A BUILDING EVALUATION OF THE GORDON HEAD STUDENT HALL OF RESIDENCE, UNIVERSITY OF VICTORIA

by

DEREK STURKO
B.Sc., Brandon University, 1978

A THESIS SUBMITTED IN PARTIAL FULFILMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
in the Department
of
Geography

[redacted]

We accept this thesis as conforming
to the required standard

[redacted]

Dr. J.D. Porteous

[redacted]

Dr. G.M. Barber

[redacted]

Dr. C.K. Porac

Supervisor: Dr. J. Douglas Porteous

ABSTRACT

This thesis discusses a user-based appraisal of the Gordon Head Student Hall of Residence, located on the University of Victoria campus, Victoria, British Columbia. The research is a result of recent trends toward the assessment of a building's worth by utilitarian, rather than aesthetic, standards. Several related areas of literature are reviewed. This review places the present study into context, and discusses theoretical and methodological considerations associated with building evaluation.

Although the formal assessment of building milieux is in its infancy, an interdisciplinary approach to such appraisals is evident. Most researchers utilize a multioperational procedure in evaluation. In such an approach, several research methods are used together. Building evaluation attempts to compare design intentions with building performance as a measure of a building's perceived utility to its users. According to this definition, most previous student residence research is not evaluative.

Three data collection phases were involved in the present research. Initially, design intentions were elicited. These goals were tested in building performance in two ways. Residents' behavior was observed first, and a questionnaire was then administered to a stratified random sample of the population of Gordon Head Residence.

Results revealed several specific design intentions which were incorporated into Gordon Head, although a number of compromises were made from the original plan for the residence. These concessions were a result of financial constraints. Major goals for the buildings included a dormitory-style residence, single-occupancy rooms, a co-educational atmosphere, a moderate density, and a community feeling among residents.

Residents indicated moderate satisfaction with Gordon Head. Major sources of dissatisfaction included inadequate sound-proofing, the location of services and facilities, and the buildings' physical appearance. Items inducing high contentment were the adequacy of services and facilities, the accessibility of telephone and food services, and the centrally-located floor lounges incorporated into two of the residence's three buildings. Most aspects of the residence milieu evoked mild levels of contentment or discontent. Behaviors occurring within the residence were relatively consistent with stated satisfaction levels. Attempts to predict general satisfaction, based on available data, revealed that only a very moderate amount (37%) of this aspect could be predicted. The complex nature of student living conditions restricts accurate prediction of residents' satisfaction.

Occupants' expressed preferences revealed that on-campus apartments, of a partially coeducational nature, were most desirable. A suite living arrangement was next most preferred. Among Gordon Head residents, Gordon Head was the most desirable of the residences presently on the University of Victoria campus. Residents indicated several desirable design alterations, and suggested various facilities

for future residence developments. Among the most common suggestions were internal kitchen facilities, a games room, a large common lounge in all residence halls, larger windows in bedrooms, and most frequently, more adequate soundproofing of buildings.

Several recommendations are made as a result of the data collected. These recommendations deal with individual's rooms facilities and services, the social milieu, and general design characteristics of on-campus housing. Suggestions are made for existing facilities, and for future residence hall projects at the University of Victoria.

Examining Committee:

[redacted]

Dr. J.D. Porteous

[redacted]

Dr. G.M. Barber

[redacted]

Dr. C.K. Porac

TABLE OF CONTENTS

Chapter

LIST OF TABLES

Table

LIST OF FIGURES

ACKNOWLEDGEMENTS

I wish to acknowledge the contributions of all those persons who assisted in the preparation of this thesis. In particular, I would like to thank my supervisor, Dr. J. Douglas Porteous, and my supervisory committee, Dr. G.M. Barber and Dr. C.K. Porac. Special thanks are due to Dr. Porteous and Dr. Porac for their comments on earlier drafts of the thesis.

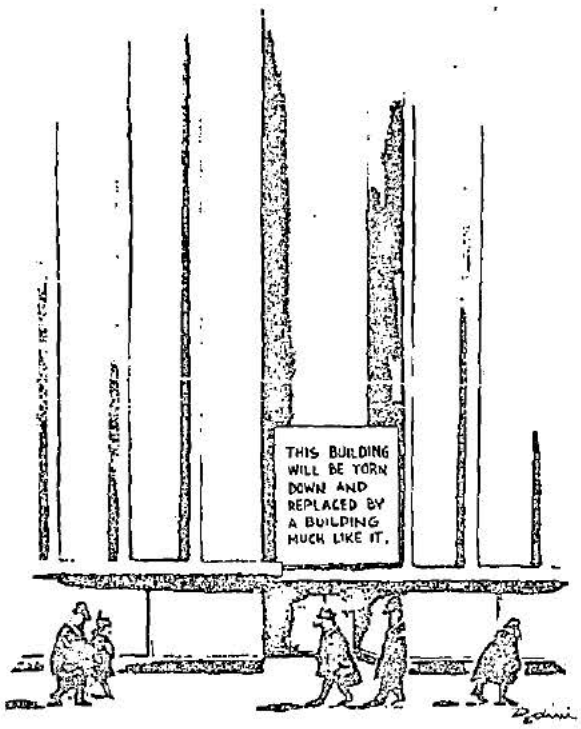
Thanks are also extended to all those persons who contributed information to the thesis. The occupants of Gordon Head Residence during the study period deserve special appreciation for allowing me into their 'homes'. As well, Gavin Quiney was instrumental in the initial development of the research project, and was a most helpful liaison within Housing Services.

I would also like to thank my friends for their interest and advice, and for making the University of Victoria a nice place to live and work during the past two years. In particular, Tim Mock asked a lot of questions about the research. Fortunately, he induced a few answers as well. Claudia Broemeling contributed her typing skills, unending patience, and a considerable degree of encouragement. Her contribution, most of all, is acknowledged. Eleanor Lowther typed the final manuscript. Her perserverance in this regard is appreciated.

Finally, thanks are extended to Laurel Carr, Kathy Monette, and Renee Stovold, for making all the tedious jobs a lot easier.

To Walter and Stella Sturko,

parents, pals, and confidants.



Drawing by Dedini; © 1978
The New Yorker Magazine, Inc.

Source: Brass, 1979, p. 211.

CHAPTER 1

INTRODUCTION

> The dominant situation of modern life is individuals living in a setting which was not built for them.
>
> Boutourline[1]

During the 1960s and parts of the early 1970s, student unrest on North American university campuses was unprecedented in its intensity. Unquestionably, the major spark was the Vietnam war. The next most common concern, however, was a problem 'closer to home' and of more direct and continued interest. This persistent problem is that of student housing and its inadequacies (Moos, 1978). This growing problem coincides with recent architectural concern with university living group conditions.

Design professionals have traditionally been concerned with producing a superior product. Often, radical alterations are made in designs. An attempt is made to create a product which satisfies a user's needs, both functionally and aesthetically. Customary practices in the North American automotive industry typify such an approach. By contrast, in other instances, minor alterations to an established form are made to reduce inconsistencies and maximize product efficiency. The oft-cited "Volkswagen Model" is indicative of such an approach (Sommer, 1972).

Building design is one area where, until recently, insufficient attention has been paid to the utility of the products to their users.

Economics, aesthetics, and personal glorification have been among the most important considerations of those involved in the design of building milieux (Ackermann, 1969; Becker, 1971; Lang and Burnette, 1974; Sommer, 1974; Lee, 1976). However, as a result of changing attitudes among both architects and North American society in general, recent attention has been focussed by architects, planners, and social and behavioral scientists on the utilitarian aspect of buildings.

Traditionally, it has been assumed that architects could predict what the user required in a design by means of intuition, professional training, and experience. Unfortunately, this has rarely been the case. Often mismatches between environment and behavior occur (Michelson, 1969). Architects frequently create designs to please the client, who is often not the user, or to display personal preferences (Lang and Burnette, 1974). These reflect pragmatic and egoistic ideals (Ackermann, 1969). Designs are, therefore, often based largely on intuition (Sanoff, 1974). This unsatisfactory situation clearly calls for the evaluation of building design by non-architects.

Until recently, the general building evaluation format has been exceedingly subjective (Gutman and Westergaard, 1974) and based primarily upon aesthetics (Sommer, 1974). An interest in the user and his utility has only recently emerged (Gutman and Westergaard, 1974). This approach redefines the architectural occupation as one of helping people to improve their quality of life (Sommer, 1972).

An evaluative component is now considered an essential stage of the building design process. Building evaluation permits an assessment of the utility of the building to the user. Feedback into the design

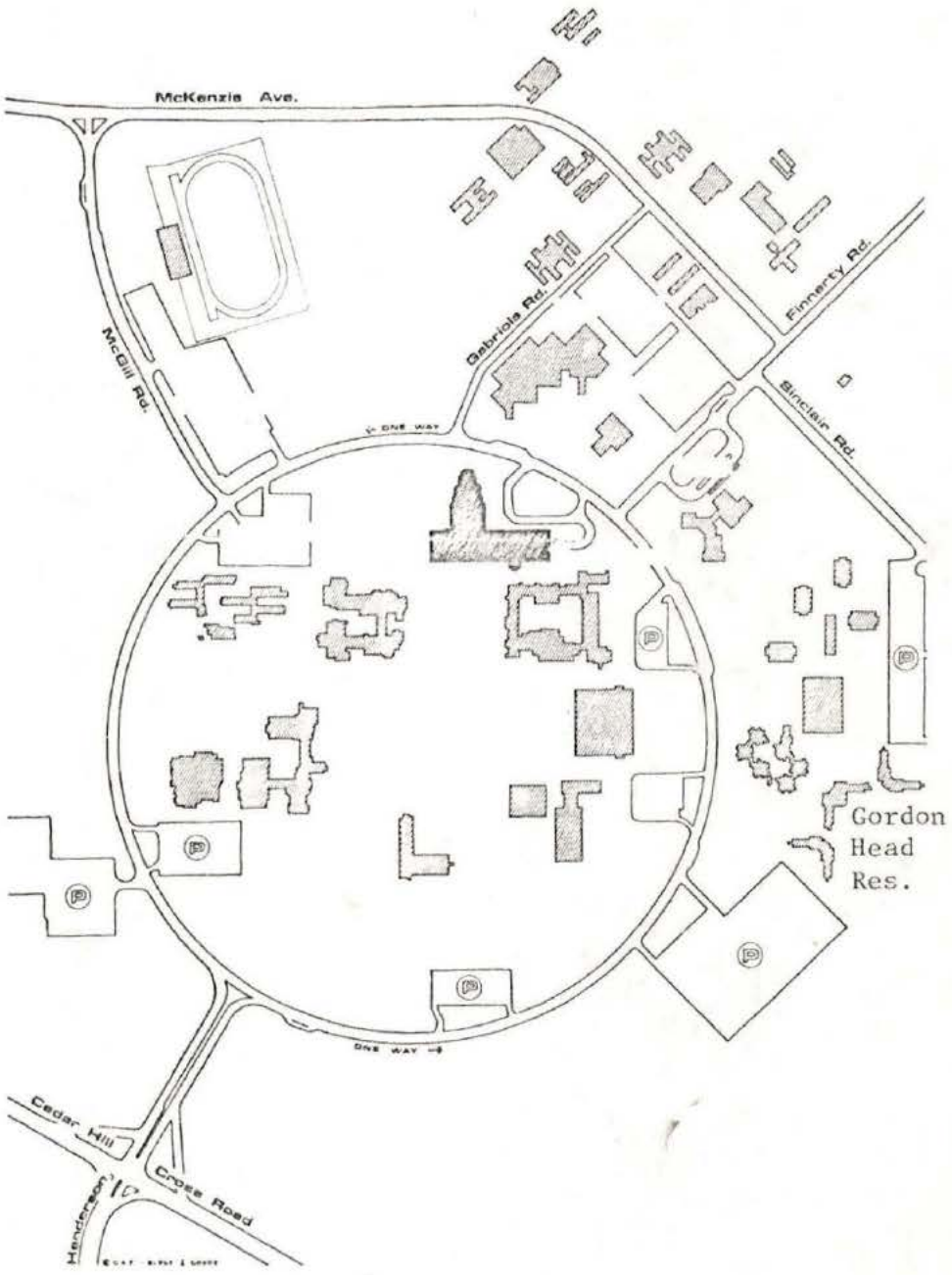
theory pool occurs, and future designs are thereby improved. All involved parties, namely the architect, the builder, the owner, and the user, may profit from evaluation of built milieux. Only rarely, however, are finances available for adequate assessments to be made, despite the likely benefits.

1.1 Intentions and Rationale

The thesis provides an evaluation of the Gordon Head Student Hall of Residence, located on the University of Victoria campus, Victoria, British Columbia. Gordon Head (as it will henceforward be termed) is a dormitory-style residence situated in close proximity to the centre of the campus (Figure 1.1). This residence has been in use only since September, 1978 and is the most recent residence to be built at the University of Victoria. Although an adequate 'settling in' period has been allowed, recent complaints have been expressed concerning the design and function of Gordon Head.[2] These grievances provided the initial impetus for the study.

The building evaluation procedure first required the elicitation of design goals. Such information was retrieved from archival material written before the dormitory's design was established, and from interviews with individuals involved in the planning and development of Gordon Head. These goals were expressed in concrete form in the design of the residence. Design intentions were then tested through actual building performance. Behavior patterns within semi-public areas of the dorm were observed to elicit unobtrusively resident satisfaction with the conditions provided. Following this, a questionnaire was

FIGURE 1.1: THE UNIVERSITY OF VICTORIA CAMPUS



administered to evoke stated satisfaction with existing facilities, and preferences regarding future building projects. In this manner, the thesis hopes to provide constructive feedback regarding the success of the residence in the form of recommendations concerning both the existing buildings and any residences which may be constructed in the future.

The reasons for conducting such appraisals of architectural environments stem from a variety of considerations. A lack of comprehensive investigation of college environments (Moos, 1978) is presently being remedied by research on the effects of design on behavior. Few North American colleges provide conditions for the maximization of harmonious, informal contacts among residents (Porteous, 1977). As well, large portions of university budgets are devoted to the building and maintenance of dormitories. As Hsia (1967) noted, 30 percent of university budgets are spent on campus housing. Recent trends to off-campus living limit the viability of student residences.[3] Economic factors are the main consideration in the selection of off-campus housing by students (Ankele and Sommer, 1973). However, dissatisfaction with dormitory living is a further prominent influence (Moos, 1978). Yet social inadequacies, such as isolation and alienation, are often prevalent in off-campus living. Living conditions chosen as alternatives to dormitories are generally inadequate, particularly for first-year students. Therefore, university residences must provide adequate facilities for these students.

Student residences provide a relatively homogeneous population for study (Bickman et al., 1973). Further, recent interest in the inclusion of public input into planning and design (see Chapter 2,

especially 2.1.3) is an important consideration in eliciting residents' feelings concerning their dormitory. Much campus planning has occurred without reference to student behavior, needs, or preferences (Wheeler, 1972), despite the potential beneficial impact residents could have on design.

Building evaluation is one method of improving future designs. By investigating user satisfaction, and identifying positive and negative aspects of specific designs, desired criteria can be maintained while unwanted characteristics can be eliminated or reduced in significance. New designs can be generated through the programming of expressed preferences.

This thesis is therefore intended to make both a general contribution to building evaluation studies and a specific contribution to the betterment of the quality of life on the University of Victoria campus. First, input towards a standardized methodology of building evaluation is provided, especially with regard to evaluations of student halls of residence. Second, and more specifically, an assessment of the student living conditions in a residence on the University of Victoria campus is provided.

1.2 The Gordon Head Residence

The Gordon Head Residence complex consists of three corridor-style dormitories (Figure 1.2). The dorms are designed in a V-shape. Each half-floor is separated by a central foyer-lounge area and is Y-shaped (Figure 1.3). The axis of each portion of the Y accommodates single-occupancy rooms and a washroom. Each half-floor houses sixteen or

FIGURE 1.2: THE GORDON HEAD RESIDENCE COMPLEX

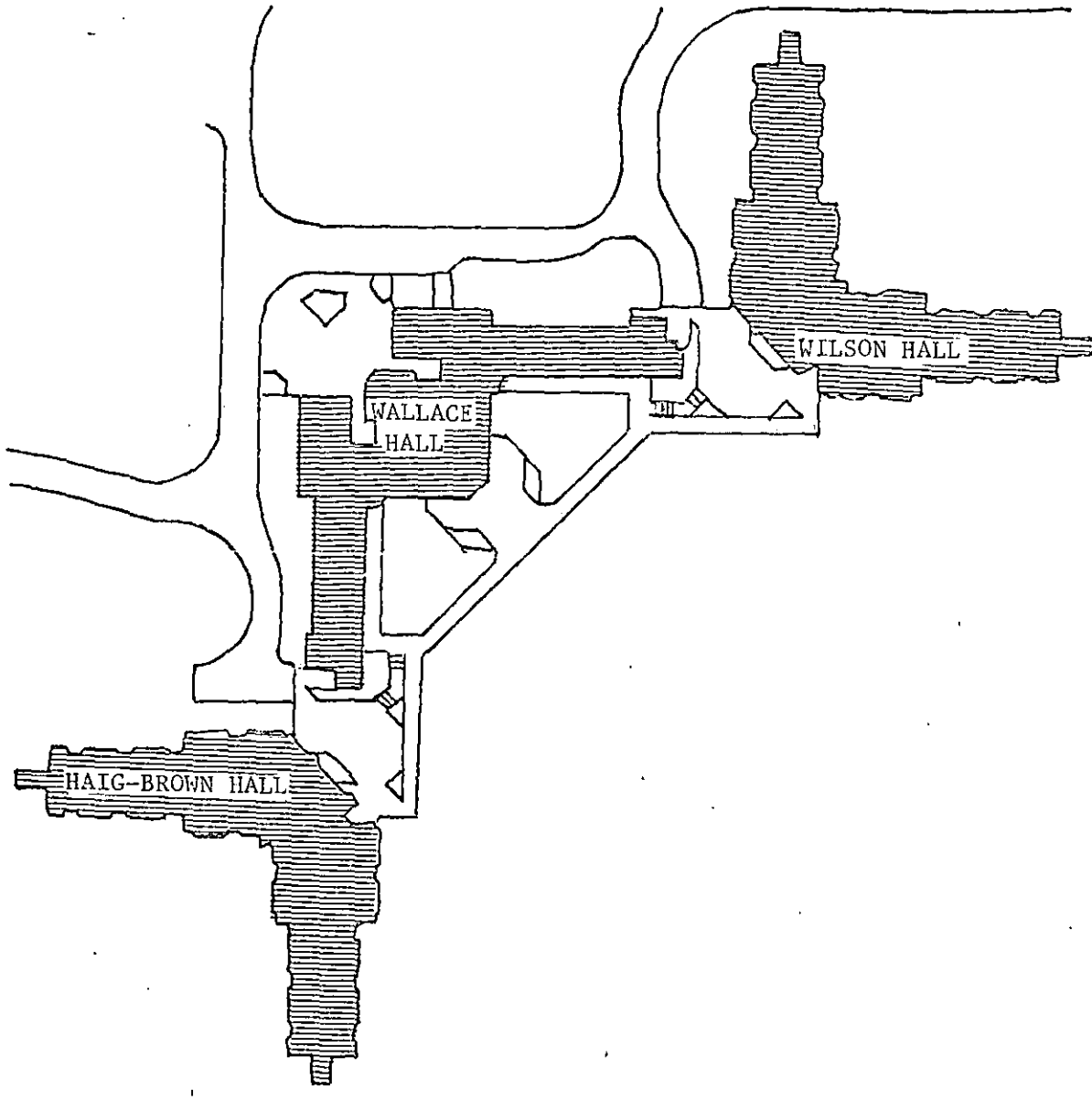
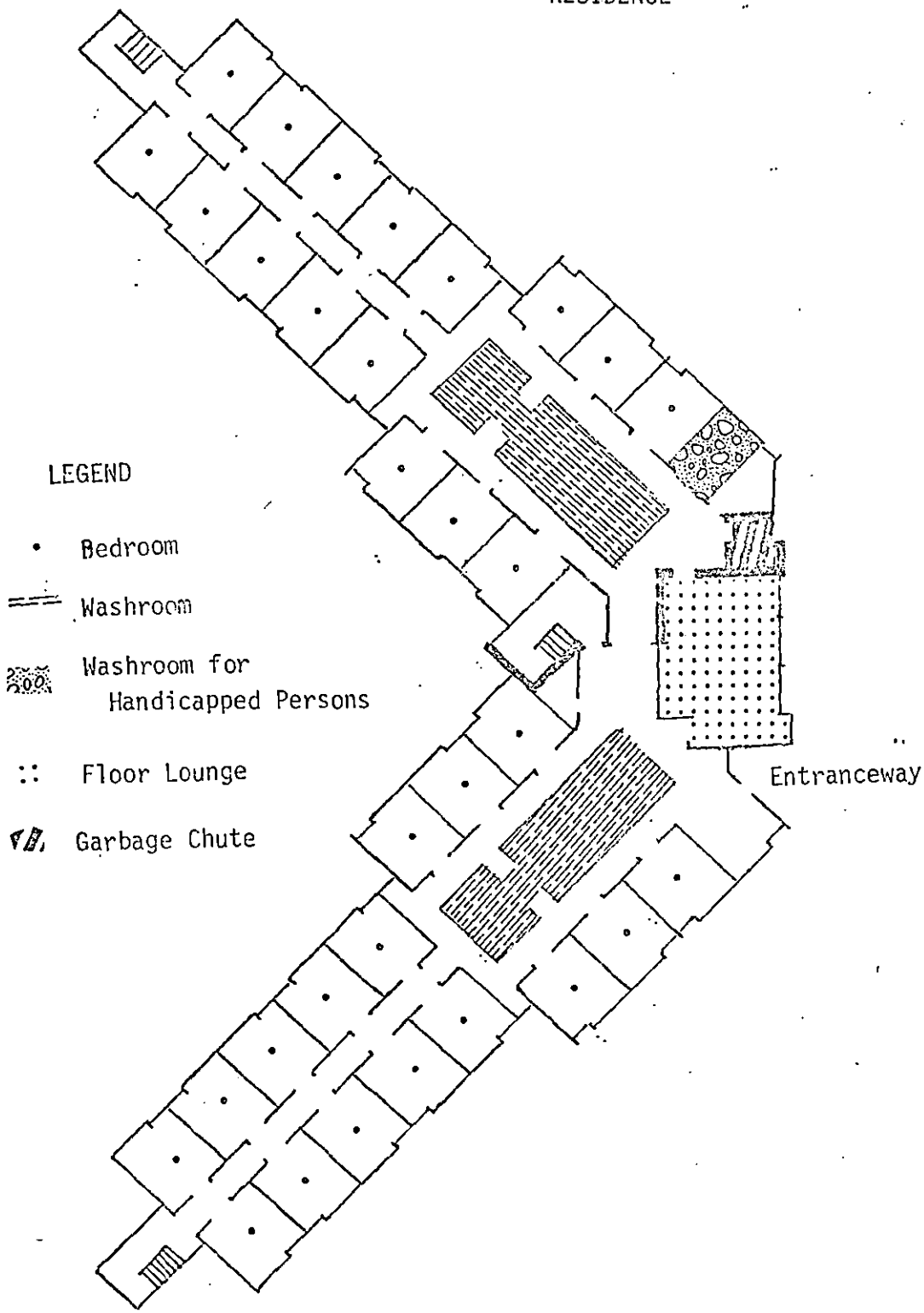


FIGURE 1.3: THE FLOOR PLAN OF THE HALLS OF GORDON HEAD RESIDENCE



seventeen residents.

