. Group mailboxes and notice boards

the combination of single and double storey units creates a varied roof line (Figure 24)

- * a hierarchy of open space provides varied levels of privacy i.e. public car courts, semi-public open space courts, semi-private entry courts, private yards
- * to avoid the monotony of long, continuous rows of houses, spaces are introduced
 - numerous entries into the semi-public open space courts are provided
 - some units also have parking spaces beside them for carports or garages (this also lessens the visual impact of cars in the car courts)
- * the size of private yards varies in order to provide a choice of yard size and also responds to different conditions in the site plan (e.g. corner location vs. row vs. cul-de-sac)

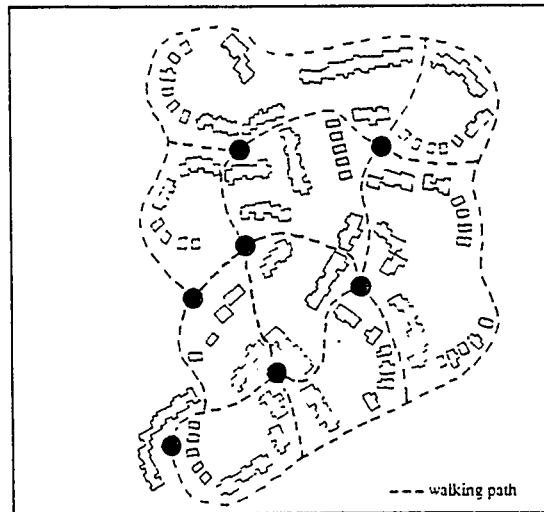


Figure 20. Path system

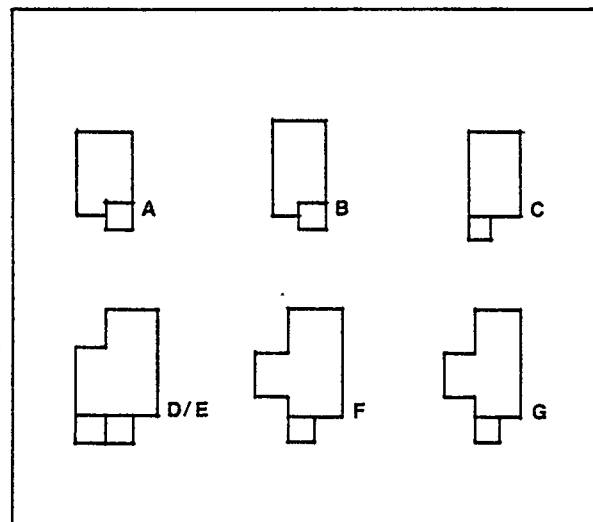


Figure 21. Plan configurations

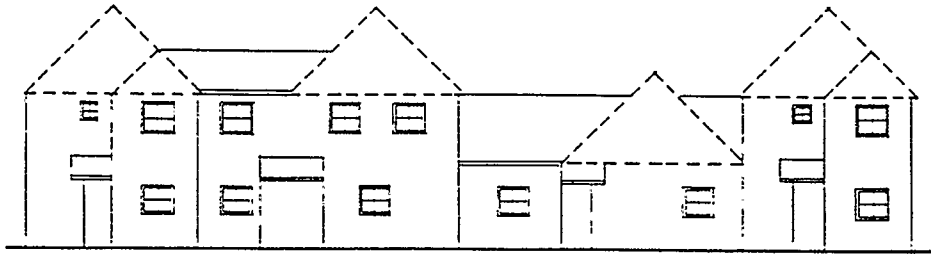


Figure 22. Gable forms

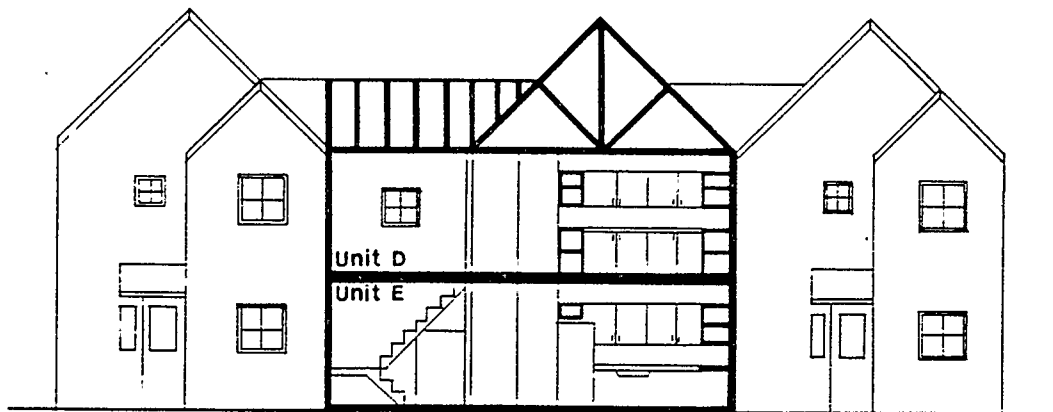


Figure 23. Units D/E

design elements which can provide variety are those which are designated for residents to select, provide or add (e.g. fences, hedges, gardens/landscaping, front doors, bay windows,

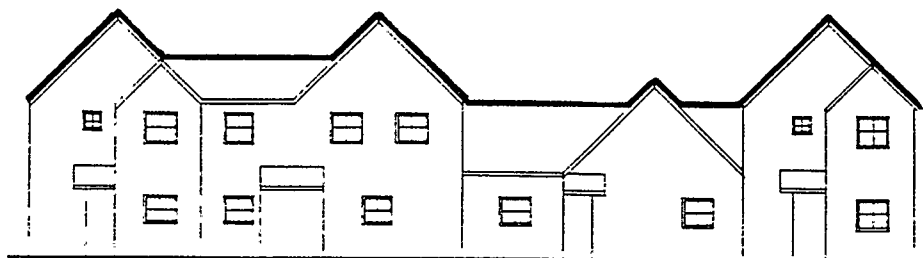


Figure 24. Varied roof line

awnings, trellisses, flower boxes)

Unit Designs

- * Units A,B and C have an open plan on the ground level i.e. they have a combined dining and living room or visually connected dining and living rooms in order to make the small units seem more spacious
- * windows are strategically positioned in order to make spaces seem more spacious in living rooms, kitchens and entries
- * landscaping is used to provide shading, privacy and to create light patterns on windows
- * deep window sills are provided so residents can personalize windows with plants or other belongings
- * all units have no level changes on the main floor and therefore disabled residents in wheelchairs can visit their non-disabled neighbours
- * Units A,B,C and G have unfinished basements with

provisions

for washers and dryers

- * Units D and F have provisions for washers and dryers on the main floor
- * Units D and E can easily be connected for use by a disabled resident and a friend or attendant. This can be accomplished by combining the two entrances into one.
- * It is assumed that a policy would be established by the housing co-operative to ensure that accessible units are reserved for disabled persons
- * All accessible units are designed according to the criteria outlined in Table 1 (Appendix C), however, it should also be noted that:
 - wider parking stalls are located in close proximity to accessible dwellings
 - outdoor ramps should be constructed only as needed, and wherever possible, both steps and a ramp should be provided
 - certain fixtures should be installed at the time of occupancy to ensure proper heights are established e.g. shelves, closet rods, counter tops
 - kitchen and washroom counters have no cabinets below, however, cabinets could be made readily available and supplied as needed
 - all washrooms on the ground floor have showers but could accommodate bathtubs if they were desired by the occupant. Bathtubs could also be installed as needed. Similarly, grab bars could also be installed according to need.

The Design Process

It is recognized that it is important to involve residents in the design of their housing. Figure 25 outlines the conventional process of allowing residents to make decisions in conjunction with an architect which affect basic design objectives contained in the program.

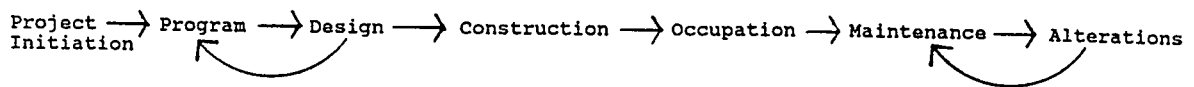


Figure 25. Conventional design process

Figure 26 illustrates the process employed in this project.