Each of the three dorms has a formal means of identification. The central block is designated Robert Wallace Hall. The northernmost hall is known as Richard Wilson Hall. The residence farthest to the south is called Roderick Haig-Brown Hall. Shortened forms of the full titles, namely those on Figure 1.2, will be used throughout the thesis. Wallace Hall is different in design from Wilson and Haig-Brown Halls. It is four storeys high, whereas Wilson and Haig-Brown are only three storeys in height. The lower floor of Wallace houses facilities and services for the entire residence. The three upper floors accommodate residents. Facilities located on the lower floor include a large lounge and special function room, a television room, residents' laundry rooms, and locker storage space. Services, such as laundry and mail, are also situated in this area. Finally, the Senior Don's suite is located on the lower floor.

On the three upper floors, 102 residents are housed. The occupants are divided into six groups of 16. Thirty-four persons are situated on each floor, 17 of which are on each half-floor. In Wallace Hall (as in Wilson and Haig-Brown Halls) each half-floor consists of same-sex residents. The other half-floor houses residents of the opposite sex. Each succeeding floor exhibits a reversal in the location of males and females. All washrooms are adaptable for use by either sex. The male-female positioning on each floor is reversed annually.

Large, open foyers, containing no furniture, are located centrally on the upper three floors of Wallace Hall. At the extreme ends of each floor are small lounges (one per each 17 persons). Also at each end are

stairwells. These serve as entrances as well as exits, as doors can be opened from the exterior. In the central foyer area, both a stairwell and an elevator are located. They exit on the main floor to a small, enclosed foyer. The foyer leads directly to the remainder of campus and the residence dining facilities. Access to Wallace Hall is easiest as it is the most centrally located of the three halls.

Both Wilson and Haig-Brown Halls consist of three floors. All floors are devoted to residents' rooms. On the upper two floors of each hall, 34 residents are housed in a manner similar to each of the three upper floors in Wallace Hall. On the lower floor of Wilson and Haig-Brown Halls, only 32 residents are accommodated as the design of the central areas is distinct from Wallace. A larger, centrally located lounge serves each floor (expanded to accommodate 34 persons). On the lower floor, the central entranceway and a washroom for handicapped persons take up the space of two rooms. As a result, only 32 rooms are available.

No facilities are located in either Wilson or Haig-Brown Halls, other than lounges and washrooms for the handicapped. The elevator, intended to facilitate the transport of handicapped persons, is situated in Wallace Hall. However, the appropriate washrooms were placed in the other two halls. This appears to be an initial, and very obvious, design fault. Stairwells are located both centrally and at the end of each hallway in Wilson and Haig-Brown Halls. Residents cannot enter the end stairwells from the exterior. As a result, these stairwells serve primarily as exitways.

Each of the three halls supports a distinct social environment. These are deliberately created through the allocation of residents based on expressed preferences concerning the social milieu desired. Wallace Hall provides a balanced mix of academic and social conditions. Wilson Hall, catering to a younger population, supplies a more social environment. Haig-Brown Hall provides a more restrictive milieu. This block maintains an academic atmosphere and caters to an older population. For instance, graduate students are generally delegated to Haig-Brown Hall. Students are assigned to one of these three dormitories based on the type of social environment they prefer and are willing to maintain.

1.3 The 'Actors'

Several persons require consultation for the purpose of such an evaluation. These include design professionals, university personnel, and students. Persons involved in (1) the residence's design, (2) its functioning, and (3) its use, represent the potential pool of actors to be consulted in evaluating the dormitory's performance.

Architect Robert Siddall (of Siddall, Dennis and Warner) was responsible for the design of Gordon Head. He worked within design guidelines established by the Gordon Head Project Planning Committee.[4] This committee consisted of the Campus Planner (Mr. Ian Campbell), the Head of the Committee on Campus Development (Dr. Trevor Matthews), the Head of Housing Services (Mrs. Shirley Baker), two students (Mr. C. Shold and Mr. D. Delong), and Mrs. O. P. Noble. Mrs. Noble has been involved in the design of all three residences on the campus. The committee established the philosophical, structural, and economic bounds

within which Mr. Siddall worked. Some committee members (Mrs. Noble, Mr. Shold, and Mr. Delong) were unavailable for consultation. However, the remainder of the committee was available, and outlined the committee's goals in the design of Gordon Head.

Mr. Gavin Quiney, Residence Co-ordinator, was a contributing force in both the development of Gordon Head and the present research. Mr. Quiney regulates the evolution and functioning of the residence, often acting as a liaison between students and staff. The occupants of Gordon Head Residence at the time of the research are the most significant actors. They represent the primary users of the dorms, although the residence is often occupied by conference participants on a short-term basis during the summer months.

1.4 Summary

A user-based appraisal of the Gordon Head Student Residence will be performed. The practical and theoretical rationale for such evaluations includes attempts to improve both the design and the economic viability of on-campus student housing. Gordon Head is a traditional, corridor-type hall of residence. Three distinct social environments are provided in relatively homogeneous physical settings. Several actors were involved in Gordon Head's development. Firm guidelines were established within which the residence was developed.

A literature review, placing the research into context, follows directly (Chapter 2). Theoretical and methodological considerations are outlined. An expansion of the specific methodology and research instruments employed (Chapter 3) and the results (Chapters 4, 5, 6, and 7)

follow. Comments on the problems and limitations of the investigation, future research suggestions, and recommendations for future residence hall development (Chapter 8) conclude the discussion.

Footnotes

[1]Serge Boutourline, "The Concept of Environmental Management," in H. M. Proshansky et al., *Environmental Psychology: Man and His Physical Setting* (New York: Holt, Rinehart and Winston, 1970), p. 496.

[2]For examples, see *The Martlet*, Vol. 19 (November 23, 1978), 1.

[3]In 1967, Victor Hsia (1967) noted 40 percent of students lived on campus in North America.

[4]*Programme of Requirements for Additional Dormitory Type Student Residences*, May 13, 1975, revised July 23, 1975, Gordon Head Project Planning Committee, University of Victoria.

CHAPTER 2

LITERATURE REVIEW

> The knowledge of the house is not limited to the builder alone. The user or master of the house will even be a better judge than the builder, just as the pilot will judge better of a rudder than the carpenter, and the guest will judge better of a feast than the cook.
>
> Aristotle[1]

This chapter discusses literature related to the thesis. The review includes three types of information. Contextual issues discussed indicate factors of importance in such a research undertaking. A review of substantive research will facilitate the reader's understanding of the interdiscipline known as building evaluation (part of a larger interdiscipline commonly referred to as architectural psychology). Finally, methodological considerations are outlined.

2.1 Contextual Issues

A discussion of contextual issues places the present research into perspective by indicating some of the basic considerations in undertaking such a study. Issues of a contextual nature include the application of geographical skills, advocacy planning, public participation in planning and design, and the user-client relationship.

2.1.1 Applied Geography

Yeates and Garner (1971) note the growing application of geography

to the identification of solutions to problems of a 'real world' nature. Applied geography has three basic aims. These are: (1) the education of the public's awareness of the discipline's potential, and of students of geography; (2) the creation of new theory; and (3) the application of theories in solving societal problems. Applied geography is primarily involved in urban and regional planning, and the formation and analysis of public policy. Although the discipline offers much potential in these areas (Corey, 1973; Hare, 1974; Christensen, 1977; Coppock and Sewell, 1977), application to date is limited (Corey, 1973; Hare, 1974; Harrison and Larsen, 1977). Trends to enhance research relevance (while downplaying the role of scientific rigor) indicate the high regard accorded to geographic aspects of the problems which beset society (White, 1972; Browning, 1974; Frazier, 1978).

Geography has several characteristics which enhance its applicability. The holistic perspective taken by practitioners, and its synthesis of many disciplines (Mattingley, 1974; Beaujeau-Garnier, 1975; Gerasimov, 1975) are important. Further, the use of research instruments (questionnaires, interviews, observation techniques) developed by related disciplines enhance geography's applicability (Goodey, 1971).

As early as 1971, Goodey advocated the application of geographical skills in micro-spatial environmental analysis. He suggested the house as one small-scale unit where geography's intervention has been minimal. Goodey further outlined the absence of social science 'user' evaluation studies. He suggested that, as a result, designers have not benefitted from objective evaluations of their work.

2.1.2 Advocacy Planning

Traditionally, a large portion of the North American population is politically inactive or apathetic. This group, however, is most likely to be influenced by planning decisions (Porteous, 1977). Advocacy planning is the suggested alternative to traditional planning practices. It attempts to provide meaningful links between politicians, planners, and citizens.

In the advocacy process, a professional planner attempts to convey the values of a citizen group (who personally lacks the expertise) in the political arena. Planners instruct clients regarding their rights, the law, and planning alternatives. The professionals also inform public planning agencies of their clients' goals, viewpoints, and problems (Davidoff, 1965; Breitbart, 1974). Porteous (1977) suggests this procedure has altered the appearance and functioning of planning so that it has become a process largely concerned with human requirements.

Past planning processes were largely concerned with placing objects, zoning land, and so forth. These procedures were generally devoid of concern for human welfare. As early as 1965, Davidoff (1965: 336) suggested "The city planning profession's historic concern with the physical environment has warped its ability to see physical structures and land as servants to those who use them." The only value of these physical conditions is their social, economic, psychological, physiological, or aesthetic effect on users.

Porteous (1977:363) suggests that advocacy planning "renders the planning process less remote, expands the options available to the client group, and promotes physical developments which are in accord with unique

community lifestyles." This practice could be expanded to include input into the design process. This would enable the development of building milieux in accordance with the unique lifestyles and activity patterns found in these environments.

Several problems exist with the advocacy process. These include the myopic character of some advocates and user groups, the heterogeneous character of user groups' ideas, and the ineffectual citizen control of the planning process (Porteous, 1977). The advocate may have to defend beliefs he does not agree with. As a result, he may try to convert his client's views to parallel his own (Davidoff, 1965). "Even without administrative powers the advocate planner is a manipulator" (Peattie, 1968:85).

Keyes and Teitcher (1970) suggest the main limitation of advocacy planning is its concern with values, goals, and issues rather than the "nuts and bolts" of planning. Critics of advocacy focus on three key problems (Breitbart, 1974): these include the impact of the advocate's personal values on a community group, the exclusion of the community group from the technical plan preparation, and the focus of advocacy on short-term reactions to crises.

The passive form of user involvement associated with post-occupancy evaluation is not yet reflective of advocacy planning. However, attempts are being made to enhance user participation in the design process. A more advocate character could be developed in two ways. First, the architect could act as the advocate by eliciting user feelings. Second, the social scientist could represent user goals to the architect. In this manner, future design policy could reflect the needs

of the user. Such a practice is reflective of recent trends to stimulate public participation in planning and design.

2.1.3 Public Participation in Planning and Design

Recent moral pleas have advocated increased citizen participation in the planning process (Damer, 1971; Porteous, 1971, 1977; Kasperson and Breitbart, 1974; Sewell and Coppock, 1977; Bennett, 1977; Sadler, 1978). These demands have resulted from the failure of planners to identify correctly public preferences (Sewell, 1971). "Planners construct their own subjective views of reality from a base which is totally different from that of the general public" (Mercer, 1972:49). As ". . . no individual can possess any more than a partial view of reality" (Breitbart, 1974:52), designers and policy makers often act on the basis of incorrect assumptions.

By definition, citizen involvement ". . . refers to the variety of devices which allow the individual access to the institutions of government" (Smith, cited in Mitchell, 1974:19). The rationale for such participation includes theoretical and practical reasons (Rothblatt, 1978). Connor (1972) suggests six reasons for citizen involvement. These include:

(1) obtaining additional data for the planner's use;

(2) obtaining the resident's technical expertise regarding a subject;

(3) utilizing the creative capacity of non-professionals;

(4) attaining the goals, preferences, and priorities of non-professionals;

(5) meeting the demands for public participation; and

(6) altering behavior.

"In general, the phrase 'user participation' is used to cover an extremely broad range of types of user involvement in environmental decision-making" (Becker, 1977:S-1). It includes attempts to incorporate actual or prospective users of a facility, program, or product into its planning and design. Two major stages of participation exist. These include involvement in the conceptualization (planning) or implementation (construction) of a project (Becker, 1977).

Several problems exist with the participation process. User participation by itself is insufficient for user control over environmental change (Schwartz, 1978). Participation is often limited to two forms (Porteous, 1971). These are: (1) the adjustment of the public to established plans; and (2) allowing the public to choose from a number of established alternatives. As Kaplan (1978:436) notes, "public 'involvement' often is incredibly uninvolving." Porteous (1977) outlines several problems with, and criticisms of, the participation process. These include, for example, problems in identifying the public, the non-representative nature of public interest groups, and the lack of expertise, and fear of results, among citizens.

User involvement in the design process is desirable (Mitchell, 1974; Zeisel, 1974, 1975; Preiser, 1976; Wandersman, 1976, 1979; Kaplan, 1978). Buildings facilitate or hinder social interaction and behavior (Moos, 1978). Despite people's adaptation to inappropriate facilities, user input could prevent unnecessary inconvenience and produce better facilities. User input occurs when those who provide information about

user preferences and values are the persons who will occupy a planned or renovated facility (Becker, 1977). User intervention into the design process is, however, only a very recent practice (Farbstein, 1976).

The architect traditionally imposes his beliefs and preferences upon the user in creating a design (Zeisel, 1974). The gap between the user and the architect may be reduced through participatory processes. It is believed that increased user input results in better designed facilities, increased user satisfaction, and an improved quality of life (Barnett, 1974; Becker, 1977; Kaplan, 1978; Schwartz, 1978). Participation in design presents powerful "social-psychological" and design benefits for the users and the experts involved (Kaplan, 1978).

User participation can be implemented at various stages of the design process. Wandersman (1979) suggests such involvement at all levels of design (the identification of criteria, planning, construction, use, and evaluation). Bross (1979) discounts input during the construction phase, although verifying participation at all other stages. He suggests the user stage is the optimum source for public input. This involves user evaluation studies.

Two misconceptions exist regarding public involvement in design (Kaplan, 1978). The first is that if participation is left to the untrained, the architect's skills will be wasted. In fact, the architect has only to alter the use of his skills to incorporate the ideas of the user. Second, a negative image of the 'layman' exists. Lay input into the process is deemed inconsequential. Lay persons' needs, however, are the most important. Kaplan further outlines the complaints of citizens and designers regarding involvement. Citizens suggest that no

one asks their opinions. They indicate that when views are elicited, they are ignored. In contrast, designers feel users do not understand the design process, that few users attend scheduled meetings, and that a large silent majority exists. This results in the expression of the opinions of only a limited number of users. These problems form a barrier between the user and the architect.

In addition, various users and clients often hold conflicting views regarding design objectives (Farbstein, 1976). In some instances, such as shopping malls, user turnover is very high, therefore, the number which may reasonably participate is limited. Despite the assumption that initial user involvement will result in better facilities than those designed without user input, no evidence yet indicates that current users benefit from past users' input (Becker, 1978). In contrast, however, no evidence exists to suggest the reverse. Only through several post-occupancy evaluations over time can possible benefits be tested.

In this sense, user input into the design process requires attention and appraisal. Post-occupancy evaluations of existing facilities promotes the advent of involvement, and a means of assessing such involvement. A crucial aspect of participation is the user-client relationship.

2.1.4 The User-Client Relationship

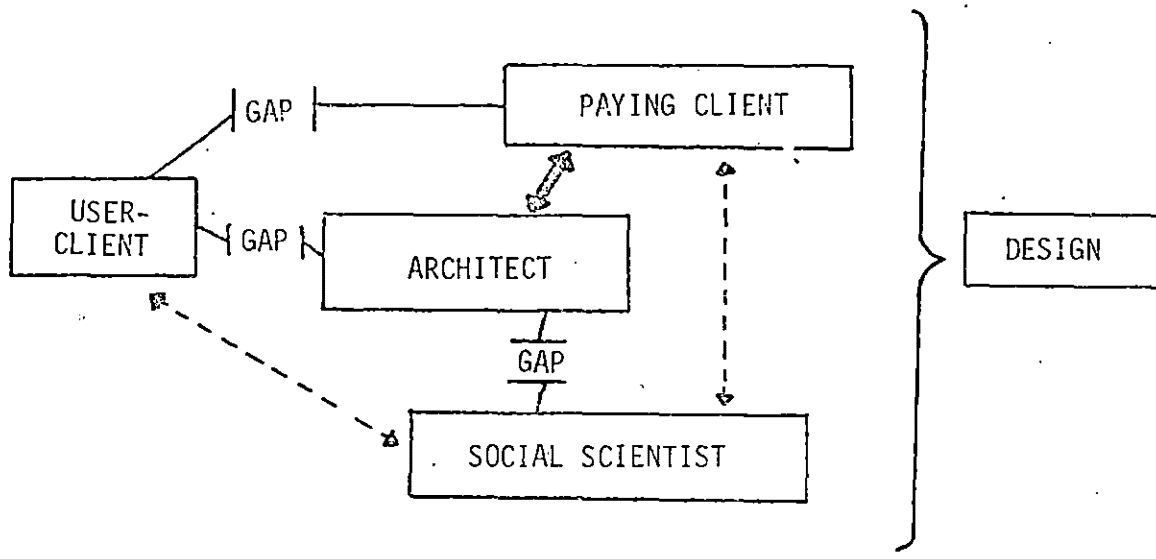
Recent trends towards the measurement of a building's worth by user-oriented standards, rather than aesthetic or other criteria, reflect the growing interest of the architect in the user of his building

(Gutman and Westergaard, 1974; Farbstein, 1976). The user's needs should be of prime consideration in design. However, other factors, such as cost, feasibility, and conflicts over environmental uses, are prevalent. As well, user needs change over time (Sanoff, 1977). An applicability gap exists where an unknown relationship exists between: (1) theory and research on client needs by social scientists; and (2) a search for design principles (Harman and Betak, 1976; Wandersman, 1976). This further restricts the user's input into design.

"There are three major groups involved in the planning and use of an environment--expert, using client, and paying client" (Wandersman, 1979:469). Unfortunately, in many instances, the user is removed from the traditional designer-client relationship (Zeisel, 1974, 1975; Preiser, 1976; Freidmann et al., 1978). Sweeney (1978) identifies two major gaps. These are the gaps: (1) between decision-makers (clients) and citizen groups (users); and (2) between citizen groups (users) and designers (architects). Architects are now designing for large groups of unknown users. As a result, the term client has been expanded to include two distinct client groups (payers and users). Mitchell (1974) suggests that more humane environments will develop only through proper client-professional relationships. Porteous (1977:315) defines the user-client as "he who actually inhabits the building. . . ." He suggests near absolute lack of contact between the designer and the user. "The designer's clients are usually not the users of the environment he designs" (Preiser, 1976:56).

Major gaps, therefore, exist between the user-client and (1) the architect, and (2) the paying client (Figure 2.1). The only strong

FIGURE 2.1: THE USER-CLIENT RELATIONSHIP



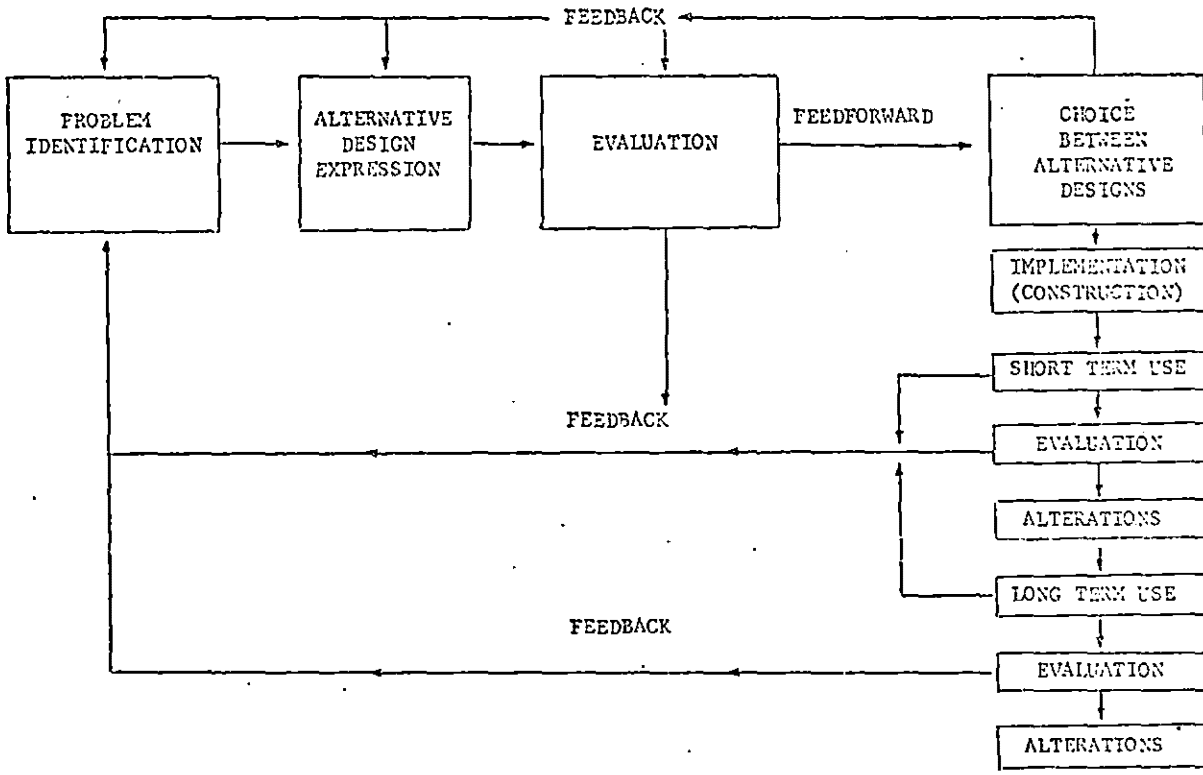
relationship is between the architect and the paying client. This suggests the group which will actually use the facilities is generally ignored in the design process. The recent role of the social scientist in attempting to bridge the gap is notable.