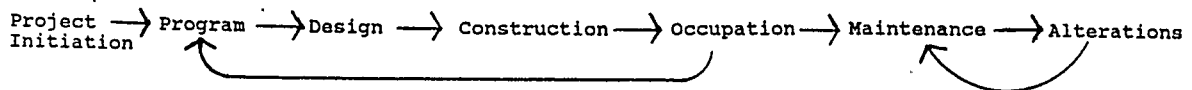


Figure 26. Modified design process

Although there was no direct input from potential residents, this process still allows residents to affect the final design in the following ways:

- * residents will be involved in the design of the community centre and daycare and will determine what additional facilities will be constructed
- * residents will also determine how the open space courts are used
- * residents will landscape their own yards

- * residents can personalize their dwelling units by adding awnings, flower boxes, trellisses, bay windows etc.

Ideally both processes should be employed so that residents can continually shape their neighbourhood before and after it is constructed.

Cost Considerations

The following strategies were employed in an attempt to reduce costs:

- 1) providing a double-loaded street corridor for savings in servicing costs (Figure 27)

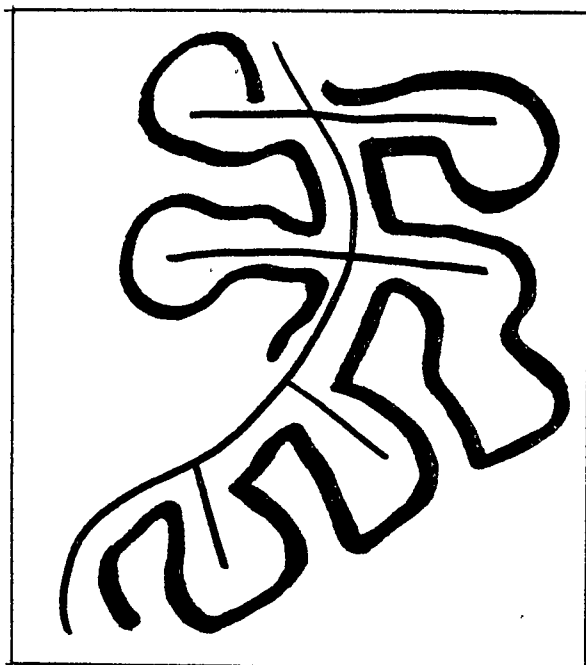


Figure 27. Double-loaded street corridor

- 2) using lower street standards such as narrower streets, no curb and gutter and no sidewalks (which

also works in favour of creating an accessible environment)

- 3) use of resident labour to reduce landscaping and operating (maintenance, management, accounting) costs
- 4) unit design
 - use of simple forms
 - repetition of 2 basic plan configurations (rectilinear and T-shaped)
 - providing small, efficient floor plans
 - use of inexpensive cladding (stucco)
 - use of standardized components such as roof trusses, kitchen and bathroom cabinets. In the accessible units, special cabinets and counters would have to be ordered, however, these can also be standardized.
- 5) phasing construction of community facilities, so that they can be built as the need arises and the financial resources become available

Appendix A

"Projects Visited"

Institutions

Calgary General Hospital
Dr. Vernon Fanning Extended Care Centre

Group Homes

The 4th Dimension, Calgary
Alberta Social Services and Community Health Group Homes,
Edmonton

Renovated townhouses

MacLaurin Village
MacEwan Glen
Midnapore
Willowdale

Co-operatives

Sunnyhill Housing Co-operative
Silverheights Housing Co-operative
Sarcee Meadows Housing Co-operative
Deerfoot Estates Housing Co-operative
Hunter Estates Housing Co-operative
West Heritage Manor Housing Co-operative

Appendix B

"Personal Communications"

Barry Pendergast, Barry Pendergast Architect Ltd.,
Calgary, May 1984

Dan Klinck, Roger du Toit Architect Ltd., Toronto,
October 1985

Larry Hodgson, Direct Access Design, Toronto,
October 1985

Nancy Marlett, Department of Rehabilitation Studies,
University of Calgary, February 1985

Trudy Mjierdrees, The Accessible Housing Society,
Calgary, July 1985

Vicki Bridges, The Calgary Action Group for the
Disabled, January 1986

Don Fisherman, Tenant Relations Officer, The Calgary
Housing Authority, July 1985

Ralph Hubele, planner, Alberta Housing and Public
Works, May 1984

Larry Lamecka, Canadian Paraplegic Association
Housing Registry, Calgary, March 1984

Muriel Keeling, Centre for Independent Living, Calgary,
February 1985

Hugh Skinner, Vice President, Hunter Estates Co-
operative, Calgary, March 1986

Mrs. Esther Bird, resident, West Heritage Manor
Co-operative, Calgary, March 1986

David Bellows, resident, Sunnyhill Housing Co-
operative, Calgary, March 1986

Lloyd Ostrinsky, Royal Architectural Institute of
Canada thesis student, March 1985

Appendix C

Designing for Disabled Persons

In order to design suitable housing for disabled persons, it is necessary to consider this segment of the population in terms of demographics, physical, social and economic characteristics, and service needs. Although the lifestyles of disabled persons have not been researched to a great extent (as compared to the elderly), the aspirations of disabled persons are well documented. The characteristics and goals of disabled persons influence the philosophy of design taken in this project.

Demographic Data

It is difficult to estimate the number of disabled persons in Canada due to variations in definitions of the term "disabled", methodologies employed and the interpretation of data. Statistics Canada estimates that 1 out of 8 Canadians (approximately 2.5 million) is disabled (Calgary Herald, 1986). There are approximately 214,500 disabled persons in Alberta, 27.2% of whom are between the ages of 17 and 64 and 42.6% who are 65 years and older (Brehaut in Pinney, 1982). In Calgary, there are approximately 66,000 persons with some level of disability, including 2700 persons who are registered wheelchair users (Pinney, 1982; Bridges, pers.com.). Nevertheless, the prevalence of disability is likely to increase due to an aging population, improvements in rehabilitation techniques and increases in accidents (Pinney, 1982; Lamecka, pers.com.).

Physical Characteristics

Only disabled persons with mobility impairments and who are mentally alert are being considered in this project since most of the disabled persons seeking housing in Calgary have these kinds of disabilities (Accessible Housing Society, pers.com.). The kinds of disabilities of these persons varies from temporary injury to the lower limbs to poor coordination to permanent paralysis, thus these persons have difficulty walking or use wheelchairs. Table 1 classifies these into three categories, non-ambulatory, semi-ambulatory and manual, based on Finger's (1978) analysis. Table 1 also shows the design implications, which range in scale from site planning to industrial design concerns and is intended to complement the various dimensional standards which currently exist.

Because disabled persons within these groups have varying capabilities and preferences and because some units within the housing co-operative will be designed to accommodate either disabled or non-disabled persons, it is important to provide flexibility. This can be accomplished by the following general principles:

1. provide adequate clearance in doorways, halls, etc.
2. allow for different furniture arrangements (also provide a sufficient number of telephone and electrical outlets)
3. provide adjustable fixtures e.g. shelves, closet rods, counter tops
4. allow for alterations e.g. bathtub vs. shower