2.2 Substantive Literature

2.2.1 Building Evaluation

Building evaluation is one stage in a cyclical design process (Figure 2.2). It is a recent concern among behavioral scientists of diverse origin (Gutman and Westergaard, 1974). Architectural psychologists, practicing and teaching architects, and sociologists are among the most frequent investigators. Two stages are involved in a building

FIGURE 2.2: A MODEL OF THE DESIGN AND EVALUATION PROCESS



evaluation: (1) the determination of design intentions, and (2) an assessment of the realization of these intentions in the building milieu which is created.

An underlying assumption in building evaluation research is the belief in an environment-behavior interaction. Negative behavioral effects are often cited as a result of built environmental influences (Miller, cited in Ittelson et al., 1974:358; Moos, 1976; Yancey, 1978). It has, therefore, been suggested that the environment can be manipulated to induce or control behavior (Drew, 1971). The built milieu

should be designed for the user (Esser, 1970; Ostrander, 1972; Sanoff and Sawhney, 1972; Zeisel, 1974). This belief has induced recent architectural concern with the user and his utility.

> Architecture is the conscious creation of utilitarian spaces conducted from materials in such a way that the whole is both technically and aesthetically satisfying. (Pramer, 1973:8)

Pramer's definition of architecture outlines the importance of the engineering and appearance of buildings. He suggests architecture must be mechanically sound and attractive to the eye. Although Pramer suggests utilitarian spaces are created in the process, he ignores the behavioral component of these structures. Architecture should be utilitarian, but it should be most useful for the conduct of human activities. Pramer's definition outlines architecture as a deliberate human activity intended to serve some human needs. Basically, architecture provides space for human activities. This space is generally different from that found naturally. More correctly, Bakema's (Lipman, 1974:24) definition of architecture as the "three-dimensional expression of human behavior" indicates the role the architect can play in enhancing user satisfaction. Architect J. Noble (Lipman, 1974:24) reinforces this by stating:

> As architects we help to shape people's future behavior by the environment we create. At all stages of design we make assumptions about human behavior and the success or failure of our work may depend on our ability to predict human behavior with reasonable accuracy.

Often, however, the designer does not meet the behavioral needs of the user. This results in mismatches between the user's desired behavior and that facilitated by the built milieu. This problem frequently occurs when architects attempt to design for anonymous user-

clients (Sloan, 1972; Zeisel, 1975; Lemer, 1976).

A primary concept in past architectural research was architectural determinism. This belief asserted that the milieu imposes strict limits upon the activities of the user. This view has been rejected by modern research (Michelson, 1970; Honikman, 1971; Gutman and Westergaard, 1974; Campbell, 1976; Moos and Summers, 1976). Most often user preferences and goals determine behavior and eventual satisfaction (Lang et al., 1974; Moos and Summers, 1976). The environment offers a number of potential behaviors, while imposing some limits. Michelson (1970) refers to this as "congruence." The term 'architectural probabilism' is indicative of man-environment relations in the built milieu. However, environmental restrictiveness has produced many examples of environment-behavior mismatches. These irregularities result in user dissatisfaction (Turner, 1977).

Conventional building processes rarely assure user satisfaction (Flynn and Summers, 1978). As Steele (Sweeney, 1978:351) indicates, the true environmental crisis may be "the lack of fit between human needs and environmental settings."

Satisfaction reflects the degree to which living conditions fulfil the expectations of inhabitants (Gehl, 1971). It is the distance one is from the most satisfying state possible (Canter, 1973). Conventional measures of housing standards assess physical criteria and disregard user satisfaction (Francescato et al., 1974; Turner, 1977). Evaluation research should consider all participants' goals, values, preferences, and satisfactions. A number of conceptual and practical problems exist in satisfaction research, however. These have been identified by Gutman

and Westergaard (1974) as:

(1) problems in satisfaction definition and measurement;

(2) the primitive nature of Man-Environment Interaction theory, relying on stated (dis)satisfactions, which may be unreliable;

(3) the unique nature of responses to the built environment;

(4) the problems in determining whose satisfaction to assess, as many different users with differing satisfactions exist;

(5) the problem of the immediate nature of expressed preferences which may be inconsistent at other points in time; and

(6) the lack of a proper evaluation unit.

Characteristics and Definition. If studies of man-environment relations are to have any lasting practical significance, findings must be applied (Moleski et al., 1977). Building evaluation offers one area where application can be made as "The untested conventional unit of physical design is an *a priori* entity in professional practice today" (Akin, 1973:186). The best method of improving living conditions is the evaluation of existing milieux.

The field of building evaluation is presently in an immature state (Kurtz, 1972; Lozar, 1972, 1978; Peterson et al., 1974; Zeisel, 1975; Campbell, 1976). Such assessments are, however, growing in number, variety, and sophistication (Canter, 1971). Building appraisal techniques are presently being developed and applied to the evaluation of architecture.

By definition, building evaluation is ". . . the process by which the design of the built environment and the intentions and decisions

that governed its development are tested against the actual performance of the building" (Moleski et al., 1977:35). Evaluation generates new information about behavioral concepts and provides data for future design and policy-making (Becker, 1977; Moleski et al., 1977). As Sommer (1972:22) suggests, "no design should exist without evaluation, no evaluation without redesign."

Three assumptions are made in building evaluation (Ostrander and Connell, 1976). First, appraisals must be open-ended and circular in format if they are to contribute information. The experiences derived should influence future methodologies. Second, evaluations are part of decision-making, rather than an independent activity. Finally, the researcher must look at the total decision-making process (not merely results). He must utilize evaluative criteria reflective of issues in decision-making.

Evaluation as a Stage in the Design Process. The objectives of building evaluation include developing programs to obtain user input, and to heighten the environmental awareness of the general public. These "user inputs can be generated at any stage in the design process" (Sommer, 1972:86). Both direct and indirect inputs are possible. Direct inputs are exemplified by user-designer rapport. Indirect inputs are unobtrusive, for example, the monitoring of a thermostat.

Ostrander and Connell (1976) outline three models for post-construction evaluation. The first type, non-collaborative forms, employing a cross-sectional user study, is the most common. This involves the researcher making all study design decisions. In such an approach, the researcher has no contact with clients and architects to

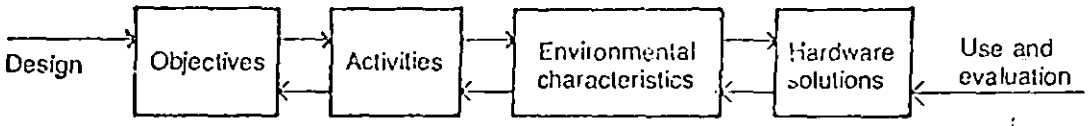
determine design-relevant issues.

The second type, collaborative, employing a cross-sectional user study, involves discussions between researchers and (1) architects, and (2) clients to determine major issues, goals, and constraints in decision-making. Following this, users provide an assessment of these issues. The links between decision-making and evaluation make this the most viable, if not the most effective, evaluation methodology. The present thesis is of this second type.

The final type, collaborative, employing a longitudinal cross-section approach, necessitates the architect, researcher, and client to all be active in the early stages of design. Such a procedure requires up to ten years to complete. Although highly efficient, extreme temporal and economic requirements limit the viability of such an approach. The second form of evaluation is the most efficient tradeoff between sophistication and viability.

The number of steps involved in the building design process is unclear. However, evaluation is generally identified as a single stage in that process (Brill, 1974; Gutman and Westergaard, 1974; Lang and Burnette, 1974; Sweeney, 1978). Canter (1974) and Markus et al. (1972) both identify three-stage design processes, with evaluation as the final stage. By contrast, Sweeney (1978) outlines four steps for design cognition among citizens (in this instance, users of a building). Further expansion is seen in the models of Zeisel (1975) and Lang (Lang and Burnette, 1974; Lang et al., 1974). In both instances, evaluation follows construction and occupancy as part of a cyclical process. In addition, a model for pre-occupancy evaluation has been suggested by

FIGURE 2.3: A DESIGN, USE, AND EVALUATION MODEL



Horman (1972). This represents an expansion of post-occupancy appraisal into the programming phase of building design.

By way of example, a more thorough Design, Use, and Evaluation Model proposed by Brill (1974)(Figure 2.3) represents a statement of objectives and conditions necessary to design. Evaluation is possible at any stage in the design process as all objectives and activities are recorded. Environmental characteristics of any design can be evaluated, and altered or eliminated, prior to construction.

Figure 2.2 (above) indicates a further development by the author in formulating a model of the design process. Despite the need for appraisal at many stages in the development, implementation, and use of a building, most evaluations to date have been post-occupancy endeavors. The present thesis continues this trend.

Research Problems. Three factors inhibit the development of a universal evaluation system (Brill, 1974). First, parametric rather than holistic approaches are common.[2] Investigations select aspects of a design to appraise. However, preferences and satisfactions are a result of a diverse array of factors. Similarly, only ineffective psychological and sociological measures exist, despite the availability of highly efficient physiological measures. Finally, an 'immature'

design methodology exists. Much of the impetus in design methodology has been the recognition of the need for a new design process.

Zeisel (1975) identifies the lack of design decision recall as a source of appraisal restriction. As well, the deficiencies Gutman and Westergaard (1974) outlined in the analysis of user satisfaction (2.2.1 above) increase the problems which are encountered.

Other Considerations. Building evaluation is increasingly an interdisciplinary area of inquiry. This is desirable if appraisals are to be complete (Wright, 1971; Appleyard, 1973). Social scientists have a key role in eliciting user values (Hershberger, 1975), given the concepts and methodologies which they possess (Gump, 1971). Architects are generally ineffective in evaluating their own or other architects' work (Peterson and Rudd, 1972).

> If evaluation is to have any meaning, it must be done by impartial, outside observors using standard, universally accepted criteria. (Bechtel, 1977:11)

A variety of factors are important criteria in determining user satisfaction with buildings. These include aesthetics, layout or design, room size, and so on. These can be classified into five general areas of concern:

(1) physical characteristics of design (e.g., noise, light);

(2) structural characteristics (room design, room size, physical and functional distances);

(3) the nature and availability of facilities;

(4) social and personal factors (intentions of the user); and

(5) internal factors (a feeling of control, involvement, and activities).

To date, a general evaluation procedure or research instrument has not been developed (Sommer, 1972; Canter, pers. comm. 1979; Connell, pers. comm. 1979). A lack of consistency between case studies limits the comparability between evaluations. Findings and recommendations from past evaluations are generally ignored as each researcher works independently of the others.

2.2.2 Student Residence Research

Building evaluations of student halls of residence are limited in number. A review of recently completed doctoral dissertations revealed that few such appraisals had been conducted. Student residence research to date has frequently focussed upon the effects of design on behavior. This does not necessarily reveal user satisfaction. The lack of investigation of design intentions prevents assessment of the performance of architectural environments. By definition (above), therefore, most student residence research, until recently, has not been evaluative. Past inquiries can be reviewed in several ways. The present review outlines the research in a scalar manner and indicates those inquiries which are most evaluative.

A Scalar View. Various 'levels' of student dormitory research exist. These include cross-residence and within-residence hall studies (the most macro-scale inquiries), studies of individual floors (meso-scale), and micro-scale inquiries within rooms. The focus has been on the effects of design on personality and behavior. In particular, research has focussed on friendship formation.

At the largest scale, Martin (1974) investigated social inter-

action and its effects upon freshmen and senior students at the University of Saskatchewan. He concluded freshmen were more influenced by design, and registered highest satisfaction levels. Moos and Otto (1975) analyzed the effects of coeducational living arrangements upon residents; freshmen stated expectations prior to entry into residence. Coeducational living has possible detrimental effects on academic pursuits and aspirations (especially in the case of females). However, healthier and more mature social relations are fostered.

Three types of between-residence comparisons exist. These include the contrasts between different residence types or philosophies (Gerst and Moos, 1972; Valins and Baum, 1973; Baum and Valins, 1977), and analysis of various dormitory designs (Hsia, 1967; Bickman et al., 1973; Heilwell, 1973; Moos et al., 1975; Goebel, 1976; Porteous, 1977). Major conclusions include the identification of mismatches between design and behavior (Porteous, 1977), and differential impacts of various residence types (Gerst and Sweetwood, 1973; Baum and Valins, 1977). Different corridor-type residences, for example high versus low rise, induce different behaviors (Hsia, 1967; C. W. Porteous, cited in Porteous, 1977:200). Helping behavior (Bickman et al., 1973) and alienation (Goebel, 1977), for instance, are influenced by design. Finally, the sexual composition of dormitories influences attitudes and behaviors (Stockham, 1977).

The floor on which a subject resides influences satisfaction (Holahan et al., 1978). 'Middle' floors induce the highest state of satisfaction. Higher floors are least satisfying. General discontentment with high rise living has been portrayed. At the micro-level,

inquiry has focussed on roommate conditions, and the tendency to change rooms or roommates. The advantage of individual over bunk beds has been expressed (Rohner, 1974). Increased living space and privacy are primary advantages. Personal, 'atmospheral', and structural characteristics induce one roommate or another to move (Altscher, 1977).

Student dissatisfaction as a result of environmental characteristics is a major research interest (Bickman et al., 1973; Heilwell, 1973). Factors such as room size and shape, and noise, have been assessed through students' expressed complaints. Resultant behavior often includes moving out (Bickman et al., 1973). The enforced social relations in typical student halls of residence hamper study and individuality. Miller (cited in Ittelson et al., 1974) found physical design factors hinder accessibility to certain areas in a building. As such, functional distances are often greater than physical ones. Social interactions are consequently influenced by the design.

Quasi-Evaluative Research. Most students living in university housing reside in corridor-type dormitories. Three alternatives to dormitories exist. These are suites, student-built housing, and apartments. Corbett (1973a) analyzed satisfaction with suites, which are groups of rooms shared by two or more students. They feature semi-private washroom and socializing/study areas. Corbett's research revealed various advantages and disadvantages of suite living. Sommer (1968) identified increased satisfaction with four-person suites when compared to double-occupancy rooms. Increased privacy and study conditions were the major reasons.

One example of student-built housing is the domes at the University of California, Davis campus. These domes were built because of the inadequacy of other housing types. They have resulted in a high degree of contentment for the students involved in their design and construction (Corbett, 1973b). Off-campus apartments have the major advantage of lower rent. However, social interactions within these milieux are restricted (Ankele and Sommer, 1973). Isolation and alienation may result. In general, alternative living conditions are inadequate. Each type has weaknesses which cause dissatisfaction for users.

Moos (1978) investigated the architectural, psychological, and organizational variables of student living conditions in traditional dormitory residences. He examined the relationship between, (1) the ecological (architectural and physical design variables), (2) the organizational, structural, and functioning, and (3) the psychosocial characteristics of dormitories. He established a typology of distinct residence milieux. Palmer (1978) studied married residents' attitudes and behaviors, and the environmental conditions of Kresge College on the University of California, Santa Cruz campus. Results revealed a preference for apartment living. However, privacy was lacking.

In an early study at the University of Utah, Hsia (1967) investigated students' views regarding architectural elements of their residences. Hsia tested the relationship between the functioning of students, and the architectural environment of the residence. Preiser (1970) investigated student residences at the Virginia Polytechnic Institute. He measured the degree of acceptance or rejection of, or indifference towards, physical aspects of the dormitory. Baum and

Valins (1977) assessed the social conditions of residences at Stony Brook (State University of New York) and Trinity College (Hartford, Connecticut). In these latter two instances, only selected aspects of university residence milieux were investigated.

In a more evaluative manner, Simon (1973) appraised dormitories at the University of Guelph. His purpose was the "planning of new residences and establishing priorities for remodelling of existing facilities" (1973:348). Simon reviewed design intentions, resident satisfaction, and future preferences. In a similar manner, Butterfield Hall, at the University of Rhode Island, was evaluated (Friedmann et al., 1978). A variety of research methods were used. These latter two studies are the only two known to this reviewer in which complete evaluations were undertaken.

In sum, student residence research has generally not been truly evaluative. Research has omitted consideration of design intentions, and focussed on general measures of satisfaction with conditions. However, evaluation of student residences is necessary as, "student housing is a tool whereby we can contribute to the educational objective of the institution" (Farichild, 1970:198).

2.3 Methodological Considerations

2.3.1 Attitudes and Perceptions

Much research in recent years has dealt with the possibility of behavior prediction as a consequence of environmental conditions. The interplay of attitudes and associated constructs (such as beliefs, values, opinions, preferences, and satisfactions) is a major considera-

tion in these discussions. Distinctions between the various concepts remain clouded (Tuan, 1968; Rokeach, 1970; Bruvold, 1972, 1973; O'Riordan, 1973; Oskamp, 1977). It is apparent that the environment influences behavior, but the extent of this influence is unclear. As such constructs are frequently used in evaluation studies, a brief review of theory and research concerning attitudes is essential to building evaluation research.

Environment, Behavior, and Man. Environment is "the combination of external or intrinsic physical conditions that affect and influence the growth and development of an organism" (*American Heritage Dictionary*). In a more encompassing manner, the milieu includes all phenomena which act upon man, except hereditary components (Sprout and Sprout, 1957). The environment, or milieu, can be dissected into component parts. One example of this is Sonnenfeld's Nested Hierarchy of Environments.[3] Here the milieu consists of, (1) those portions acting on man (operational), (2) those parts man is aware of (perceptual), and (3) those portions toward which man's actions are directed (behavioral).

Although man has control over the environment (Tuan, 1967; Proshansky et al., 1970), he is also subject to its constraints. The exact relationship between man, his behavior, and the environment is unclear. Much debate has occurred over whether man is controlled, the controller, or a neutral force (Lowenthal, 1961; Proshansky et al., 1970; Tuan, 1972; Brunswick, cited in Porteous, 1977:135). Tuan's (1972) assertion of man as an autonomous individual, subject to limits enforced by the environment, best describes the situation. A recent probabilistic perspective indicates that a large number of behaviors

may be the result of environmental influences (Sprout and Sprout, 1957; Krueger, 1976; Porteous, 1977).

The Perception Process. Perceptions are impressions individuals receive of a unique stimulus or group of stimuli. These images are modified by the individual's past experiences and state of mind at the time of perception (Schiff, 1971). Perception requires a stimulus, the capacity of sense organs, and the ability to tie in past experiences and present feelings (Schiff, 1971; Saarinen, 1976).

A major problem in perception research is the measurement of these constructs. The unique character of individual's perceptions adds to this problem. Four factors influence these unique images. These include: (1) the familiarity of some aspects, and unique character of other facets of the environment (Appleyard, 1973); (2) the influence of past experiences and personal feelings (Downs, 1970; Golledge et al., 1972; Drever, 1974); (3) the distinct character of languages (Lowenthal, 1961; Porteous, 1977); and (4) social and cultural factors (Firey, 1945; Hartung, 1960; Tuan, 1967; Downs, 1970; Kates, 1970). Each person views only selected aspects of the total milieu.

The perception process involves interlocking steps in a stimulus-response fashion (Stea and Downs, 1970; Porteous, 1977). A stimulus, or image, is perceived and interpreted (apperceived) by the individual. Following interpretation, the perception becomes a cognition. A decision on whether or not to act (response) is made on this basis. This process is instantaneous and the stages overlap. All senses are employed in the perception of the environment, which exists only as it is perceived.

Attitudes: Definition and Measurement. An attitude is a ". . . hypothesized or latent variable, rather than an immediately observable variable" (Green, cited in DeFleur and Westie, 1963:24). Attitudes are ". . . the general affective response to a denotable psychological object" (Bruvold, 1973:204), ". . . an individual's feelings towards and beliefs about the object of the attitude" (Schiff, 1971:8). They are a ". . . relatively enduring organization of beliefs around objects or situations predisposing one to respond in some preferential manner" (Rokeach, 1970:112).

There are three components to an attitude (Triandis, 1971; Fishbein and Ajzen, 1975; Worchel and Cooper, 1976; Oskamp, 1977). Cognitive components are beliefs and ideas regarding the object or situation; these include knowledge and opinions about the object of the attitude. Affective elements are feelings and emotions towards, and evaluations of, the object of the attitude. These are value judgements. The behavioral component may induce a response reflecting the tendency to behave in a certain way congruent with cognitive and affective components. Rokeach (1967) differentiates two attitude types. These are attitudes-towards-objects (Ao) and attitudes-towards-situations (As).

Confusion exists regarding an attitude-behavior link. Proponents of such a link (Rokeach, 1967; Bruvold, 1973) feel that an attitude change induces a behavioral response. Those with the opposing view (Tuan, 1968; O'Riordan, 1973) identify an absence of behavior consistency, inadequate measurement methods, the influence of social groups on individual attitudes, and other intervening variables.

A variety of techniques for the measurement of attitudes has developed over the last fifty years. Attitude scaling methods are the most common. Five such techniques have been developed (Oskamp, 1977). These include the scales developed by Bogardus, Thurstone, Likert, Guttman, and Osgood. Other techniques include scenario development and behavior observation.

Scaling methods have been utilized most frequently. They are often employed with other techniques. In most instances, it is the interpretation of results which limits the effective use of scales. However, the intervening variables in attitude measurement have not yet been entirely controlled. Attitude researchers must consider this in interpretation of their results.

Other Constructs. Beliefs are subjective probability statements by individuals regarding the characteristics of an object or situation (Fishbein and Ajzen, 1972). For example, one could hold the belief that 'television is a demeaning medium'. Oskamp (1977) suggests this allows a distinction between beliefs, which are cognitive (thoughts, ideas), and attitudes, which are affective (feelings, emotions). Beliefs are ". . . statements about existing states of nature which the individual accepts as true or factual" (Bruvold, 1973:205).

Values reflect a standard toward which an individual possesses a strong positive attitude (Oskamp, 1977). Values are of considerable importance in the determination of beliefs and attitudes. Once accepted or internalized, a value guides future actions. By contrast, opinions express the likelihood of occurrence of events or relationships (McGuire, cited in Oskamp, 1977). Opinions are verbal or written overt expressions

of underlying covert attitudes (Childs, 1965).