TABLE 1

DISABILITY	CHARACTERISTICS	DESIGN IMPLICATIONS	EXAMPLES
Mobility Impairments (non-ambulatory)	-must use wheel- chair as mobility aid	-eliminate obstacles to wheelchair mobility	-provide ramps and curb cuts
	-disabilities vary e.g. paraplegia: paralysis of lower limbs hemiplegia: varying degrees of paralysis affecting one side of the body quadriplegia: perm- anent paralysis of lower limbs with varying degrees of paralysis affecting the upper body	-provide an architectural or management solution for snow and ice removal on exterior walkways, ramps and stairs -provide clearance under counters and tables for legs and wheelchair armrests -limited pushing and pulling ability due to rolling wheelchair -confined to sitting at lower level than standing persons -electric wheelchairs require more space -provide space for lateral transfer to beds, toilets, bathtubs and furniture	-provide smooth, hard surfaces (avoid deep pile carpet) -provide sufficient door clearance -provide sufficient turning radius -avoid high door thresholds -provide shallow sinks -minimize the force required to open a door or window -adjust the height of objects such as shelves, countertops, switches, outlets, windows, mailboxes and doorbells
Mobility Impairments (non-ambulatory)	-paralysis results in loss of sensation to touch and temperature	-protect hot water pipes under sinks if exposed	-provide front- loading appliances
	-immobilization can result in reduced resistance to low temperatures	-minimize unnecessary exposure to cold temp- eratures	-minimize outdoor travel distances from parking lot to building -provide a heat lamp in the bathroom

DISABILITY	CHARACTERISTICS	DESIGN IMPLICATIONS	EXAMPLES
Mobility Impairments (Semi-Ambulatory) and Coordination Disabilities	-problems with coordination, agility	-provide handrails at level changes and in bathtubs and showers. Handrails should be easy to grip and have sufficient wall clearance.	-handrails, grab bars, towel bars
	-may require the use of canes, crutches, walkers or braces	-all wall-mounted objects must support the weight of a person who may grab them while falling	
	-difficulty in bending, turning, sitting, kneeling, rising	-avoid protruding nosings on stairs to prevent tripping	
		-ensure risers are equal in height in any flight of stairs	
		-avoid steep stair and ramp gradients	
		-provide non-skid surfaces to prevent slipping	
		-provide an architectural or management solution for snow and ice removal on exterior stairs, walkways or ramps	
Manual Disabilities	-limited use of one or both hands	-provide means of overcoming limited manual dexterity	-mailboxes, window openers
	-limited ability to execute fine hand movement	-minimize the force required by arms and hands to perform various tasks	-door locks, handles, taps, switches, controls, hooks vs. towel bars, operation of blinds and curtains
	-limited arm strength in one or both arms		-provide spray hose for cleaning sinks and bathtubs
			-provide large handles and easy to use switches
			-provide lightweight doors, drawers on roller tracks, casement or awning windows

It is impossible to provide a barrier-free environment because it is not possible to define and design for every kind of disability. Therefore the issue of providing accessibility becomes one of degree of accessibility.

Social Characteristics

Much of the documentation of the lifestyles of disabled persons in the literature and in films has been done on an individual basis. It is difficult to make any generalizations about the disabled as a distinct segment of the population in social terms. Nevertheless, some information has been gained by local housing feasibility studies which describes disabled persons who are seeking housing. Hubele and Sheppard (in Toy and Drover, 1982) found that single, disabled persons between the ages of 18 and 65 years have the greatest need for housing. Some of these persons have live-in attendants, while others feel strongly about living completely on their own.

Within the disabled population, there are persons who are actively involved in the consumer movement. According to the Alberta Committee of Consumer Groups of Disabled Persons, "no self-respecting disabled person...wants to be pitied or cared for. We believe - very, very strongly - that any person who has a disability has the right to have control over their lives" (Ketcham, 1985, p.D6). The Alberta Committee lobbies the government for better home and medical care, education, transportation and equipment, "any of the things that lead to independence, dignity and self worth" (Ibid.). Disabled consumers share a common goal of striving to maximize their independence. "Independent living is a concept of a way of living for disabled people...Its basic premise is freedom of choice - the freedom of choice to make decisions on how one wants to live, where one wants to live and what one wishes to accomplish with their future" (Ibid.). They basically want the opportunity to participate in the marketplace like any other consumer. Nevertheless, the degree of independence varies due to differences in physical capabilities and individual motivation (Goldsmith, 1976). For example, someone who has lived in an institution for a long period of time may feel more comfortable living in close proximity to his or her friends. Other individuals in the same situation may decide to be more self-sufficient. Therefore, it is important to consider a variety of possible scenarios and attempt to accommodate them in the housing design.