Preferences and Satisfactions. Preferences are a result of goal achievement (values), of feelings regardingan object (attitudes), and feelings regarding an existing situation (beliefs). Preferences are a requisite factor in attitude formation (Rokeach, 1967). Satisfactions result from preferences as evaluations of perceptions, attitudes, and objects. Satisfactions may also induce attitudes (Porteous, 1977). A direct link exists between preferences and satisfactions as each influences the other.

The assessment of preferences and satisfactions provides the most valid analysis of subjects' feelings regarding an environment or situation. Preferences and satisfactions comprise many of the other constructs and are a more direct expression of attitudes. Although ". . . the major characteristic that distinguishes attitudes from the other concepts (excluding preferences and satisfactions) is its evaluative or affective nature" (Fishbein and Ajzen, 1975), an ". . . attitude always involves a preference, which is the attitude's affective component" (Porteous, 1977:225). The direct link between preferences and satisfactions indicates the evaluative aspect of satisfactions as well. The assessment of preferences and satisfactions, therefore, enables the elicitation of the emotional or evaluative component of attitudes, while ignoring the cognitive component. Further, a more direct assessment of "behavior—supportive physical environments" is provided (Porteous, 1977:225).

2.3.2 Research Instruments

Evaluation research has no specific methodology of its own, "but applies a variety of techniques of data collection and analysis" (Suchman, 1967:81). The most appropriate methods for any situation are determined according to the criteria of efficiency, effectiveness, and usefulness (Goodrich, 1974). A combination of methods increases study accuracy, reliability, and validity. The most common procedures in building evaluation research include interviews and questionnaires, and unobtrusive measures.

Interviews and Questionnaires. The use of questionnaires is most appropriate if specific information is being obtained from large groups of people (Goodrich, 1974). Questionnaires are economical, easy to administer, and have a standardized format. Two main types exist: administered and self-report.

The most important consideration in questionnaire development is question content. A variety of question types exist. Some problems do occur in the use of these research instruments, however. These include overuse and misuse (Webb et al., 1969; Campbell, 1976), and inadequate attitude measurement methods. Questionnaires are primarily used to elicit attitudes and the latter problem, therefore, requires attention. When well designed, however, questionnaires are valuable and effective evaluation research tools (Lang et al., 1974). They have been successfully employed in the study of students and colleges (Kasmar, 1970; Honikman, 1971; Sommer, 1971, 1972; Hershberger, 1972; Hershberger and Cass, 1974; Moos, 1976, 1978; McKechnie, 1977; Ulrich, 1978).

Interviews are quick and effective to administer, and permit good sample control (Goodrich, 1974). A number of varieties exist, including structured and unstructured interviews, those with closed and open ended questions, and so on. Interviews require a working rapport between the researcher and the subject. Sommer (1971, 1972) and Becker (1971) outline a number of situations where interviews have been successfully employed in evaluation research.

Interviews and questionnaires are similar in many respects. As such, the positive and negative attributes of questionnaires can be similarly applied to interview procedures.

Unobtrusive Measures. Unobtrusive measures are those research methods which avoid the reactive nature of techniques such as interviews and questionnaires. Reactive techniques are those in which the subject is aware that he is being investigated. Possible behavior or response changes may therefore occur (Patterson, 1974).

Webb et al. (1969) identify three types of unobtrusive measures. These are physical traces, archival records, and observational data. Physical traces include the erosion or accretion of materials, indicative of behavior. Archival records are the continuous or episodic recordings of society (for instance, birth records). Observation involves the passive observance of subjects' activity. In contrast, participant observation involves the researcher becoming part of the behavior under study and may, therefore, be reactive in nature.

Patterson (1974) identifies the utility of unobtrusive measures to architects. Major attributes include their non-reactive nature, the fact that behaviors rather than attitudes are measured, and the ease in

obtaining data. Behavior observation is the unobtrusive measure most frequently employed in evaluation research (Deasy, 1971). Numerous examples of the successful use of such techniques exist (Bechtel, 1972; LeCompte, 1972; Helmreich, 1973; Lang et al., 1974; Wicker, 1979).

Most researchers suggest a multioperational approach to building evaluation (Sommer, 1972; Moleski, 1974; Phelps and Baxter, 1976; Bennett, 1977). This involves the use of several methodologies together. In general, the least obtrusive techniques are employed first.

2.4 Summary

Recent concern for public input in the planning process has altered the role of the user. An advocacy form of planning has also emerged in recent years. Building design is one form of planning where user input is being sought. Gaps between the user and the designer indicate the need to better elicit users' feelings about design.

Building evaluation assesses the success of design intentions by examining building performance. Many building appraisals to date have lacked an evaluative component. This is particularly true in the assessment of student living conditions. Most student residence research has ignored design intentions, and focussed only upon resident satisfaction. It is therefore difficult to assess the success or failure of designs.

The study of attitudes and perceptions involves a considerable number of problems. Most importantly, inadequate methods of measurement exist at present. As a result, the elicitation of preferences and satisfactions is justified. These constructs lend themselves well to

the appraisal of buildings.

Several research instruments are available to the researcher. The major tools include interviews, questionnaires, and unobtrusive measures. A multioperational approach to building evaluation procures the best results.

Footnotes

[1]Aristotle, cited in Robert Sommer, *Design Awareness* (Corte Madera, California: Rinehart, 1972), p. 113.

[2]Geography's holistic perspective (see 2.1.1) could be of value in this respect.

[3]This oft-cited model can be found in most items dealing with perception. For example, see: Thomas F. Saarinen, *Environmental Planning: Perception and Behavior* (Boston: Houghton Mifflin, 1976).

CHAPTER 3

METHODS AND SAMPLE CHARACTERISTICS

> The western scientific achievement, great though it is, has not concerned itself enough with the creation of better human beings, nor with self-discipline. It has concentrated instead upon things, and assumed that the good life would follow.
>
> Loren Eiseley[1]

The procedure employed in evaluating Gordon Head Residence is similar in theory to that used in the studies outlined above (Chapter 2). Figure 3.1 outlines the theoretical structure of the research. The major objective was to compare design intentions with building performance as a measure of the buildings' perceived utility to the users. Although all aspects of this model are relevant to the present research, the portion entitled "Evaluation" is the major consideration of the project. The research reviews several of the other stages of the model. In this manner, feedback for future design projects is provided.

3.1 Steps in the Research Project

The research was conducted between February, 1979, and April, 1980. Three data collection phases, and an associated literature review, were involved. The steps are outlined in Figure 3.2.

The initial stage of the research (data collection phase 1) involved the determination of building design intentions. These goals

FIGURE 3.1: THE THEORY OF A BUILDING DESIGN AND EVALUATION PROJECT

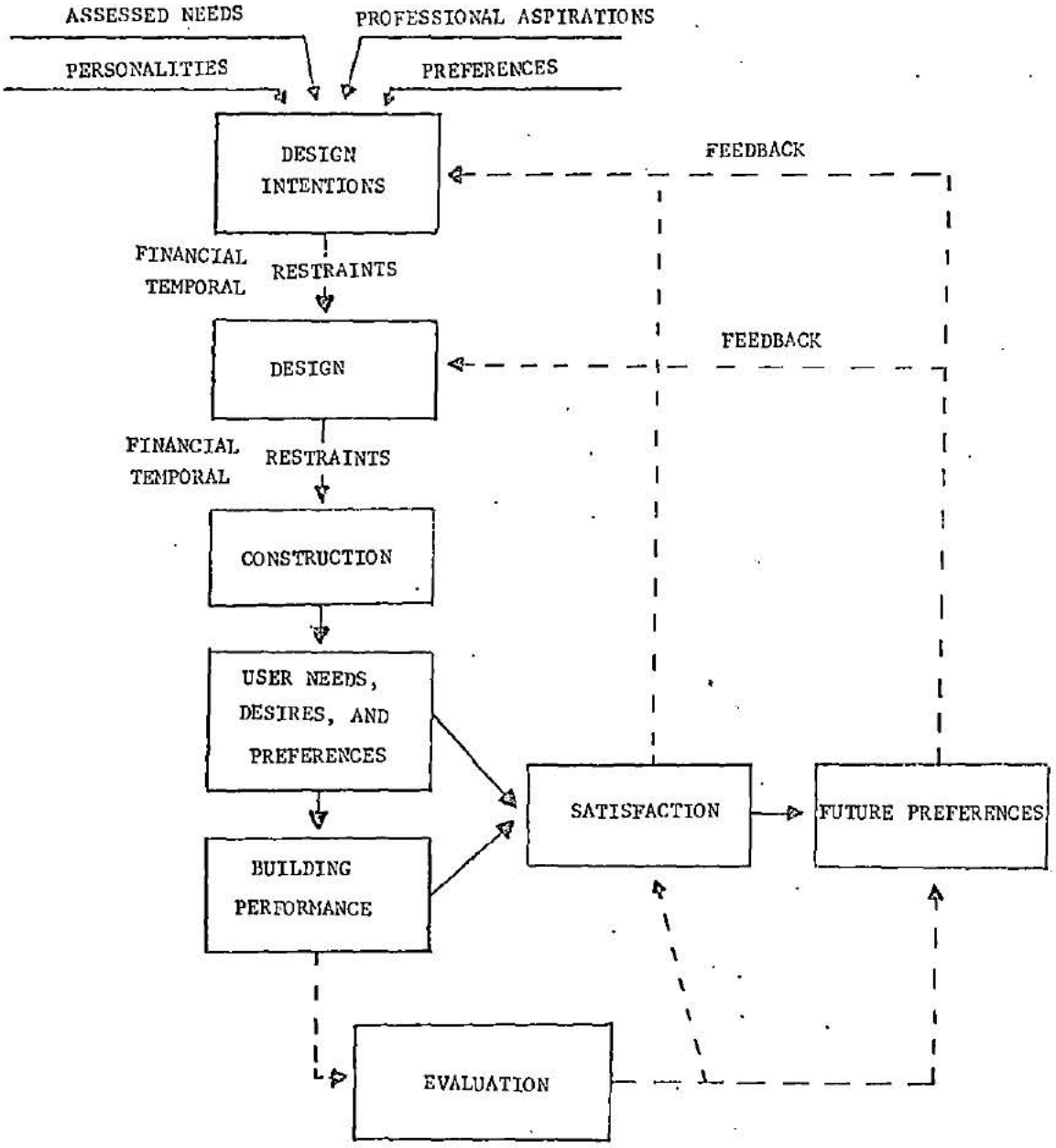
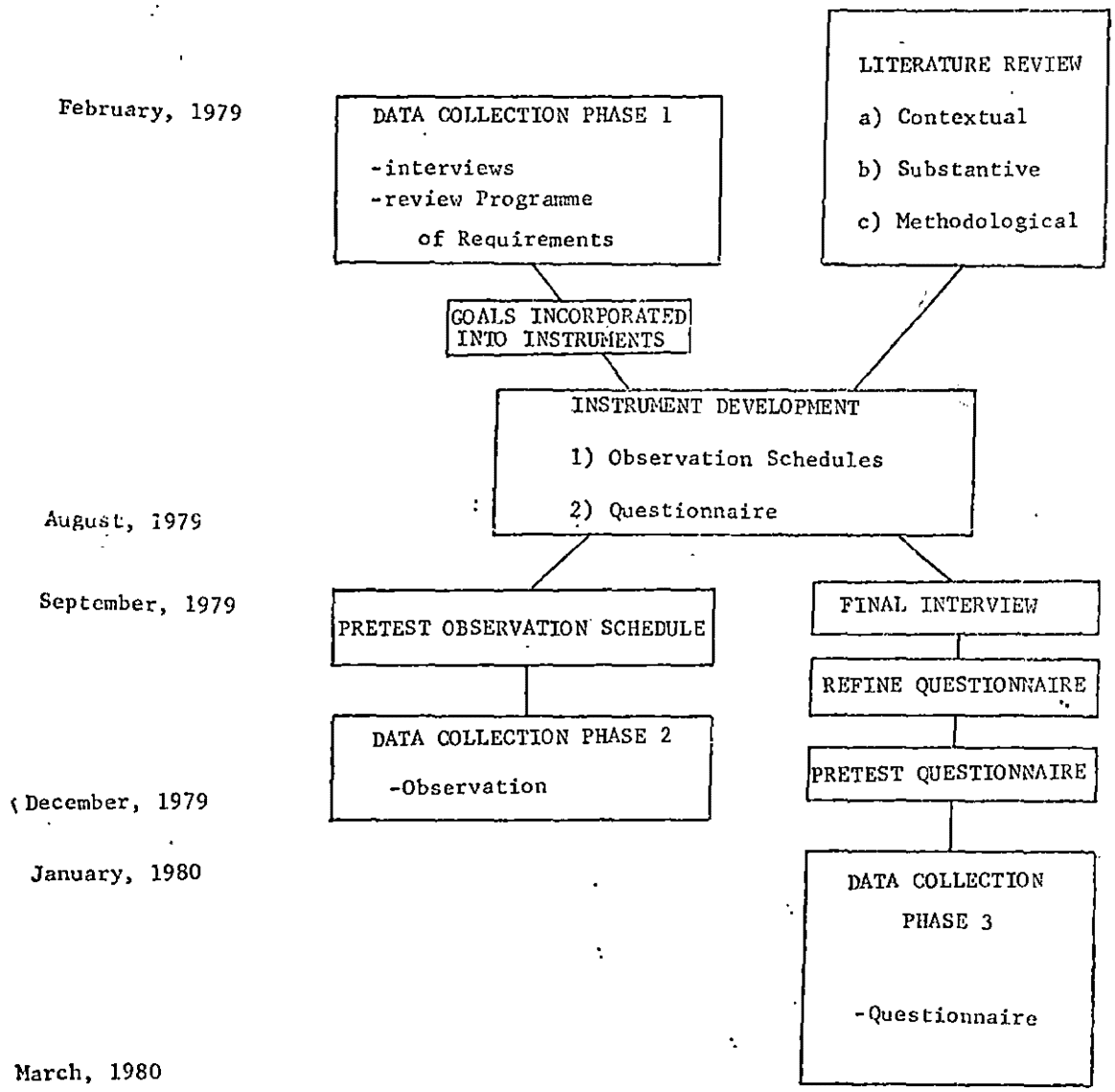


FIGURE 3.2: STEPS UNDERTAKEN IN THE THESIS RESEARCH



represent the living conditions which designers and decision-makers wished the residence to provide. These intentions were elicited through (1) interviews with individuals involved in the design of Gordon Head, and (2) a content analysis of the Programme of Requirements for Gordon Head Residence.[2] This program outlines guidelines for the physical form the residence was to take. Five interviews were conducted. These were with:

(1) Mr. Ian Campbell, Campus Planner, also on the Gordon Head Project Planning Committee (interviewed February 5, 1979);

(2) Dr. Trevor Matthews, Chairman of the Committee on Campus Development, and who was involved in the planning and development of Gordon Head (interviewed February 5, 1979);

(3) Mr. Gavin Quiney, Residence Co-ordinator, who serves in the capacity of an arbitrator between residents and staff (interviewed February 6, 1979);

(4) Mrs. Shirley Baker, Head of Housing Services, and also a member of the Gordon Head Planning Committee (interviewed February 7, 1979); and

(5) Mr. Robert Siddall, Architect responsible for the design of Gordon Head (interviewed September 27, 1979).

Simultaneously with this phase of the research, a review of related literature was undertaken to place the present project in context. This review examined theoretical and methodological considerations in building evaluation (Chapter 2).

Following the determination of design goals, observation schedules and a questionnaire were developed for data collection phases 2 and 3.

Phase 2 involved the observation of residents' behavior in semi-public and semi-private areas of Gordon Head Residence. Activities undertaken were noted, as were the locations of behaviors and the number of people involved. Behavior observation was restricted to those areas of the dormitory readily accessible to an unobtrusive researcher. These included semi-public and semi-private areas such as hallways, lounges, stairwells, and foyers. These spaces were determined from Newman (1973), who outlines four levels of "space" within architectural environments. These are public, semi-public, semi-private, and private spaces. In a dormitory context, these could be described as follows:

(1) public spaces include areas of the campus;

(2) semi-public spaces incorporate foyers and entranceways to the residences;

(3) semi-private spaces include hallways, lounges, and stairwells; and

(4) private spaces are residents' own rooms.

These spaces trend from those highly accessible by all persons present on a campus, to those into which only a limited number of individuals are admitted. Intermediately accessible spaces were observed.

Observation was conducted at random intervals over a three-week period in November, 1979. An observation schedule was employed (see Appendix A). This phase of the research was limited to the hours between 8:00 a.m. and 10:00 p.m. to reduce disruption to residents' lives and routines. In total, 72 half-hour observation periods were conducted, divided evenly between the three halls. The 30 minutes spent in each observation period were distributed through all the floors of the hall under investigation.

The behavior observation was most valuable in providing a 'feel' for the character of Gordon Head, and of each hall, rather than acting as a source for extensive empirical data. This period of perception influenced the development of the questionnaire, and opened the author's eyes to important insights and incongruities evident in residents' behavior.

The third data collection phase involved the administration of a questionnaire. This enabled residents to evaluate several aspects of the design and functioning of Gordon Head. This phase was the most important of the three in assessing Gordon Head's utility. A seven-page questionnaire was administered to half (n = 150) of the population of Gordon Head. The randomly selected sample was stratified according to sex (50% of each) and dormitory (33.3% were from each hall). This sample size was representative of the total population of the dormitory, and reasonable in size if contamination due to subject contact was to be minimized. By focussing attention during any one week on one of the three halls, such contamination was reduced.

Questionnaires were administered over a three-week period in January and February of 1980. Questionnaires were primarily self-administered, although the researcher remained available for questions and comments.

3.2 Description of the Research Instruments

3.2.1 The Interview

The interviews conducted were partially structured. Some common underlying themes were evident. However, specific questions asked were

not always identical. For instance, only the architect outlined his views regarding the restrictions and philosophies provided by the university regarding the residence. Despite these differences, some consistencies are evident. These are outlined below.

Initially, each individual interviewed was questioned regarding the availability of data pertinent to this thesis. This included such items as floor plans, student-completed preference forms, and the Programme of Requirements for the residence. Previous investigations regarding student residences on the University of Victoria campus were outlined. The rationale for the new residence was also elicited. For example, housing personnel were questioned regarding the demand for housing.

Subjects discussed the goals incorporated into the design of Gordon Head. These objectives were ranked in perceived order of importance. How the intentions were incorporated into the design, and the success of this process, was further investigated. The decision-making process involved was examined. An attempt was made to determine who made decisions regarding the design of the dormitory, and on what basis these decisions were arrived at. For example, student input and the importance of student preferences were determined. Also, the importance of economic and other criteria were estimated. The roles of the Campus Development Committee and the Gordon Head Project Planning Committee were elicited.

In general, interviews assessed: (1) the rationale for Gordon Head's development; (2) the intentions incorporated into Gordon Head's design; and (3) the decision-making process involved in the residence's

evolution. Interviewees therefore provided a nucleus of questions to be asked of residents and for observation structuring.

3.2.2 The Observation Schedules

The observation schedules employed in the research (Appendix A) were developed specifically for Gordon Head Residence. Observation focussed on three aspects of behavior: activities; locations; and actors. In addition, the time of day and day of the week were recorded, thus providing an assessment of the timings of various occurrences and the times during which different locations were utilized.

Two forms were developed to accommodate the two distinct dormitory designs. One schedule (Number 1) was developed for use in Wallace Hall and was three pages in length. This included the various settings located in the facility area. A further schedule (Number 2) was developed for use in Wilson and Haig-Brown Halls and was two pages in length. In each instance, all locations were recorded on the form in a predetermined order. This enabled the observer to begin at one end of the lower floor, move across that floor to the other end, ascend the stairs at the far end, travel the second floor in the reverse direction, and so on. This provided the most efficient means of visiting all settings on all floors. The schedules were developed after an initial orientation period in the dormitory and consultation of floor plans. All settings observed were 'social'. No infringement of private areas of the residence was undertaken. At several locations, for example floor lounges, the observer stopped and noted ongoing behaviors.

At each location, the type of behavior and the number of involved persons was recorded. For this purpose, the schedules were drawn up in tabular form. The observation schedules were pretested through use in the residence. Slight modifications were made to accommodate noted discrepancies.

3.2.3 The Questionnaire

The questionnaire (Appendix A) used was seven pages in length. In addition, a front page introductory note was provided. The questionnaire was divided into five parts. A brief explanation of each portion, including instruction, was provided.

The three central sections of the questionnaire (Parts B, C, and D) were similar in form and response style. Part B required the respondents to evaluate physical aspects of the design of Gordon Head. Following this, services and facilities associated with Gordon Head were assessed (Part C). Part D allowed respondents to comment on the social milieu in the residence.

Satisfaction levels were measured on a six-point scale, where respondents agreed or disagreed with statements made about conditions in the residence. Both positive and negative statements were made about the residence, to reduce any bias occurring in residents' responses. In all instances, a rating of 1 by respondents meant strongly agree, 2 meant moderately agree, 3 slightly agree, 4 slightly disagree, 5 meant moderately disagree, and 6 strongly disagree. For convenience, in analysis, all responses were tabulated so that a score of 1 (strongly agree) indicated high satisfaction with a factor, while 6 (strongly

disagree) indicated high dissatisfaction with a factor. These responses provided a measure of satisfaction as respondents evaluated the suitability, convenience, or success of aspects of the residence.

The final section of the questionnaire (Part E) included two general evaluation statements, and provided space for residents to outline preferences regarding future living accommodations. The initial section (Part A) elicited demographic and experiential data.[3] In addition, various reasons for living in residence were provided. Subjects indicated how important each of these explanations was in influencing their decision to live in residence.

In all instances, six-point rating scales were used. No simple rule governs the optimum number of points to use in rating scales, and one basic consideration to be made in creating scales is the degree of differentiation required (Selltiz et al., 1967). As subjects tend to rate statements they disagree with in more extreme categories than those they agree with (Dawes, 1972), the number of categories provided should not be too large. Six points were determined to be an appropriate number of categories to allow differentiation between points. An even number scaling system was adopted to promote emotional responses. Although subjects were invited to write 'No opinion' across any statement for which they had no judgement, the absence of a neutral category restricted this occurrence.

In sum, the questionnaire contained three overall question types. Data about the respondent were elicited to establish the type of people using the facilities. Following this, an assessment was made of existing facilities. Finally, preferences and suggested alterations were

determined. The questionnaire was pretested in November, 1979. Ten subjects from Gordon Head Residence completed the initial form and provided recommendations for improvement. These subjects were the floor dons, who all completed the pretest at the same time, and all agreed not to discuss the questionnaire or its contents. Several minor modifications were made to enhance the questionnaire's applicability and the ease with which respondents completed the form.