Economic Characteristics

Local studies have found that the majority of disabled persons seeking housing have low and/or fixed incomes (Sheppard and Hubele in Toy and Drover, 1982). Thus there is a great concern for the affordability of good, accessible housing.

Disabled persons may be eligible for various disability benefits from the federal and provincial governments or from the private sector. Federal sources of income include the Canada Pension Plan and Unemployment Insurance. Provincial assistance includes Worker's Compensation, criminal injuries compensation and Assured Income for the Severely Handicapped (AISH, which provides \$695/month if an individual is unemployable). The cost of social assistance is shared by the federal and provincial governments and needs are determined on the basis of a person's income, assets and budgetary requirements (Ministry of National Health and Welfare, 1981).

Individuals with specific disease-related disabilities (e.g. multiple sclerosis) can obtain financial assistance for equipment or minor home modifications through the corresponding service organization. The Alberta Government also subsidizes equipment for disabled persons under its Aids to Daily Living Program.

Service Needs

Support care services are a necessary component on any residential environment which promotes independent living. Such services include medical assistance e.g. nursing, rehabilitation therapy (occupational and physiotherapy), equipment rental, and homemaking and personal care assistance. In Calgary, the Home Care Program is the main support care program. It is funded by the provincial government but is administered by the Calgary Board of Health. As a result, the criteria for receiving the medical services free of charge is based on a medical need. Once an individual satisfies the medical criteria, he or she can then receive services such as homemaking assistance and meals-on-wheels for no charge for the initial two weeks. After that period, the individual will be charged according to his or her income level (Toy and Drover, 1982).

However, many disabled persons do not necessarily require medical services but require the various kinds of homemaking assistance. Consequently the medical criteria of the Home Care Program is restrictive. Meyers (in Toy and Drover, 1982, p.45) feels that "the medical entry criteria...is inappropriate and should be changed to allow a social entry". Also, the meals-on-wheels program does not operate during the weekends.

Similar support care services provided by private sector enterprises are more expensive and have poorly trained personnel (Toy and Drover, 1982). The Klufus Report (1983) recommends increasing the training and recruitment of service staff and community volunteers as there is currently a shortage of occupational and physiotherapists.

Design Philosophy

The approach to design taken in this project is based on the principles of normalization and goals of integration and independent living. The concept of normalization states that disabled persons should experience patterns and conditions of everyday life which are as close as possible to cultural norms (Wolffensberger, 1972). Integration is defined as the participation of disabled persons in activities with other members of the community (Breckman in Pinney, 1982). While the built environment can facilitate the participation of disabled persons in the community by offering choices in types of accommodation, it is recognized that the participation of disabled persons is also affected by individual motivation, varying physical capabilities and social, cultural and economic factors (Goldsmith, 1976).

When designing for disabled persons there is a danger of creating specialized environments which cater to peoples' physical limitations only, resulting in disabled persons feeling segregated and stigmatized (Falta, 1977). Such environments are often medical or institutional in appearance. Good design "cannot remove all social and psychological stigma currently associated with disability, but it can provide accommodations which can be used with dignity" (Morgan, 1976, p.50). Furthermore, "people who lose the full use of their limbs do not lose their desire for convenient and good quality products and good design" (Hodgson in Bernstein, 1983, p.19).

By applying the principles of accessibility to the general population, the amount of negative attention brought to disabled persons can be lessened. The notion of creating an accessible environment is also beneficial to the general population. We are all faced with varying physical limitations during our lives. As children, we have certain limitations such as size, strength, coordination and perceptual abilities, and at any time we may also become temporarily injured. Women in the latter stages of pregnancy may experience mobility difficulties. And as we become elderly, we are likely to lose some of our coordination and perceptual abilities. Thus designing for disabled persons is more an issue of providing good functional solutions which meet the physical characteristics of people in general and providing solutions which are not stigmatizing in their appearance.

Appendix D

Spatial Summary of Dwelling Units

Unit Type	Area m2	# Units	Total Area m2
A	86	58	4988
B	92	49	4508
C	115	46	5290
D	75	11	825
E	75	11	825
F	80	15	1200
G	118	12	1416
		202	19,052 m2

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