3.3 Sample Selection

A random sample of half of Gordon Head's population was selected. The resultant sample was stratified so that equal numbers were interviewed from each of the three buildings. The sample was further stratified according to sex.

A random numbers table was employed to select individual subjects. Despite the stratification utilized, each resident had a 50 percent chance of being selected to complete a questionnaire. Unoccupied rooms were replaced by the nearest room which had not been selected previously through the process. In this manner, a randomly stratified sample from the total population was selected. The sample produced no handicapped persons and none were observed.

3.4 Data Analysis

Observation results were subjected to frequency analysis. The persistence of occurrence of the various behaviors was identified, so that the degree of regularity of various behaviors could be assessed.

The most stringent analysis was applied to the questionnaire responses. The frequency of various answers, and mean responses, were determined to elicit trends in the data. Further, mean responses were determined for various subgroups. Data were reduced according to hall of residence, sex, year of study, respondent age, and number of years the respondent had spent in a residence on a university campus. These mean responses were subjected to analysis of variance[4] to elicit any significant differences[5] among the population subgroups. These indicate whether different portions of the residence's population were more or less content with the conditions provided in Gordon Head.

Two further data analysis techniques were used on the questionnaire responses. Factor analysis[6] was employed to determine if the large number of questions (or variables) which were of an evaluative nature could be grouped into a smaller number of representative factors. Multiple regression[7] was used to investigate the possibility of predicting general satisfaction levels based on a knowledge of other characteristics. The influence of various variables on general ratings of satisfaction was determined. The possible benefits to be accrued from this lie in the potential for allocating residents to residences to maximize their satisfaction. These latter two procedures represent exploratory aspects of the data analysis. They serve as a supplement to the main facets of the research. The evaluative components of the analysis are the most integral to the appraisal of Gordon Head Residence.

3.5 Sample Characteristics

Fifty respondents resided in each of Wallace, Wilson, and Haig-Brown Halls. As well, 75 males and 75 females made up the total sample. Of the 150 respondents, exactly one-third (50) had an automobile at university.

The average age of respondents was 20.2 years (Table 3.1) The range of responses spanned 8 years, from 17 to 24. The modal age of residents was 20. Sixty-nine percent of respondents were within the age range of 19 to 21.

TABLE 3.1: AGE CHARACTERISTICS OF THE SAMPLE

Age	Number of Respondents
17	1
18	17
19	37
20	45
21	21
22	14
23	7
24	7
No response	1
Average	20.2 years

On average, residents were in year 2.6 of their studies (Table 3.2). Sixty-seven percent of residents were in their second or third year of study. Approximately equal numbers were in first and fourth year. Only one resident was a graduate student. This seems to contradict the intended age structure of this residence, discussed in Chapter 1.

TABLE 3.2: YEAR OF STUDY OF RESPONDENTS

Year of Study	Number of Respondents
1	24
2	55
3	43
4 or higher	23
Graduate student	1
Average	2.6 years

On average, residents[8] had lived in a residence on a university campus for 1.9 years (Table 3.3). Over 80 percent of subjects had lived in on-campus residences for 1 or 2 years. The question was worded so that the year 1979-80 was included in the total. When those who were first-time residents were eliminated, the average decreased to 1.4 years of previous residence experience.

TABLE 3.3: YEARS LIVED IN RESIDENCE BY RESPONDENTS (INCLUDING PRESENT YEAR)

Number of Years Lived in Residence	Number of Respondents
1	56
2	64
3	22
4	5
5	2
No response	1
Average	1.9 years

Most (96%) residents had spent the greater part of their lives in a single-family dwelling (Table 3.4). In this sense, they were not well adapted to the type of conditions experienced in a residence.

TABLE 3.4: PREVIOUS TYPE OF DWELLING LIVED IN BY RESPONDENTS

Dwelling Type	Number of Respondents
Single family dwelling	144
Multiple family dwelling	2
Apartment	2
Institution	1
Other	1

On average, residents' prior type of dwelling had 9.5 rooms[9] (Table 3.5). The range was from 5 to 18. Respondents were generally accustomed to fairly private living conditions. In addition, the average number of residents encountered in these dwellings was 5.3 (Table 3.6). Most residents (79%) indicated they were previously located in a room by themselves (Table 3.7). An additional 18 percent indicated they shared their bedroom with a second person. In only 3 percent of cases did more than two people share a bedroom.

These characteristics suggest that most occupants were accustomed to small numbers of residents with whom they interacted. These usually consisted of the subject's own family. As well, most residents were accustomed to a room of their own. In sum, the typical resident was about 20 years of age, halfway through his or her third year of university, and in his or her second year in a student residence.

TABLE 3.5: NUMBER OF ROOMS IN PRIOR DWELLING OF RESPONDENTS

Number of Rooms	Number of Respondents
5	4
6	14
7	14
8	16
9	17
10	21
11	7
12	22
13	2
14	7
15	4
16	1
17	1
18	1
No response	17
Average	9.5 rooms

TABLE 3.6: NUMBER OF OCCUPANTS IN PRIOR DWELLING OF RESPONDENTS

Number of Occupants	Number of Respondents
3	10
4	42
5	53
6	29
7	9
8	4
9	1
14	1
40	1
Average	5.3 occupants

TABLE 3.7: NUMBER OF OCCUPANTS IN PRIOR ROOM OF RESPONDENTS (INCLUDING SELF)

Number of Occupants	Number of Respondents
1	118
2	27
3	3
4	1
No response	1
Average	1.2 occupants

3.5.1 Reasons for Living in Residence

Factors influencing respondents' decisions to live in residence were also elicited. Having a single room was the most important reason affecting this decision (Table 3.8). It is apparent such conditions are very important to residents ($\bar{x}$ = 1.25) as 83 percent indicated such a response. All but two residents gave a positive weight to the availability of a single room. This relates strongly to the fact that 79 percent of residents were accustomed to a bedroom of their own for most of their lives. The significance of a single room could be of much consequence in influencing a person's satisfaction with Gordon Head.

Convenience appeared to the the second most important factor in this decision. With an average response of 1.47, this factor was indicated as very important or moderately important by over 90 percent of residents. Associated with convenience, accessibility to campus was cited as a key consideration ($\bar{x}$ = 2.03). Over 90 percent of subjects indicated accessibility to have some degree of influence in their decision.

TABLE 3.8: IMPORTANCE OF VARIOUS REASONS FOR LIVING IN RESIDENCE

Reason	Number of Responses						No Response	Average Response
	Very Important	Moderately Important	Slightly Important	Slightly Unimportant	Moderately Unimportant	Very Unimportant		
Convenience	98	42	6	1	2	1	0	1.47
Access to campus	61	40	35	9	3	1	1	2.03
To live with friends	18	30	33	32	20	14	3	3.33
To make new friends	37	55	37	12	8	0	1	2.32
Participation at university	16	29	52	21	19	12	1	3.23
Better living conditions	2	11	39	41	29	25	3	4.08
Better study conditions	8	33	37	36	21	13	2	3.46
All the subject could afford	3	15	15	32	27	56	2	4.57
Parents' influence	6	4	11	25	26	77	1	4.96
Adjustment to university	15	35	39	15	13	32	1	3.48
No available alternatives	6	15	11	21	23	72	2	4.73
Importance of a single room	125	15	8	2	0	0	0	1.25

Residents of Wilson Hall were least positive in their rating of convenience.[10] Haig-Brown residents were most positive. First-time residents rated convenience as a reason significantly lower than third-year residents. Second-year residents rated this reason similarly to first-year occupants. Accessibility was a significantly more important reason for Wallace residents than Wilson occupants. Haig-Brown residents rated approximately between the two other groups. Further, third-year residents rated this reason significantly higher than first-time occupants. Second-year residents rated between the two other groups.

The possibility of making friends was a further positive factor ($\bar{x}$ = 2.32). It was the fourth most influential reason for living in residence. The opportunity for participation in university activities and the chance to live with friends were the fifth and sixth ($\bar{x}$ = 3.23 and 3.33 respectively) most highly rated reasons. These latter two influences were about neutral in importance.[11] Making new friends was significantly more important for first-time occupants compared to second-year residents. Those who had more residence experience rated approximately the same as second-year residents. Living with current friends was significantly less important for first-year occupants than for those who had lived there any greater length of time. Increased residence experience tended to increase the importance of this consideration in deciding to live in residence.

Participation in university activities was significantly less important to first-year students than second-year students. Higher level students tended to rate between these other two groups, although closer to second-year students. In addition, first-year residents were

significantly more concerned with participation than second-year occupants. Longer term residents rated participation as important, while older residents rated its influence as unimportant.

Other reasons which were relatively neutral in importance were the acquisition of better study conditions ($\bar{x}$ = 3.46) and easier adjustment to university life ($\bar{x}$ = 3.48). Students were generally not impressed by the study potential or the ease in adjustment provided by student housing. Younger students were significantly more concerned with adjustment to university life than were older residents. In general, increasing age decreased the importance of this factor in influencing the decision to live in a residence.

The availability of better living conditions was generally indicated to be an unimportant reason for living in residence ($\bar{x}$ = 4.08). This was often accompanied by the comment that on-campus living conditions were not better than those found off-campus. However, if on-campus conditions were improved, this reason could be very important in inducing students to live in residence. Long-term residents were significantly more concerned with living conditions than first-time occupants. Those who had lived in residence an intermediate length of time rated this reason between these other two groups. Generally, increased residence experience increased the search for improved living conditions. The latter tendency can be rationalized by the tendency of contented residents to return.

The suggestion that student housing was all residents could afford was generally rejected by respondents ($\bar{x}$ = 4.57). It was often noted that residence was not less expensive than other living milieux. In

all instances this reason was considered irrelevant. The non-availability of alternative accommodations was rejected even more substantially ($\bar{x}$ = 4.73). Most residents expressed this feeling.

The least important factor in the decision to live in residence was the influence of parents ($\bar{x}$ = 4.96). Over 85 percent of respondents indicated this reason as being unimportant. Over 50 percent rated it as very unimportant. Haig-Brown residents were significantly less influenced by parents than those in the two other halls. Residents in fourth year or higher were significantly less affected by parental pressure than first- or second-year students. Third-year students rated between the other groups. Older respondents were also significantly less influenced by their parents than younger ones. In general, increasing age reduced the importance attributed to this reason, as was anticipated.

Few other reasons were cited by respondents as influencing the decision to live on campus. The most common of these reasons were an inability to cook (n = 4) and the convenience of not having to look for alternative arrangements (n = 2).

Two final sample characteristics were elicited. These were the subject's perceived influence in the choice of his or her room and hall of residence, and his or her difficulty in adjusting to residence life (Table 3.9). On average, residents were slightly dissatisfied with their input into the selection of their living situation ($\bar{x}$ = 3.85). Residents of Wilson Hall were least contented, while Haig-Brown residents were most contented with their role in the selection of their location of residence.

TABLE 3.9: SATISFACTION IN ROOM AND RESIDENCE SELECTION AND DIFFICULTY IN ADJUSTING TO RESIDENCE LIFE

Factor	Number of Responses						No Response	Average Response
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction		
Influence in room and residence selection	12	19	34	28	25	30	2	3.85
Difficulty in adjusting to residence life	46	53	19	18	11	3	0	2.36

Only a mild degree of difficulty was encountered in adjusting to residence life ($\bar{x}$ = 2.36). Approximately two-thirds of respondents indicated extreme or moderate satisfaction in this regard. Only 21 percent were at all dissatisfied. Residents were decidely more satisfied with the amount of difficulty they encountered in adapting to residence life than they were with their influence in selecting the living environment in which they were placed. In the former instance, residents were moderately content. In the latter situation, much dissatisfaction resulted.

3.6 Summary

This evaluation of Gordon Head was conducted in three stages and utilized four research techniques. Phase 1 involved the identification

of design intentions. These were elicited through (1) personal interviews and (2) content analysis of the dormitory's program of requirements. Phase 2 involved (3) the observation of activities which occurred in 'semi-public' and 'semi-private' spaces in the residence. This facet of the research served to verify residents' stated levels of satisfaction outlined in Phase 3. (4) A questionnaire was administered in the final phase. This allowed occupants of Gordon Head to evaluate several aspects of the design and functioning of the residence.

The instruments employed in the final two stages were developed based on information gained in the initial stage. Pretesting improved the applicability of both the observation schedule and questionnaire.

A randomly selected sample of half of the dormitory's total population was selected. The sample was stratified according to sex and hall of residence. Qualitative analysis was applied to results obtained in the initial research phase. Frequency analysis was applied to data obtained in the final two phases. In addition, analysis of variance, factor analysis, and multiple regression were employed on questionnaire results.

Having a single room, convenience, and accessibility to campus were cited as the most important reasons for living on campus, while the possibility of making friends, participation in university activities, and living with established friends were also consequential factors. Least important reasons among residents were the influence of their parents, the non-availability of alternatives, and financial limitations. The availability of a single room was a very important consideration. Residents felt that they had minimal opportunity for

choice of their living accommodations, but found adjustment to residence life moderately easy.

The following chapter outlines the results of the first phase of the data collection.

Footnotes

[1]Loren Eiseley, cited in Robert Sommer, *Design Awareness* (Corte Madera, California: Rinehart, 1972), p. 124.

[2]*Programme of Requirements for Additional Dormitory Type Student Residences*, May 13, 1975 and revised July 23, 1975, Gordon Head Project Planning Committee, University of Victoria.

[3]Room number was recorded only as a means of identification; thus individual anonymity was ensured.

[4]This technique was employed through the subprogram ONEWAY supplied by Norman H. Nie, C. Hadlai Hull, Jean G. Jenkins, Karin Steinbrenner and Dale H. Brent, *Statitistical Package for the Social Sciences (SPSS)*, 2nd edition (New York: McGraw-Hill, 1975), pp. 422-32.

Tukey's "Honestly Significant Difference" multiple range test was utilized in this analysis. This relatively strict test assesses significant differences at the .05 level. Where ONEWAY identifies the presence of a significant difference among a population subgroup (e.g., between four categories of age), Tukey identifies between which categories the significant differences occur (e.g., between 24 year olds and 22 year olds).

[5]In this and ensuing Chapters 5 and 7, significant differences refer to differences in population subgroups' mean responses which are significantly distinct at the .05 level. Analysis in this regard was conducted through analysis of variance utilizing Tukey's multiple range test (see footnote 4).

[6]This technique was employed through the subprogram FACTOR supplied by *SPSS* (Nie et al., op. cit., footnote 4), pp. 468-514.

[7]This technique was employed through the subprogram REGRESSION supplied by *SPSS*, ibid., pp. 320-60.

[8]A distinction must be drawn between residency and education. First-year or first-time residents are those living in a residence for the first time. First-year students are those living in residence who are in their first year of university. Such a distinction is important to later understanding.

[9]For this research, a room included any and all rooms, including kitchens, bathrooms, and so on.

[10]Mean responses discussed in Chapter 3 for the various population subgroups are found in Tables 1 and 2, Appendix B. Only statistically significant differences among mean responses are discussed.

[11]A response of 3.5 would indicate exact neutrality.

CHAPTER 4

INTENTIONS IN DESIGN

> Those who plan and design structures which other people occupy clearly have the potential for enormous and lasting influence upon the lives of these occupants.
>
> J. Douglas Porteous[1]

Several goals were incorporated into the design of Gordon Head Residence. These intentions were elicited from the residence's Programme of Requirements, and from interviews with individuals responsible for the dormitory's design. The Programme of Requirements outlines the basic philosophical intentions in Gordon Head's design. Interviews verified and supplemented these recorded goals. Several new insights were provided by interviews. These generally concerned the reasons for various planning considerations, and alterations made to the initial design.

In these discussions, a design philosophy represents a principle incorporated into the design. A design goal results from each philosophy and is a specific feature consolidated into the residence. For instance, the belief that privacy is important to residents (philosophy) resulted in the construction of only single-occupancy rooms (design goal).

4.1 Gordon Head's Programme of Requirements

The Programme of Requirements developed for Gordon Head Residence outlines the project's planning consideration and design requirements, schedule, and budget. The Project Planning Committee, composed of university and housing personnel and students, established five major planning considerations for the dormitory. The Committee indicated the new residence should comprise a distinct integrated group of buildings consistent with the character established by the other dormitories on campus. Occupants of Gordon Head were, therefore, to form a separate administrative and corporate body. The second consideration was a consequence of the common university practice of utilizing the residences for conferences during vacation periods when they are unoccupied by students. This reduces residence costs to students. Thus, a principal requirement was that all washroom facilities be adaptable for use by both sexes.

The third principal planning consideration showed a major philosophical change in residence design at the University of Victoria. The Committee recommended a design containing only single-occupancy rooms. This recommendation was based on the rationale that living accommodations consistent with previous living experience would assist in student adjustment to campus life. The final two general requirements are associated with two major campus facilities. Gordon Head was to be located near campus parking lot number five. Students would make use of the available parking space. In addition, a direct covered access would join Gordon Head and the main entrance to the Commons Building.

This cafeteria is the major source of meals for all residence students on campus.

These planning considerations were all developed on the basis of previous residence experience. In most instances, the rationale for the recommendation is outlined. Several philosophical factors were not outlined, however. For example, no consideration was given at that time to the social or academic role the dormitory was to play, or the principal age or academic level of students to be served.

Further to these five basic considerations, a series of general design requirements was established. These ranged in content from the dormitory's site and appearance, to interior furnishings. Gordon Head Residence was to be architecturally compatible with adjacent buildings. Exposed concrete was not to be used entirely for the exterior finish. Initially, four or six buildings were intended, arranged about a central space. Buildings were not to exceed four storeys. A density of between 16 and 25 persons per floor was recommended. Internal 'common' areas (such as corridors, lobbies, and stairwells) were to be "inviting and attractive." Facilities serving all of a building's occupants, or the residence's occupants as a whole, were to be located on lower floors. It was recommended that roads be constructed to facilitate baggage handling, and to allow laundry and garbage services to be undertaken. It was intended that building services be maintained by, and connected to, existing campus systems. Other features were developed in accordance with university policy or national building standards.

Two features recommended were unique for the University of Victoria. These were a main entry intercom and door-lock release system,

and telephone outlets in each room. Attention was also given to control of noise generation. More specifically, the Programme outlined space requirements, construction materials, and furniture employed in rooms. These included floor finish, interior partitions, facilities, specific rooms, and so on. Approximately 115 square feet of living space was recommended for each bedroom. The total number of rooms suggested was 300.

No guidelines were given concerning the layout of facilities, other than the general indication that lower floors be used for facilities and services. The Programme of Requirements was approved by the Committee on Campus Development, by the Administration, and by the University Board of Governors. It was forwarded to the architect, who developed designs according to guidelines.

4.2 Interview Results

4.2.1 University Personnel

Interviews were conducted with Mr. Ian Campbell, Mrs. Shirley Baker, and Dr. Trevor Matthews (see Chapter 3). Mr. Campbell indicated the justification for Gordon Head by the 1,200 or 1,300 applications received for residence accommodations prior to the dormitory's inception. Five steps preceded the development of a design for Gordon Head. Initially, a Requirement Study was undertaken.[2] This involved students, Housing Services, and the Campus Planning Department. This study was to eliminate mistakes made in the previous residences. For example, it was believed rooms in Craigdarroch Hall are too large, while those in Lansdowne are too small.[3] Step two included a requirement study, and a

preliminary study concerning the dormitory's design. The third step involved obtaining approval for the program from the university, and the Board of Governors, and approval of the architect. The final design approximated $12,000 per bed.

Campbell suggested few complaints had surfaced prior to the interview, as the residence was soundproof and a good finish had been used. He indicated there had been no problems in filling the dormitory. Campbell suggested physical problems, such as cracks in the ceilings and walls, were minor, and due to settling of the building. He suggested all factors had been considered as students on the Committee talked to residents of the two other residences on campus to ascertain good and bad factors. He summarized by indicating that financial considerations were a major constraint.

Mrs. Baker intimated that the period preceding the decision to build was characterized by a high demand for on-campus housing. About 300 more units were required. She indicated that input was obtained from both students and housing personnel, and that the student delegates represented much of the residence population at large. However, she stressed the consideration given to a residence that "works," regarding maintenance, repairs, and so on, in addition to fulfilling student preferences.

Although certain concessions were made, no compromise was made on the size of single rooms. As a result, buildings larger than originally intended were built. Baker indicated the priority for single rooms as the most important design consideration. She suggests the coeducational nature resulted in a better atmosphere, better washroom design, and more

adaptability. Baker cited financing problems as the reason for compromises made.

Several aspects of individual rooms were considered. Adequate size was the most important criterion. A built-in wardrobe, adaptable living conditions, and posturepedic beds were all incorporated into residents' rooms. Other features, such as carpeting, light levels, and window size, were all discussed with students in the buildings' planning. "Jogs" in the design were intended to reduce monotony and permit social groupings. However, they were also necessarily part of the design in order to incorporate washroom facilities. Lounges were to unite residents into larger groups, and permit inter-sex mingling.

In general, Baker suggested residence represents a "condensed community," where students learn to get along with one another. She felt the supportive nature of the University of Victoria, and the buildings' attractive appearance, emphasized the practical nature of the dormitory. She suggested that the absence of destructive activities indicated resident satisfaction with the facilities, although no data exist to support or refute her claims.

Dr. Matthews suggested that the "jogs" were entirely intentional. He indicated a desire to create a 'homey' atmosphere. Matthews alluded to two major philosophical decisions. There were (1) a dormitory style of development (he suggested a "high demand for a dorm style" among students), and (2) single-occupancy rooms. He also indicated the coeducational character as a major decision. Density was intended to be 22 rooms per floor.

Matthews outlined the Planning Committee's policy of slow development for the campus to make everything "fit." He indicated the mood of the campus was established and that Gordon Head was to fit with this concept. Matthews cited single-occupancy rooms as the major intention. This decision was influenced by increasing age and living standards among the population. Economic considerations and convenience overrode demands for self-contained units. Existing kitchen facilities, capable of serving 900, are now being optimally used. This, however, contradicted student preferences.

Matthews further indicated much positive input was obtained from Mrs. Baker and the two students on the Project Planning Committee. The architect chosen was selected because of his previous experience with residences at the University of Victoria.

4.2.2 The Architect

Mr. Robert Siddall was the architect responsible for the design of Gordon Head. Siddall intimated that the aims in Gordon Head were not significantly different from those in the two previous residences. He indicated dormitory accommodations and the size of groups as the main design considerations. Siddall noted the size of the residence's half-floor social groupings as 17, with 34 occupants per floor.[4] This represented a balance between planning and cost. Siddall indicated that the groups of 24 in Craigdarroch Residence were very successful. He noted that problems result from group sizes which are too large (resulting in anonymity) or too small (resulting in sensory overload). Gordon Head was also intended to restrain vertical circulation, and

provide easy adjustment to residence for occupants.

Some aspects of Gordon Head are a departure from past experience. These include the coeducational character and the concern for occupancy during the five summer months. Siddall expressed concern for the loss of orientation because of the sharp angles found in the buildings. Vinyl wall coverings were used to lessen the effects of bright wall colors. This modification was intended to improve orientation, although the manner in which this was to occur was not outlined. Siddall also indicated some features, such as a covered access to dining facilities, were lost to fiscal constraints.

Siddall suggested attitudes towards building abuse in dormitories cannot be reduced by providing abuse-proof facilities. This is similar to beliefs expressed by Sommer (1974) concerning "hard architecture." Destruction can be avoided by making accommodations free of frustrations, allowing a satisfying pattern of daily living, and maintaining manageable group sizes.[5] A blend of size and good design will produce resident satisfaction. This correlates strongly with the philosophy Siddall feels the University of Victoria upholds most stringently concerning student residences. This aim is "to try and create living conditions and living opportunities in groups small enough to be human."

4.3 Summary of Intentions and Compromises Made

Several design goals were established for Gordon Head Residence. An important decision was the adoption of a dormitory style of accommodation. Matthews and Siddall cited this as one of two most crucial considerations. The development of a complex composed entirely of

single-occupancy rooms of adequate size, was the single most important goal, according to Baker and Matthews. Further, a major decision was the development of coeducational living conditions with an atmosphere which is quieter and more academically oriented than those of the two other residences on campus.

Regarding the social conditions, the most important consideration was density. Twenty persons per floor was considered an adequate living group size, and would provide maximum control for housing services. Mr. Siddall indicated this control as one of two major decisions in the residence's development. A small, condensed community, supplemented by larger groupings composed of both sexes, was established with common floor lounges. Adjustment to resident life was intended to be easy and buildings were to be socially integrated.

Physically, Gordon Head was to be compatible with existing buildings on the University of Victoria campus. Internal orientation was to be simple. "Jogs" were incorporated into the design to (1) reduce potential monotony by providing a deviation from a single hallway appearance, and (2) enhance social group development by breaking large groups of residents into smaller clusters. Centrally located services would maximize convenience to residents. Facilites were to be soundproof, adaptable for use by either sex, and enable handicapped persons to live in the residence. Other factors were also incorporated. For example, a main entry lock-release system, adjacent roads, and parking facilities were all considered.

Several compromises were made in the original plan before a final design was developed. These concessions are a result of economic

constraints. Existing conditions reflect the effects of budget cutting, rather than conditions preferred by residents.

A major concession was to reduce the number of buildings from six to three. As well, frame buildings were built, rather than a reinforced concrete complex. A Board of Governors' decision that the gross area to be provided per bed was too high resulted in the reduction of the number of buildings. This reduced the area provided per bed. By law, student fees sufficient to cover costs must be charged. The reduced number of facilities was to reduce costs to students. An attempt not to compromise on room size resulted in larger buildings than originally intended. Longer hallways were necessary to incorporate the 300 rooms required. Consequently, "jogs" were built into hallways to reduce their monotony. All facilities were located in the central building (Wallace Hall). This resulted in the extra (fourth) floor in the central block.

Many of the original design intentions were altered or eliminated, as a result of various concessions made during the planning of Gordon Head Residence. The reduced number of buildings and the covered access to central facilities are among the most important. The following chapter, therefore, reports residents' stated satisfaction levels with existing conditions.

Footnotes

[1]J. Douglas Porteous, *Environment and Behavior: Planning and Everyday Urban Life* (Reading, Mass.: Addison-Wesley, 1977), p. 312.

[2]Gordon Head is the only residence at the University of Victoria to date for which a requirement study was undertaken,

[3]No apparent attempt was made to determine if this is how users of the facilities felt.

[4]This may be compared to Lansdowne Residence at 8 (16 persons per floor divided by washroom facilities) and Craigdarroch at 24 (24 persons per floor in a more comprehensive single unit).

[5]One may wish to recall Mrs. Baker's comments regarding the lack of abuse of the Gordon Head facilities.

CHAPTER 5

RESIDENT SATISFACTION

> The time has passed where we can change the buildings to suit ourselves and it's time we began to adjust to the buildings.
>
> K. Mahlman[1]

Completion of a questionnaire enabled residents to rate their degree of contentment with various aspects of Gordon Head's design and functioning. Satisfaction measures were obtained concerning several aspects of the dormitory. These included physical design, services and facilities, and the social milieu. Satisfaction levels were measured on a six-point scale. Respondents agreed or disagreed with statements made about conditions in the residence. Results discussed as significantly different are those which are statistically significantly different at the .05 level, based on analysis of variance results (see Chapter 3). Raw data for this analysis are found in Appendix B (Tables 3-7).

5.1 Satisfaction with Physical Design Aspects

This series of questions investigated occupants' satisfaction with physical characteristics of the dormitory. Responses are presented in Table 5.1, where low average figures indicate high levels of satisfaction.

Gordon Head was viewed as only slightly well adapted (2.78) architecturally to other buildings on campus. However, its location does

TABLE 5.1: SATISFACTION WITH PHYSICAL AND DESIGN ASPECTS OF GORDON HEAD RESIDENCE

Aspect	Number of Responses							
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction	No Response	Average Response
Architectural fit	9	61	46	18	7	5	4	2.78
Accessibility to campus	68	68	10	2	1	1	0	1.69
External appearance	17	53	56	14	8	2	0	2.66
Internal appearance	13	49	47	30	8	3	0	2.87
Ease in orientation	31	49	21	26	14	6	0	2.78
Quality of soundproofing	0	4	1	5	25	114	0	5.64
Alternating sex floor patterns	96	36	7	2	5	3	1	1.61
Elevator (Wallace Hall only)	14	14	6	6	5	1	1*	2.50
Services/facilities	18	32	41	25	15	18	1	3.28
Floor lounges	47	49	20	10	16	8	0	2.49
Special function room	19	45	30	19	24	12	1	3.13
Garbage chute distribution	18	62	32	14	13	8	3	2.77
Laundry rooms	17	56	37	17	16	6	1	2.85
Typing rooms	9	13	36	23	19	23	27	3.81

*3 respondents suggested the facilities were unnecessary.

provide more than moderate accessibility to campus (1.69). Females were significantly more satisfied with accessibility than were males. Externally, the residence's appearance was mildly satisfying (2.66). Results indicate Gordon Head's external image to be only slightly successful. The buildings' external appearance, and their relationship to other buildings, were only mildly satisfactory. Adequate accessibility to campus has been provided, however.

Satisfaction with the residence's internal design was slightly less great (2.87). In conjunction with this, the ease-of-orientation question produced similar satisfaction (2.78) ratings. Residents of Wilson Hall generally find orientation most difficult, to a significant degree. This is the youngest and most socially-oriented portion of the population. Results indicated a moderate degree of success in providing attractive living conditions which enhance the occupants' sense of orientation.

The most unsuccessful aspect of Gordon Head is soundproofing. Over 75 percent of the respondents indicated extreme dissatisfaction with noise conditions. An overall average rating of 5.64 resulted. Only 5 (3%) respondents were at all satisfied with these conditions. As one resident noted, "Generally Gordon Head is a good place to live but noise is a large problem. . . ."

A major successful endeavor in Gordon Head is the coeducational living arrangement. The mixing of the sexes in an alternating male-female pattern was very satisfying to residents, and only minimally inconvenient (1.61). Of 150 responses, 96 indicated a rating of 1, or extreme satisfaction. All ratings were 1.85 or lower (moderately

satisfied or better). In this respect, Gordon Head is quite successful.

The elevator in Wallace Hall is mildly successful (2.50).[2] The elevator does not, however, fulfil a significant role. This is partially due to the mismatching of the facility with washrooms for the handicapped,[3] and partially due to the fact that only four storeys are involved. Residents indicated that waiting for a slow elevator was an inconvenience for the short distances travelled. Respondents from all three blocks suggested the money could have been better spent, for example, on soundproofing. In this regard, a major design defect has occurred.

The location of all services and facilities on the lower floor of Wallace Hall was unsatisfactory to residents. A mean rating of 3.28 resulted. Such a location was significantly more satisfying to Wallace residents (2.37), although the necessity of having to go outside to use facilities (except typing rooms) reduced levels of contentment. Residents of the two other halls were slightly dissatisfied with the situation (3.27). Facilities could be more functional if they were more accessible to all students, and distributed in a more balanced manner.

The question on convenience of floor lounges resulted in an overall mean of 2.49. However, it is important to note the mean is increased because of the general dissatisfaction (3.66) of Wallace residents. In this building, floor lounges are separate for males and females. In this respect, the coeducational atmosphere is lost. The size of these lounges reflects the number of users. In Wilson and Haig-Brown Halls, satisfaction levels were significantly higher (2.06 and 1.74). This is especially true in Haig-Brown Hall, where lounge use is most frequent

by both sexes for formal and informal purposes. A degree of failure is evident in the planning of lounge facilities in Wallace Hall. The space occupied by the elevator in this hall may have been better used as a central lounge.

The general lounge-special function room proved less satisfactory (3.13). Residents of Wallace Hall, where the facilities are located, were slightly dissatisfied with the situation. This is primarily due to noise interruptions when activities occur in the room. An important consideration is the location of the facilities where noise can disseminate to rooms above. Activities are disrupted primarily for residents of the second floor. Such facilities are better suited to a dormitory intended for younger residents, more intent on socializing.

Garbage chute distribution was mildly satisfying for residents (2.77). Conditions may be less adequate for those who must travel long distances to use chutes. Such a distribution was significantly less satisfactory for older students. Laundry rooms in the residence were only slightly satisfactory (2.85). Females in particular complained of inadequate facilities (such as ironing boards and irons). General comments reveal that not enough facilities exist, and that those which exist are unevenly distributed for residents of Wilson and Haig-Brown Halls. Wilson residents rated the facilities significantly lower (3.18) than Wallace occupants (2.44). Laundry rooms could be more successful if conveniently located, and provided with adequate equipment.

Typing rooms, located at either end of Wallace Hall, were unsatisfactory (3.81). Residents often complained that either (1) they did not know of the facilities' existence, or (2) no typewriters were available.

Wilson residents rated the facilities significantly lower than Wallace residents, whose ratings tended to parallel those of Haig-Brown occupants. Wilson residents most often expressed the above complaint, particularly the former. The present location of typing rooms under floor lounges, where noise does not disseminate to individuals' rooms, is one successful aspect of the facilities.

In sum, the physical design aspects of Gordon Head have met with varying success. Some aspects were very satisfying for residents. Other factors induced much discontent. Gordon Head has fulfilled some of the physical goals intended in its design, while failing in others.

5.2 Satisfaction with Residents' Room Design

Large portions of a resident's time are spent in his or her own room. For this reason, particular attention was paid to users' satisfaction with their own rooms. Results are presented in Table 5.2.

Room size was only moderately satisfactory (2.59) to occupants. This is despite efforts by the university not to compromise on room dimensions. However, such complaints are to be expected. People often wish for more space than they already possess or need. It can, therefore, probably be assumed that rooms are adequate in size. The attractiveness of room interiors was similarly moderately satisfactory (2.89). First-time occupants were significantly more content with room interiors than those who had lived there two years. Long-term residents rated room interiors about halfway between the two other groups.

Window space in rooms was ranked slightly inadequate (3.64) by all residents. All ratings exceeded 3.45, which indicates a mild degree of

TABLE 5.2: SATISFACTION WITH DESIGN ASPECTS OF RESIDENTS' ROOMS

Aspect	Number of Responses						No Response	Average Response
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction		
Room size	38	53	20	15	19	5	0	2.59
Room interior	25	41	38	25	13	8	0	2.89
Room window	14	29	31	24	23	27	2	3.64
Room lighting	30	58	30	11	18	3	0	2.59
Temperature control	60	47	11	17	10	5	0	2.23
Room furniture	30	67	34	7	8	4	0	2.39
Room personalization	54	56	18	5	3	4	0	2.13

dissatisfaction. Room lighting, however, was moderately satisfying (2.59). This suggests much of the internal illumination is supplied by artificial sources, rather than being natural. Residents of Wallace Hall were significantly more contented (2.12) with lighting than were occupants of Wilson and Haig-Brown Halls. This may indicate that the orientation of Wallace Hall, in relation to the movement of the sun, enhances illumination. Wallace Hall residents also indicated slightly higher levels of satisfaction with window space. This supports such a notion.

In general, the physical conditions in residents' rooms were moderately satisfying. The notable exception was the inadequate window

space provided for each resident. Wallace residents were most satisfied with their rooms. This may be a result of aspect (Figure 1.1).

Individual room temperature controls are found in each room. This is the first instance of such a feature in a University of Victoria residence. Ease in controlling room temperature was assessed. Such control was fairly satisfactory (2.23). Some residents complained of inconsistent levels of heat. Their control is dependent upon a major control system which tends to fluctuate. If the major temperature control system is shut off, their heat source is lost.

Room furniture was fairly satisfactory to residents (2.39), and in particular to females. Females were significantly more satisfied with furniture than were males. In contrast, older residents were significantly less satisfied with the furniture provided in their rooms. The opportunity for the personalization of one's room was also found to be satisfactory (2.13). Younger students found Gordon Head slightly more adaptable to their personal tastes. This may reflect the minimal type of personalization they wish to undertake, such as hanging posters, and so on. From observations of the residence, older residents decorate with more ornate items; the rooms are less adaptable to these adjustments.

Individual rooms were a little more satisfying than the buildings in general. The decision by university personnel not to compromise regarding the size of individual rooms, seems to have met with some success in promoting residents' satisfaction.

TABLE 5.3: SATISFACTION WITH SERVICES AND FACILITIES

Service or Facility	Number of Responses						No Response	Average Response
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction		
Food service adequacy	2	23	31	23	39	23	0	4.13
Food service accessibility	31	49	39	18	11	2	0	2.57
Parking facilities	25	55	27	12	6	9	16	2.60
Roads around the dormitory	37	62	27	9	10	2	3	2.31
Intercom system	17	46	23	20	23	35	2	3.30
Lock security system	16	35	19	20	23	35	2	3.70
Accessibility to a phone	84	31	9	2	3	8	13	1.78
Services in general	37	74	27	9	3	0	0	2.11

5.3 Satisfaction with Services and Facilities

An integral part of the character of a residence is the services and facilities provided for residents. Several such conveniences are furnished in Gordon Head. Residents' satisfaction with these are presented in Table 5.3.

A major decision in the development of Gordon Head was the provision of external dining facilities for residents. Although the accessibility of food services was considered satisfactory (2.57), the

adequacy of these was found unsatisfactory (4.13). Haig-Brown residents were least contented with their accessibility to kitchen facilities. Their location is most inconvenient in utilizing these facilities. Residents of Wilson Hall are situated closer to the kitchen and were significantly more content. Those who occupy Wallace Hall were similarly satisfied. This block is adjacent to the Commons Block dining facilities. As the planned covered access has not been provided, these locations are particularly important during periods of unpleasant weather. Residents who had lived in a residence for a short period (one year) of time rated the convenience of dining quarters significantly more positively than those who had lived there two years. Longer-term residents rated these facilities similarly to second-year residents.

Parking facilities were moderately adequate (2.60). Differences in ratings of parking facilities may reflect whether or not the respondent had an automobile at university. Increased numbers of frustrating experiences would influence responses. Roads constructed around Gordon Head were quite successful in facilitating baggage handling (2.31), for instance during the process of moving in. Fourth-year students were significantly less contented with these facilities than second-year students. This may reflect an increase in personal belongings, and probably does not indicate an inadequacy of the facilities. A possible improvement in the adequacy of road and parking facilities could be obtained by allowing direct access from parking facilities to both Wilson and Haig-Brown Halls.

An apartment style intercom-lock security system was installed in Gordon Head. The system was intended to reduce the number of unwanted

visitors to the dormitory. The intercom system was slightly more satisfactory (3.30) than the main entry lock security system (3.70). Neither was very satisfying. The lock system was inadequate partly because of its design and functioning, and partly because of the abuse to which residents subject it. It was indicated that once room 'phones' were picked up to respond to a buzz from the main entry, door locks were immediately released. In this way, unwanted visitors could gain entry to the building by merely buzzing a room. Further, front doors were often left unlocked as residents block them open with obstructions. This eliminates any potential benefits the system may possess. Residents indicated that most of their dissatisfaction resulted from malfunctioning of the equipment. They suggested that equipment which operated properly would not be abused. However, they also indicated that, during daylight hours, their own activities and movements were so frequent that having the system was a nuisance. Therefore, they chose to increase their own convenience by counteracting its effects. Adjustment of the equipment to function properly, and adaptation of the rules necessary to proper use of the system, would enhance user satisfaction.

The convenience of individual room telephone jacks was one of the most satisfying aspects of life in Gordon Head (1.78). Eighty-four (61%) respondents indicated this convenience as very important to them. This is an extremely successful aspect of Gordon Head. However, residents who cannot afford a personal telephone indicated extreme dissatisfaction with the limited number of floor telephones, and the absence of a switchboard system similar to that found in Lansdowne and Craig-

darroch Residences.

In general, services and facilities provided in Gordon Head were moderately successful. A general rating of services in the residence verified this (2.11). Ninety-two percent (n = 138) of residents indicated some level of satisfaction with the facilities and serviced provided in Gordon Head Residence.

5.4 Satisfaction with the Social Environment

Several aspects of the social milieu provided in the dormitory were evaluated. All items investigated represent social goals intended to result from the physical design of the dormitory. As one resident noted: "quite often it's not the structure but the inhabitants that influence the living standards." Responses are outlined in Table 5.4.

The integrated character of the three halls comprising Gordon Head, a characteristic of high priority to housing officials, was not apparent according to respondents (3.91). Sixty-one percent of subjects indicated some level of dissatisfaction with this aspect of the dormitory. The perceived influence of the dormitory's design upon friendship was slight (2.87). Wallace residents perceived the influence to be slightly stronger than occupants of Wilson or Haig-Brown Halls. This may indicate an influence is exerted by the lower floor of Wallace Hall in restricting external contact. This would correlate strongly with the slightly lower ratings of Wallace residents concerning the integrated nature of the three halls. First-year students stated that they were significantly less influenced by the design in their friendship patterns than did third-year students. This may indicate a tendency to make more

TABLE 5.4: SATISFACTION WITH THE SOCIAL ENVIRONMENT

Factor	Number of Responses						No Response	Average Response
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction		
Integration of the halls	4	21	33	33	43	15	1	3.91
Influence of design on friendships	23	43	43	17	16	7	1	2.87
Crowding problems	33	58	42	13	1	3	0	2.33
Density adequacy	38	67	25	14	4	2	0	2.23
Movement/activity	12	44	21	29	28	16	0	3.43
Study interruptions	8	31	20	36	39	16	0	3.77
Frequency of lounge use	52	40	13	19	10	15	1	2.60
Academic atmosphere (Haig-Brown only)	8	23	7	1	7	3	1	2.69

friends outside of Gordon Head. Other students rate integration at levels roughly between these two groups.

Crowding was not seen as a problem in Gordon Head (2.33), as density is acceptable (2.23). No indication of upsetting circumstances was evident. The density of Gordon Head (measured in number of people per floor) was significantly more satisfactory for 20-year-olds than 21-year-olds. Younger residents rated the density at levels between those of the 20-year-olds and older respondents. Despite the fact that

the density of the dormitory is higher than originally intended, few apparent problems have resulted.

However, other residents' movements and activities were disruptive to occupants (3.43). Noise-induced interruptions to studying, an important residence activity, were even more dissatisfying (3.77). No significant differences in responses were evident. It is important to note that residents often attributed any discomfort due to noise to the physical aspects of the residence. In particular, inadequate soundproofing was noted. This one major inadequacy influences several aspects of life in Gordon Head.

The frequency of lounge use, overall, was only mildly satisfactory (2.60). Closer examination, however, reveals that this general rating is misleading. Lounge use in Wallace Hall was significantly lower (3.64) and less satisfactory than in Wilson and Haig-Brown Halls (2.37 and 1.82 respectively). Haig-Brown residents made most use of lounges. This facilitates the quiet atmosphere of rooms and hallways in that building. The low satisfaction of Wallace residents can be attributed to the 'split' character of lounges. Facilities in Wallace Hall are smaller in size, and located at segregated ends of each floor, rather than being centrally located. Intersex mingling is consequentially restricted. The single lounge concept of Wilson and Haig-Brown Halls is much more successful than the two-lounge system of Wallace Hall. Future residence developments should consider this.

The maintenance of an academic atmosphere in Haig-Brown Hall[4] was mildly successful (2.69). Males were significantly more satisfied than females in this regard. Such an outcome is difficult to interpret.

Further, older residents were slightly less contented with these conditions. This reflects the tendency of younger residents to allocate more importance to socializing. It also enhances the suggestion that a dormitory with a character such as that intended in Haig-Brown Hall should be occupied only by residents willing to adhere to the rules imposed (Chapter 1). The dormitory may have failed only in the inclusion of younger, often inappropriate, residents.

5.5 Stated Satisfaction with Gordon Head Residence: A Synthesis

User satisfaction levels with Gordon Head Residence indicated a moderate degree of contentment. Some aspects of the dormitory were strongly liked or disliked. Most features, however, represented a 'middle ground'. Such features were mildly satisfactory. The similarity of responses among the population subgroups indicates this is not merely a result of the averaging of scores.

The buildings of the residence complex provided limited satisfaction for users, although individual's rooms were more adequate. Sufficient size, lighting, and adaptability were provided in rooms which, however, suffered from limited window space. The physical appearance, location of facilities, and soundproofing of the buildings were generally unacceptable. Although located in an unsatisfactory position, services and facilities were adequate. Telephone and food service accessibility, and road and parking facilities, were all satisfactory. The adequacy of food services and of the lock-security system can be questioned. The social milieu of Gordon Head was also mildly satis-

TABLE 5.5: GENERAL SATISFACTION WITH GORDON HEAD RESIDENCE

Factor	Number of Responses						No Response	Average Response
	High Satisfaction	Moderate Satisfaction	Low Satisfaction	Low Dissatisfaction	Moderate Dissatisfaction	High Dissatisfaction		
Need fulfilment	28	82	30	4	5	1	0	2.19
General satisfaction	23	60	47	13	4	3	0	2.49

factory. The absence of an integrated character among the three halls was noted. Interruptions due to noise and activities were frequent. These were most often regarded as a result of inadequate soundproofing. Lounge use in Wallace Hall was infrequent. Respondents in the other two halls indicated frequent use of the same facilities. Density levels of the dormitory were quite satisfactory to residents.

Two further satisfaction ratings were elicited (Table 5.5). These include a measure of how adequately Gordon Head fulfils residents' needs, and a general rating of satisfaction with the conditions provided in the residence. Gordon Head adequately fulfilled residents' needs (2.19). Ninety-three percent of respondents indicated some level of satisfaction in this regard. Only 10 residents indicated any level of discontent. As one resident noted: "I feel that Gordon Head Residence fulfils most of my needs and if I leave it next year it will be because I want to get away from residence life, not from Gordon Head."

General satisfaction levels were slightly lower (2.49) than levels of need fulfilment. This may be due to the focus in student residences upon providing necessities rather than luxuries. Fourth-year students were somewhat less satisfied than all other respondents. The oldest residents were significantly less satisfied than the youngest occupants. Intermediate-aged residents tended to rate midway between these other two groups, such that age seems to have a negative effect on general satisfaction levels.

In general, Gordon Head was moderately satisfying. The residence was slightly better suited to fulfilling needs than providing generally satisfying living conditions. Results reflect contentment with several aspects of the dormitory, and dissatisfaction with other aspects. One resident noted that "the residence and all the rooms are quite suitable and reasonably well designed." However, one disgruntled occupant asked, "why should people say in res. if it is economically more feasible to live off-campus? It is a simple cost-benefit analysis. It is getting so bad that proximity to services is residence's only advantage." However, most responses were more positive, noting that people were "pleased with [the] living conditions," "satisfied with the facilities," and "enjoyed this year very much." Although some residents indicated they did "not feel that Gordon Head residence was a very well thought out or built project," the general feeling was summarized in one resident's comment that "Gordon Head Residence is a pretty good place and if I had a choice I would choose it again next year."

5.6 Results of Behavior Observation of Dormitory Activities

Observations of the use of available 'public spaces' were made over a three-week period to assess how available space was being utilized. Records were kept of the types of activities conducted, and the number of participants involved in each activity. These observations were intended to verify stated attitudinal responses. Results are presented in Tables 5.6 and 5.7 (and Tables 1-4 in Appendix C).

Locomotion activities were the most commonly occurring actions. Such behaviors represented 58 percent of all occurrences in public areas of the residence (Table 5.6), and 40 percent of all actions in the area housing facilities (Table 5.7). In all three dormitories, movement between specific locations comprised the most frequent activity. Socializing was the second most common occurrence in all three halls (20% overall). This represented any sort of verbal interaction between two or more residents. These two activities were conducted either as an individual effort (i.e., only locomotion) or in groups of varying sizes (Appendix C), most often two to five in number.

Beyond these initial activity types, the three halls showed differences in the occurrence of various activities. In Wallace Hall, for instance, behaviors resulting in the improvement of one's personal appearance were the third most frequent (3%), academic pursuits fourth (3%), and activities occurring in a stationary position (for example, someone standing still) were fifth most common (2%). This latter behavior was equal in frequency to the use of washroom facilities. The frequency of occurrence of other events was minimal. Activities of a

TABLE 5.6: TOTAL NUMBER PER ACTIVITY PER HALL AND PERCENTAGE OF TOTAL ACTIVITIES

Activity Type	Hall of Residence						Total	
	Wallace		Wilson		Haig-Brown			
	No.	%	No.	%	No.	%	No.	%
Academic	25	2.6	15	1.5	60	6.1	100	3.3
Social	309	31.6	282	27.5	237	24.1	828	27.7
Locomotion	528	53.8	628	61.1	576	58.8	1732	57.9
Entertainment	9	0.9	7	0.7	7	0.7	23	0.8
Appearance improvement	28	2.8	22	2.1	28	2.9	78	2.6
Use of phone	3	0.3	6	0.6	1	0.1	10	0.3
Affection	1	0.1	0	0.0	0	0.0	1	0.0
Maintenance	20	2.0	14	1.4	18	1.8	52	1.7
Stationary	22	2.2	1	0.1	1	0.1	24	0.8
Non-verbal	13	1.3	5	0.5	11	1.1	29	1.0
Washroom	22	2.2	23	2.2	20	2.0	65	2.3
Sleep	0	0.0	0	0.0	1	0.1	1	0.0
Survival	2	0.2	24	2.3	22	2.2	28	1.6
Total	982	100.0	1027	100.0	982	100.0	2991	100.0

social nature were most common in Wallace Hall (31.6%), despite the segregated lounges found there. This reflects the occurrence of activities in stairwells, hallways, and the elevator.

In Wilson Hall, the consumption of food or beverages (Survival) was the third most frequent activity (2.3%), the use of washroom

TABLE 5.7: TOTAL NUMBER PER ACTIVITY IN FACILITY AREA AND PERCENTAGE OF TOTAL ACTIVITIES

Activity Type	Total Participating	
	No.	%
Academic	9	2.8
Social	37	11.6
Locomotion	127	39.9
Entertainment	42	13.2
Appearance improvement	5	1.6
Use of phone	2	0.7
Affection	6	1.9
Collecting mail	40	12.6
Maintenance	9	2.8
Stationary	1	0.3
Survival	13	4.1
Laundry	27	8.5
Total	318	100.0

facilities fourth (2.2%), and appearance enhancement fifth (2.1%). Academic activities were only the sixth most frequent activity. By contrast, academic pursuits were the third most frequent activity (3.3%) in Haig-Brown Hall, appearance improvement fourth (2.6%), and the consumption of food or beverages fifth (2.3%). Further distinctions are minimal. The relative importance of academic activities in each hall reflected that hall's intended social character. Wallace Hall exhibits an academic-social balance, and academic actions were fourth most common.

Haig-Brown Hall was intended to have the most academic atmosphere, and such activities were third most important. In Wilson Hall, with the most socially-oriented environment, academic occurrences were only sixth most prevalent.[5]

In the facilities area, watching television was the second most common activity (13.2%), followed by collecting mail (12.6%), socializing (11.6%), and washing laundry (8.5%). Behavior in this area approaches design-intended activities. Except for locomotion, however, none of the activities were pursued often. Facilities were most often unoccupied. This suggests either a limited degree of success in providing convenient facilities for residents, or that there has been an overprovision of facilities.

Most activities in the residential areas occurred as individual, or small group behaviors (Appendix C). The notable exceptions were locomotion, socializing, and the academic activities in Haig-Brown Hall. Most activities in the facility area occurred in medium sized groups, although individual occurrences were still common. One exception is socializing. This behavior usually occurred in groups of two.

Further, more general observations were made of the use of Gordon Head. Such general perceptions regarding the character are of much utility in verifying stated satisfactions. Initial orientation in the residence proved difficult for the observer. The numerous jogs and corners produced much confusion. In addition, during most observation periods, noise was common. Noise was generated by both mechanical (washroom facilities, elevator, etc.) and human (socializaing, movements, etc.) sources. The inadequate nature of soundproofing was readily

apparent. These two observations verify stated results.

The sexes appeared to mix with little inconvenience to either. No signs of stress or confrontation were apparent. In Wilson and Haig-Brown Halls, some disruption to the residents of the half-floor (females in Wilson Hall, males in Haig-Brown) closest to the main entry was noted. This resulted from the lack of separation between entranceways and living areas. The problem was most evident for females. They complained of drafts when doors were opened, and of lack of privacy.

The elevator in Wallace Hall was used infrequently. Most residents opted not to wait for its arrival. Frequent use was made of the central stairwell. Between-floor movements in Wallace Hall were much more frequently undertaken via end stairwells, than in Wilson and Haig-Brown Halls. This is due to the loss of external access at end exits in the latter two instances. In addition, the end stairwells in Wallace Hall exit to several facilities. Main entries in the two other halls open to these facilities. However, one end stairwell exits to a parking lot in each of Wilson and Haig-Brown Halls. Much travel occurred to these.

Lounges were more frequently utilized in Haig-Brown and Wilson Halls than in Wallace. This was especially true of Haig-Brown Hall. In particular, male half-floor lounges were less frequently used than female lounges. These results verify stated satisfaction levels. Further, the centrally located lounges of Wilson and Haig-Brown Halls were frequented by both sexes. The split lounges of Wallace were more single-sex dominated. The general lounge-special function room was only infrequently used. Its primary use is for major social functions, such as floor parties.

Laundry facilities were rarely occupied. Most often, machines were running with no one present. On those occasions when users were present, activities included loading or unloading machines, ironing and, less frequently, socializing. Facilities were often not in use at all. This contradicts the claim by some residents that an inadequate number of washers and dryers have been supplied, and supports earlier comments. The two typing rooms were used only once during the whole observation period. At that time, a student was practicing on a musical instrument. This is the most flagrant example of wasted space in Gordon Head.

Rooms are generally adapted to suit personal needs and tastes. A large variety of wall and roof hangings (posters, paintings, plants, and so on) was noted. A wide array of personal furniture was also observed. Furniture organization was, however, restricted, because of the location of light and electrical outlets. Beds were generally placed in a corner away from the window. Desks were most often located adjacent to windows, or near one of two 'duplex outlets' which are provided. Beyond this, no restrictions on room personalization exist.

Rooms were adequately lighted during both day and night. Most light was obtained from artificial sources. Window spaces are quite small. Plants were often crowded near windows to provide illumination for their growth. Generally, rooms seemed large enough to meet the needs of the occupants. Crowding was evident in only a few instances. Most residents had adequate space to store clothing, books, and other items.

The parking and road facilities adjacent to the residence appeared to meet residents' needs. Roads were often utilized to load and unload

items. These roads provide direct access to main entranceways. This was especially true of Wallace and Wilson Halls. The intercom-lock system is rarely used. The main entries to all three halls were generally unlocked. In those instances when doors were locked (most common in Haig-Brown Hall), the intercom system 'clicked' sporadically. This may indicate the lock-release system is engaging. This occurred with no visitor at the door.

Many of the residents interviewed had telephones in their rooms. Well over half were taking advantage of such a convenience. Many instances of 'borrowing' a neighbour's phone were noted. Little conflict was evident in such matters. Floor phones were used infrequently.

Inter-hall integration appeared to be minimal. Social interactions occurred most often with same-block residents. As well, between-floor interactions seemed to be restricted, as intended by the architect (see Chapter 4). This suggests the dormitory's design markedly influences friendship formations. These results contradict residents' stated beliefs and suggest a study of friendship formation behavior would be necessary to assess more fully the design's influence. Interactions generally occurred between residents of individual floors. In Wallace Hall, between-sex interactions occurred as frequently as in Wilson and Haig-Brown Halls. This was despite the effects of segregated lounges in Wallace Hall. Lounges were often personalized to the tastes of the floor. Items noted included stereos, plants, furniture, and bulletins concerning social and sports events.

Movement and noise interruptions were frequent. Any activity generally resulted in noise which could be heard throughout large

portions of the half-floor above its generation point. Louder noises disseminated to the other half of the floor, and to adjacent floors. Often the doors located between half-floors were closed to act as a buffer. This was probably intended to reduce noise, as well as to enhance privacy. Noise was most prominent in Wilson Hall (the social dormitory), and least evident in Haig-Brown Hall (the academic dormitory). The academic character of Haig-Brown Hall was generally well maintained. On weekdays, noise was minimal. On weekends, conditions were less restrictive. This substantiates one resident's suggestion that Haig-Brown residents "know when to work and when to play."

In general, many stated satisfaction levels were supported by resident behavior. Not all items investigated in the questionnaire were observable; for example, the adequacy of food services was not subject to direct observation.

5.7 Summary

Results of evaluations of: (1) the physical and design aspects of Grodon Head Residence; (2) occupants' personal rooms; (3) facilities and services; (4) the social milieu; and (5) general levels of contentment, indicated, in general, a moderate degree of user satisfaction with conditions. Several aspects of the residence were cited as being commendable. Other features were considered quite unsatisfactory. Most factors were indicated to be only moderately satisfactory or unsatisfactory.

Behavior observations made of residents' activities served: (1) to provide a grasp of the "personality" of the residence; and (2) to verify

stated levels of satisfaction. Observations generally affirm attitudinal responses, and provide support for the preferences outlined in Chapter 7, and the recommendations made in Chapter 8.

Footnotes

[1]Kerry Mahlman (Senior Don in Gordon Head Residence, 1978-79), *The Martlet*, September 21, 1978, p. 1.

[2]In this instance, only Wallace residents rated the elevator, as only this hall was built with such a facility. Therefore, n = 50.

[3]The elevator was incorporated into Wallace Hall, while the handicapped washrooms were incorporated into Wilson and Haig-Brown Halls.

[4]Only Haig-Brown residents responded to this question. Therefore, n = 50.

[5]The overall low frequency of academic activities is due to the fact that only public places were observed. Most studying is done in the quiet and privacy of individuals' own rooms, or in external facilities, such as the library.

CHAPTER 6

PREDICTING GENERAL SATISFACTION

> To design requires talent but to program requires genius.
>
> Le Corbusier[1]

A further aspect of the analysis assessed the possibility of predicting general satisfaction levels from available data. The primary intention was to determine if residents could be sorted according to personal characteristics, intentions, and preferences, and thus be allocated to distinct residence conditions. Factor analysis and multiple regression techniques were employed for this aspect of the data analysis.

6.1 Factor Analysis

One of the major uses of factor analysis is data reduction: By producing an array of correlation coefficients for a set of variables, a measure is made of any underlying pattern of relationships. In this way, a large number of 'variables' is reduced to a smaller set of 'factors'.

This exploratory characteristic of factor analysis was applied to results obtained from some of the variables utilized in the questionnaire employed in the Gordon Head study. The variables analyzed were those of an evaluative nature. In this instance, varimax orthogonal rotation was utilized. This is the most widely used form of factor analysis, The procedure simplifies the columns of a factor analysis matrix. Thirty-

six variables were subjected to the factor analysis.

The rotated factor matrix produced by the program represents both a pattern and a structure matrix. A pattern matrix contains the regression weights of common factors. These are used to estimate variables from hypothetical factors. A factor-structure matrix contains the correlation coefficient between each variable and each factor. In an orthogonal solution, these two matrices are identical. In addition, the program outputs communalities of each variable. These are the total variance of any variable accounted for by the combination of all factors. These two outputted portions of the program are used to assess the importance of variables to factors and vice versa.

Initially, 13 factors were produced by the program as a result of the 36 introduced variables. However, based on analysis of communalities and rotated factor matrices, 9 variables were eliminated. As well, the number of factors was controlled until the most appropriate number required to describe the variables resulted. Five factors were produced which were representative of some of the variables used in the questionnaire (Table 6.1). All other variables represent independent measures of some aspect of resident life. Their inclusion as separate factors is not warranted, although they are still important for other analyses.

In this table, the variables comprising each factor are noted. In addition, factor loadings, or the correlation coefficient between each variable and each factor, are indicated. Finally, the proportion of variation in each variable that is associated with each factor is noted. This is determined as the square of each factor loading.

TABLE 6.1: VARIABLES INCLUDED IN EACH FACTOR

Factor Number	Variables Comprising Factor	Factor Loadings	Proportion of Factor Explained by Each Variable
1	Internal appearance	.684	.468
	External appearance	.607	.368
	Architectural fit of Gordon Head with the rest of campus	.643	.413
	Attractiveness of room interiors	.720	.518
2	Typing room adequacy	.497	.247
	Food service adequacy	.455	.207
	Adequacy of intercom	.481	.231
	Adequacy of lock-security system	.568	.323
3	Movement	.848	.719
	Study interruptions	.664	.441
4	Adequacy of floor lounges	.514	.264
	Frequency of lounge use	.598	.358
	Crowding problem	.376	.141
	Adequacy of density	.469	.220
5	Accessibility to telephone services	.591	.349
	General rating of services	.568	.323

The five resultant factors can best be named as follows:

Factor 1: Appearance Factor

Factor 2: Specific Services Factor

Factor 3: Interruption Factor

Factor 4: Lounge/Density Factor

Factor 5: General Services/Phone Access Factor.

Factor 1 loaded most strongly with internal appearance, external appearance, architectural fit between Gordon Head and the remainder of the campus, and the attractiveness of room interiors (Table 6.1). As a result of this relationship, factor 1 was named the appearance factor. Factor 2 loaded most strongly with the adequacy of typing rooms, food services adequacy, and the intercom and lock-security systems, and was therefore entitled the specific services factor. Factor 3 was composed mostly of disruptions due to peoples' movement and study interruption. This became known as the interruption factor. The variables loading highest on factor 4 were the adequacy of the floor lounge, frequency of lounge use, crowding and density. This component became known as the lounge/density factor. Finally, the fifth factor was seen to associate most strongly with the accessibility of telephone services and the general rating of services. Therefore, it became known as the general service/phone access factor.

These factors represent five basic aspects of residence life and influence general satisfaction levels with living conditions. They represent features such as appearance, density, inconvenience due to interruptions, and services provided. In sum, the majority of variables utilized in assessing the utility of a student residence represent independent measures. A small number of representative factors can be produced which incorporate some of these variables, but many reflect independent characteristics of residence life.

6.2 Multiple Regression

Multiple regression is a general statistical technique which enables the user to analyze the relationship between a set of independent (or predictor) variables and a dependent (or criterion) variable. Regression has both descriptive and inferential capabilities. In this instance, the possibility of predicting a general satisfaction level with Gordon Head Residence based on knowledge of other demographic, experiential, and evaluative variables was assessed.

Stepwise multiple regression was employed in the analysis. This type of regression enters independent variables into the regression statement based on the amount of variance in the dependent variable explained by each. The variable explaining the greatest amount of the variance is entered first. The variable explaining the greatest amount of that left unexplained by the first variable is entered second, and so on.

In this instance, independent variables representative of the factors formulated through factor analysis (section 6.1) were used to compile a regression statement, rather than the factors themselves. Had factors rather than variables been used, determining how much explanation to attribute to each of the variables comprising the factor would be difficult. As the variables associated with any particular factor portray extreme multicollinearity, only one variable per factor could be used. The appropriate variable was selected based on the amount of explanation in the dependent variable it accounted for. Beyond the five variables introduced as representative of the five factors, other variables were introduced into the regression statement. These variables

included those which: (1) were not representative of any of the five factors; (2) had adequate response sample sizes; (3) did not display strong response bias tendencies; and (4) did not display strong multicollinearity with other variables in the equation.

Based on results of the stepwise regression, insignificant variables were eliminated from the equation following analysis of F ratios (measures of significance of each regression coefficient or B value). The final results (Table 6.2) indicate that only eight variables significantly influence the dependent variable of general satisfaction with Gordon Head Residence.

In this table, the column 'R^2' (being the square of Pearson's Correlation Coefficient R) indicates the proportion of the variance in GENERAL SATISFACTION 'explained' by each independent variable. These values are cumulative and are added together down the column. The column 'R^2 Change' indicates the individual R^2 values added cumulatively in the previous column. The column '% Explained' portrays the transformed R^2. These represent the amount of variance in GENERAL SATISFACTION attributable to each independent variable as a percentage of the total variance in GENERAL SATISFACTION. The 'B' values represent the expected change in GENERAL SATISFACTION as a result of a one unit change in any independent variable, given that all other independent variables are held constant. For example, an increase of 1 in a room interior rating should produce an increase of about .2 (.218) in GENERAL SATISFACTION. The F values measure the significance of each regression coefficient (B). All recorded values are significant at the 99 percent (.01) level.

TABLE 6.2: REGRESSION ANALYSIS OF QUESTIONNAIRE RESPONSES

Independent Variables	R^2	R^2 Change	% Explained	B	F*
Room interior (Factor 1)	0.127	0.127	12.7	.218	14.94
Services (Factor 5)	0.194	0.066	6.6	.286	10.76
Movement (Factor 3)	0.243	0.049	4.9	.148	8.36
No. of people	0.298	0.056	5.6	.815	11.04
No. of rooms	0.317	0.018	1.8	-.480	3.25
Lounge use (Factor 4)	0.336	0.020	2.0	.895	3.70
Age	0.352	0.016	1.6	.997	3.85
Lock security system (Factor 2)	0.370	0.018	1.8	.842	3.52
Total explanation			37.0%		

*All significant at .01 (99%) Constant (A) = -1.724

Dependent Variable: General Satisfaction with Gordon Head Residence (Y)

Y = -1.724 + .218 ROOM INTERIOR + .286 SERVICES + .148 MOVEMENT
+ .815 NO. OF PEOPLE - .480 NO. OF ROOMS + .895 LOUNGE USE
+ .977 AGE + .842 LOCK SECURITY SYSTEM

Factor 1 = .72036 ROOM INTERIOR
Factor 2 = .56780 LOCK SECURITY SYSTEM
Factor 3 = .84837 MOVEMENT
Factor 4 = .59803 LOUNGE USE
Factor 5 = .56829 SERVICES

The eight independent variables explain 37 percent of the variance in the dependent variable GENERAL SATISFACTION. The most influential variable is room interior (Factor 1 or APPEARANCE FACTOR) which accounts for 12.7 percent of the total variance. The second most influential factor is the general services rating representative of Factor 5 (GENERAL SERVICES/PHONE ACCESS FACTOR), responsible for 6.6 percent of the explanation.

Other significant variables include how disruptive peoples' movements and activities are to the resident (representative of Factor 3, MOVEMENT) with 4.9 percent of explanation, and the type of living conditions the resident was accustomed to prior to residence life (NUMBER OF PEOPLE in the respondent's prior dwelling, and NUMBER OF ROOMS in that abode). These two variables account for 5.6 percent and 1.8 percent of the variance respectively.[2] As well, the frequency of lounge use (representing the LOUNGE/DENSITY FACTOR #4) accounts for 2.0 percent of the variance, the respondent's age for 1.6 percent, and satisfaction with the main entry lock security system (representing the SPECIFIC SERVICES FACTOR #2) is responsible for 1.8 percent.

Of these variables, only the number of rooms the respondent was accustomed to resulted in a negative relationship (column B). As the number of rooms the subject was used to increased (i.e., a higher number was recorded), satisfaction with Gordon Head increased (i.e., a lower number was recorded). In all other cases, a lower rating (for example, fewer occupants in the respondent's prior dwelling) resulted in a higher satisfaction level (i.e., a lower rating). A resident more satisfied with any or all of his room interior, provided services, lounge use, and

the lock security system, as well as one less affected by noise interruptions, will be increasingly satisfied with Gordon Head generally. As well, a younger resident will be more satisfied, as will one used to small numbers of people in his home dwelling. Residents from houses with larger numbers of rooms would be more contented. This result seems to contradict what one would predict concerning such a relationship and is difficult to interpret. However, the combined effects of these variables accounts for only 37 percent of the possible explanation. As such, prediction is relatively inaccurate.

This result suggests that the measurement of student satisfaction with campus living conditions is a complex problem. Even the large number of independent variables utilized could only account for 37 percent of the variance in a general satisfaction rating.[3] Predicting general satisfaction is therefore only partially possible with methods of measurement that are currently available.

Footnotes

[1]Le Corbusier, cited in Corwin Bennett, *Spaces for People* (Englewood Cliffs, N.J.: Prentice-Hall, 1977), p. 69.

[2]It should be noted that although NUMBER OF PEOPLE is listed after MOVEMENT, it explains a greater portion of GENERAL SATISFACTION. This is due to MOVEMENT's greater partial correlation. NUMBER OF PEOPLE's influence is greater after the influence of other variables has been accounted for. A similar situation occurs with LOUNGE USE and AGE.

[3]The influence of other variables, being so insignificant, is included in the 37 percent.

CHAPTER 7

FUTURE PREFERENCES AND RESIDENTS' DESIGN RECOMMENDATIONS

> We shape our buildings, and afterwards our buildings shape us.
>
> Winston S. Churchill[1]

In addition to the assessment of satisfaction with present facilities in Gordon Head (Chapter 5), the future preferences of users were elicited. These include preferences regarding residence types and styles, and improvements in the design and facilities that could be made in Gordon Head as it presently exists. Further, a measure of the percentage increase in residence fees occupants would be willing to pay to ensure suggested improvements were taken. This served as a measure of the sincerity of respondents in their suggestions. Results discussed as "significantly different" are those which are statistically significantly different at the .05 level, based on analysis of variance results (see Chapter 3). Raw data for this analysis are found in Appendix B (Tables 8-11).

7.1 User Preferences

Respondents were required to rank three sets of residence types and styles based on personal preferences. These sets included (1) residence types (dormitories, suites, and so on), (2) residence styles (completely or partially coeducational, single sex), and (3) existing

residences on the University of Victoria campus. Definitions of the various residence types and styles were provided.

7.1.1 Residence Type Preferences

In ranking residence types in order of preference, respondents were asked to assume that all were of the same expense. Five choices were provided. These included two dormitory styles (those of a "long, straight hallway arrangement" and a "suite arrangement--with several residents sharing kitchen and dining facilities"), on- and off-campus apartments, and a shared house. In addition, an "other" category was provided. This category was rarely used (Table 7.1).

TABLE 7.1: RESIDENCE TYPE PREFERENCES

Residence Type	Ranking and Number of Responses to Each					No Response	Average Response ($\bar{x}$)
	1	2	3	4	5		
Dormitory	16	21	34	22	47	10	3.45
Suite	30	45	27	32	11	5	2.65
On-campus apt.	66	38	30	10	1	5	1.91
Off-campus apt.	11	27	27	48	29	8	3.40
House	22	14	25	29	49	11	3.50

Other preferred living conditions: Home (n = 1); a better soundproofed Gordon Head (n = 2).

Respondents indicated an overwhelming preference for an on-campus apartment (1.91). Over 70 percent ranked such conditions as their first or second choice. Second and fourth year students indicated most preference for on-campus dwellings. They ranked these conditions significantly higher than did third year students. Twenty-year-old residents least preferred on-campus apartments. Their ratings were significantly

lower than those of 19-year-olds and those who were 21 or older. Residents younger than 20 rated these conditions in between the others. These results are confusing and must reflect personal aspirations rather than general trends among user groups.

A suite style of living was the second most preferred residence type (2.65). Over 50 percent of respondents rated suites as ranks 1 or 2. No significant differences occur among the population subgroups. Third year students rated suites slightly higher than on-campus apartments. Among third year students, suites received an average rating of 2.24 as compared to 2.29 for on-campus apartments. This is the only instance in which on-campus apartments were not the most preferred condition. The rationale for such results is difficult to interpret. In general, however, suites represented the second most preferred living type, a considerable distance behind on-campus apartments.

Beyond these two most preferred conditions, the remaining residence types were rated about the same. Off-campus apartments were third most preferred (3.40), traditional dormitories fourth (3.45), and a shared house was fifth (3.50). Males marginally preferred dormitories over the other two conditions. Females showed a preference for a shared house. This may be because they generally prefer small groups and intimate friendships more than do males. A traditional dormitory was ranked third by Haig-Brown residents, while a house or off-campus apartment took precedence for residents of the other two buildings. Haig-Brown residents rated a house significantly lower than did Wilson residents. This may reflect the academic inclination of Haig-Brown Hall residents and the social orientation of those from Wilson Hall. Wallace

residents rated a house in between the two other groups. This may reflect the academic-social balance of Wallace Hall. Among long-term residents, a dormitory was the most preferred of the remaining types, although least satisfactory to other residents. This probably reflects the continued return of satisfied residents to campus residences.

Generally, on-campus apartments are the preferred living conditions among Gordon Head occupants. A suite arrangement ranks a distant second. No other residence type is preferred. The only exception is among long-term dormitory residents. As such, an apartment style of residence complex is recommended for future developments.

7.1.2 Living Style Preferences

Three residence style living conditions were ranked by respondents. These included: (1) completely coeducational (people assigned to rooms irrespective of sex); (2) partially coeducational (people assigned to rooms in clusters based on sex, for example: at corridor ends like Gordon Head); and (3) single-sex residence styles (the entire residence is composed of either males or females). Results are presented in Table 7.2

Partially coeducational conditions were most preferred (1.29). These arrangements were ranked first by over 70 percent of respondents and second by a further 25 percent. Females indicated a significantly higher preference for such conditions than did males.

A completely coeducational style of living ranked second (2.08) and was so rated by more than 40 percent of respondents. A coeducational living style was significantly more appealing to males than to females. This result may be due to restrictions which would be imposed

TABLE 7.2: RESIDENCE STYLE PREFERENCES

Residence Style	Ranking and Number of Responses to Each			No Response	Average Response ($\bar{x}$)
	1	2	3		
Completely coeducational	36	64	48	2	2.08
Partly coeducational	107	39	2	2	1.29
Single-sex	6	43	98	3	2.63

upon privacy in such an arrangement. These results correspond closely with the higher ranking of partly coeducational conditions by females.

Single-sex residences were rated third by 67 percent of respondents ($\bar{x}$ = 2.63). No portion of the population indicated a significantly more positive rating. Increasing age or enhanced residence experience prompted closer ratings of completely coeducational and single-sex residence styles. Further, females tended to rate the second and third ranked conditions closer. This may reflect their extreme desire for partial mixing of the sexes. The other two styles (completely coeducational and single-sex) were reduced in rank as a result.

7.1.3 Preferences for Existing University of Victoria Student Residences

Only subjects familiar with all three residences on the University of Victoria campus rated their preferences for these facilities. Seven percent of the respondents (n = 11) were unfamiliar with the two residences other than Gordon Head. Subjects were asked to assume that they were able to select their own living quarters. Responses are recorded

TABLE 7.3: PREFERENCES FOR EXISTING UNIVERSITY OF VICTORIA RESIDENCES

Residence	Ranking and Number of Responses to Each			No Response	Average Response ($\bar{x}$)
	1	2	3		
Lansdowne	1	53	83	13	2.60
Gordon Head	135	4	0	11	1.03
Craigdarroch	3	80	50	17	2.35

in Table 7.3. In addition, details of the reasons cited for these choices are recorded in Tables 1-3 of Appendix D.

Of those subjects who responded to this question, 97 percent indicated Gordon Head as their most preferred residence (1.03). The reasons cited for such a response include the above mentioned philosophical and social characteristics of the dormitory. Most frequently, subjects indicated either or both of room size, and the single-occupancy nature of all rooms, as influential in this choice. Second, the older and more mature nature of Gordon Head residents, followed by the coeducational living arrangements, were outlined as factors in Gordon Head's preferred status.

The residence's social milieu was noted as the quietest with a strong academic orientation. Further, it provided a "nice atmosphere," more privacy, and the best conditions in which to study. Certain services also prompted this response. The availability of private phones and individual room heating were most often cited. Only one physical characteristic, the presence of "nice rooms," was mentioned often, and only by six respondents.

Craigdarroch Residence was preferred second most often by 60 percent and third by 38 percent of respondents. A mean rating of 2.35 resulted. This represents a marked drop in rating of over 1.3 units from that for Gordon Head. The primary reasons outlined in Craigdarroch's secondary position include physical design characteristics. The reason cited most often was the availability of larger rooms. Better soundproofing was also cited frequently. Further important physical aspects include the modern nature of single rooms and the arrangement of the buildings. Reasons concerning the social milieu of the residence include the rowdy and young character of residents, which seemed to reduce Craigdarroch's rating. The general comment that Craigdarroch was well built was noted five times. When Craigdarroch Residence was rated the least desirable of the three dormitories, social characteristics were most commonly indicated as the reason. The most prevalent of these was the noisy or 'wild' character of occupants.

Lansdowne Residence was rated least desirable ($\bar{x} = 2.60$) by all but first year students. This dormitory was ranked third by 60 percent and second by 39 percent of respondents to this question. The most commonly cited reasons for this were physical and social characteristics of the dormitory. Small room size was the most frequent complaint. The cold, concrete appearance of the dormitory and the "closed in" feeling it evokes were also frequently mentioned. Concerning the social milieu, residents were generally noted to be wild and rowdy or young and immature. As well, density was seen to be a problem. As one resident put it: "[in Lansdowne] people are stacked and crammed together which causes social problems due to too much exposure to others." Further, Gordon

Head residents did not like the single-sex nature of Lansdowne.

Lansdowne was indicated to be the second most preferred residence by 39 percent of respondents to this question. The rationale included the fact that it was too loud and rowdy to be most preferred, but that it provided a good atmosphere for first year students. In addition, rooms were noted to be too small.

In sum, Gordon Head is the most preferred, by its residents, of the three dormitories presently on the University of Victoria campus. This preference is most often due to the social characteristics of the residence, and the maturity of its occupants. In addition, dissatisfaction with the physical and social milieux of the other two residences bolstered Gordon Head's rating.

7.1.4 Suggested Facilities

Respondents indicated facilities not incorporated into Gordon Head which they felt would make residence life more enjoyable. A wide range of responses ensued (Table 1, Appendix E). Discussion is limited to those most frequently cited.

The most commonly suggested improvements dealt with food and kitchen facilities, and recreational pursuits. Some form of cooking instrument or complete kitchen facilities were desired by 37 respondents. Responses ranged from the desire for complete facilities, where all meals were prepared, to a hotplate for the production of the odd meal or snack. Other suggestions included microwaves or stoves for lounges. An evening canteen service was also a suggested possibility. Further proposals included food machines, larger refrigerators in lounges, and toasters in lounges.

A games room, where a variety of activities such as machine games could be located, was a desired item among residents. Further, a physical fitness or exercise room was another item often suggested. Both males and females made this suggestion. A plea was made for more television rooms for the three halls. Suggestions included one television per building and the possibility of a television for each lounge. This contradicts the lack of use of television rooms evident in behavior observation and suggests that it is the location of these facilities which limits their use. Perhaps the unused typing rooms could be utilized for such a purpose. Beyond this, one common suggestion was an outdoor sports (tennis) area.

Other recommendations included increased laundry facilities. It was indicated that present facilities were difficult to use due to their inconvenient location and insufficient numbers. This inconvenience may explain the lack of use of these facilities which was observed. In addition, more ironing boards and irons were recommended. As well, some sort of emergency or floor telephone incorporated into a university switchboard system was thought to be necessary, as some residents could not afford their own telephone. It was indicated that if emergencies arose such persons could not be contacted. A switchboard system similar to that found in the other two dormitories on campus was suggested.

Few suggestions were made with the intention of enhancing the academic milieu of the residence. A few respondents indicated that a study hall was necessary. Beyond this, a library and typewriters were recommended by a couple of residents. The plea for typewriters may reflect the inadequate publicization of present facilities. The devel-

opment of a greater number of academic buildings was suggested by two respondents.

In general, recommended facilities were kitchen or recreation oriented. Improved laundry facilities were also considered important by occupants. Outrageous suggestions (such as a whirlpool and sauna) were relatively few in number. Most respondents recommended reasonable features. In addition, major design improvements recommended by residents will be outlined.

7.1.5 Suggested Design Improvements

Respondents were asked to indicate improvements in the building's design they would suggest to Gordon Head's architect in order to make living conditions more comfortable. A wide range of responses ensued (Table 2, Appendix E). These particularly concerned the external and internal layout of the buildings, problems with specific rooms and noise, and other internal factors (such as heating and lighting). Only the most commonly suggested design revisions are discussed.

The most often suggested design improvement was better soundproofing. Ninety respondents indicated such a need. As one resident put it: "the poor quality of soundproofing and of structural strengths in Gordon Head may end up costing the university way more than the buildings themselves are worth [because of repair costs]." This corresponds with the extreme dissatisfaction expressed by respondents with this aspect of the dormitory (Chapter 5). Associated suggestions included soundproofed typing and stairwell areas, and quieter water pipes.

Respondents suggested many improvements to building layout. The most frequent of these was common lounges for each floor of Wallace Hall. This suggestion was put forward by residents of all three halls, although responses from Wallace residents were most prevalent. A staggered entranceway, or a door separating the entrance and adjacent hallways, was indicated to be a necessity for the main floors of Wilson and Haig-Brown Halls. In these two halls, main entry accesses adjoin directly with one half of the main floor. No barrier exists to prevent wind and unfavorable weather from entering the hallway. This feature also restricts the privacy available for affected residents.

Additional minor recommendations concerning the layout included internal access to facilities. Presently, all residents must travel outside to use the facilities. This includes even those living in Wallace Hall where the facilities are located. The only exception to this is access to typing rooms. As well, direct external access to Wilson and Haig-Brown Halls from end doorways was suggested. At present, only Wallace Hall residents may enter their building from any and all of the available doors. A better general layout, with rooms segregated from stairwells and the elevator, was recommended. As well, a more traditional 'box-type' design encircling a quad, much like those found in Lansdowne and Craigdarroch Residences, was suggested by six residents of Gordon Head.

Several recommendations were made regarding individual rooms. The most common of these ($n = 34$) was the inclusion of more and bigger windows in bedrooms. These would improve room lighting and air circulation. Larger rooms were suggested by 7 respondents. More private showers in

washrooms were an added recommendation. Better heating conditions were suggested for hallways, washrooms, and, in particular, for shower areas. More efficient weather insulation was indicated for the dormitory as a whole. As well, construction of buildings on better foundations was recommended.

Many other minor suggestions were made by respondents. In general, however, soundproofing, larger bedroom windows, a common lounge in Wallace Hall, heat for social and washroom areas, and a reorientation of some facets of Gordon Head's design (i.e., regarding separating entranceways and hallways, and rooms and noisy areas) were regarded as the least satisfactory aspects of the residence. These recommendations correspond strongly with some areas of dissatisfaction expressed above (Chapter 5). With regard to the desired alterations, a certain resident indicated:

> It would have been better to spend more money at first than to spend so much in repairs and changes after the fact. After only 2 years in use the buildings are already rapidly detiorating and causing increasing costs which will increase residence fees.

One resident went so far as to suggest:

> Buildings are nice now--modern, clean, but they are a piece of shit--i.e. very poorly built, low quality materials, and I wouldn't live here in five years because I know what kind of shape they'll be in.

7.2 Residents' Sincerity in Design Recommendations

A measure of the additional residence fees the respondent would be willing to pay in order to ensure the improvements they suggested, and thus increase living standards, was made (Table 7.4). This measure attempted to assess resident sincerity in making recommendations. Of those who responded to this question, 30 percent indicated they would be unwilling to pay higher residence fees to ensure improvements.

TABLE 7.4: PERCENTAGE INCREASE IN RESIDENCE FEES RESPONDENT IS WILLING TO PAY TO ENSURE IMPROVEMENTS

Percentage Increase	Number of Responses
0	38 (30.0%)
2	2 (2.0%)
3	1 (0.5%)
5	13 (11.0%)
6	1 (0.5%)
10	52 (42.0%)
12	1 (0.5%)
14	1 (0.5%)
15	6 (5.0%)
20	6 (5.0%)
25	1 (0.5%)
30	3 (2.5%)
No response	25
Average ($\bar{x}$)	7.6%

However, several of those responsents did not suggest any improvements. They were therefore indicating a general satisfaction with the facilities as they presently exist.

Approximately 14 percent of respondents were willing to pay between a 1 percent and a 7 percent increase. An additional 42 percent cited 10 percent as their limit. The final 14 percent indicated between 12 percent and 30 percent as the increase they would be willing to pay. At a present annual rate of approximately $1,800, 30 percent represents an increase of over $500 yearly. This suggests a strong desire on the part of some residents for improved conditions. The average response was 7.6 percent ($137). Males indicated a willingness to pay a significantly

larger increase, compared to females, to ensure improvements were made. Generally, those making the most suggestions were those willing to pay for them.

When respondents who indicated they would be unwilling to pay an increase are not considered, the average amount rises to 9.8 percent (or approximately $176 annually). Several of the respondents indicated as having given 'no response' in fact indicated an amount which was not quantifiable. For example, some respondents indicated "[enough] to keep pace with inflation," an amount "equivalent to downtown or off-campus" increases, or the "yearly increase" as increases they would be willing to pay.

In sum, respondents generally exhibit a willingness to pay limited amounts to improve their living conditions. Many cite inappropriate existing fees as the reason they would not pay more. For example, one resident noted, "Overall it's by far the best residence on campus, I just feel we pay a lot (too much!) for what we get." In addition, relatively few outrageous improvements were suggested by residents. One can only conclude a fair level of sincerity on the part of respondents in making recommendations to improve Gordon Head.

7.3 Summary

In this chapter, user preferences regarding student residences were outlined. These indicate the type and style of conditions preferred by residents of Gordon Head. In addition, suggested improvements in both design and functioning, and services and facilities provided by Gordon Head, were indicated. The information obtained is of much

significance in providing enlightenment regarding: (1) existing facilities which can yet be improved to the satisfaction of occupants, and (2) items which can be incorporated into future designs to further enhance user satisfaction levels.

The following, final chapter outlines recommendations suggested as a result of the research. Recommendations are made regarding several different aspects of student residences, particularly Gordon Head. Some suggestions could be incorporated into existing facilities while others may only be utilized in future structures.

Footnotes

[1]It seems to be an unwritten law that those discussing the social influences of the built environment must cite this quotation of Churchill's. For example, see: William Michelson, *Man and His Urban Environment: A Sociological Approach* (Reading, Mass.: Addison-Wesley, 1970), p. 168; Thomas F. Saarinen, *Environmental Planning: Perception and Behavior* (Boston: Houghton Mifflin, 1976), p. 45; and J. Douglas Porteous, *Environment and Behavior: Planning and Everyday Urban Life* (Reading, Mass.: Addison-Wesley, 1977), p. 181.

CHAPTER 8

IMPLICATIONS

> All aspects of the environment exist for us only so far as they are related to our purposes. If you leave out human significance, you leave out all constancy, all repeatability, all form.
>
> H. Cantril[1]

The preceding chapters report an evaluation of the Gordon Head Residence. This concluding chapter outlines the implications of the research. Recommendations for improving the present facilities, and suggestions for future residences, are made. Limitations of the present research, and further research suggestions follow.

8.1 Discussion

The results presented in Chapters 4 through 7 reveal the relationship between the components of the building design process that were investigated. As outlined in Figure 3.1, the ideal process is cyclical. The three aspects of that process investigated in the present study, namely design intentions, satisfactions, and future preferences, have a direct influence upon each other. The results revealed that specific intentions dictated the design which was developed, and thus the buildings which were eventually constructed, although design and construction were both subject to financial constraints. Further, the needs, desires, and preferences of the users, and the performance of the buildings, influenced the users' satisfaction and future preferences. The final

stage of the process, in which feedback is provided for future design projects, is realized in the recommendations made in the following section.

The research also attempted to bridge some of the gaps noted in the user-client relationship (Figure 2.1). The role of the social scientist in attempting to bridge gaps between user-clients and both (1) architects and (2) paying clients was noted. The present research provides information on user-clients' feelings regarding the design of Gordon Head to the two parties responsible for that design, in an effort to perform this bridging function.

The several goals intended in the design of Gordon Head Residence met with varying degrees of success (Table 8.1). This success is primarily measured not in how well each goal was incorporated into the residence's design, but in how satisfactory each design goal was rated by residents of the dormitory. In some instances, however, the effectiveness with which each goal was incorporated into the design influenced this satisfaction. Recommendations made in the following section reflect these results.

Several important goals were extremely successful in satisfying the users of the residence. For instance, the provision of single-occupancy rooms, of partially coeducational living arrangements in which the sexes maintained a moderate level of segregation, and the inclusion of private telephone facilities for each resident were all very successful design goals. Further, the single lounge concept of Wilson and Haig-Brown Halls, the size of social groupings in the residence, and several aspects of individuals' rooms were found quite satisfactory by

TABLE 8.1: THE SUCCESS OF VARIOUS DESIGN GOALS

Extremely Successful:

1. Single-occupancy rooms
2. Partially coeducational living arrangements
3. Private telephones
4. Single lounges in Wilson and Haig-Brown Halls
5. Adequate size of individual's rooms
6. Attractive room interior
7. Adequate room illumination
8. Attractive room furniture
9. Adequate size of social groupings
10. Homey/abuse-free atmosphere
11. Academic atmosphere for Haig-Brown Hall
12. Adequate parking space
13. Roads for facilitating baggage handling, etc.
14. Accessibility to campus

Moderately Successful:

1. Compatibility with the rest of the campus
2. Externally attractive
3. Living conditions adaptable for use by both sexes
4. Number of buildings
5. Size of buildings
6. Density (number per floor)
7. Attractive internal 'common' areas
8. Adaptable rooms
9. Individual room temperature controls
10. General lounge-special function room
11. Television rooms

Unsuccessful:

1. Dormitory style of residence
2. Provision of food services
3. Soundproofing
4. Integration of the three halls of Gordon Head
5. Location of services and facilities
6. "Jogs" to reduce monotony and enhance orientation
7. Ease in orientation
8. Limited vertical circulation
9. Intercom-lock security system
10. Integration of elevator and washrooms for handicapped persons
11. Provision of elevator
12. Double lounges in Wallace Hall
13. Window size in individual's rooms
14. Laundry facilities
15. Typing rooms
16. Covered access to Commons Building

the users. These examples all reflect instances of user-design congruity.

Other design goals achieved only moderate degrees of success. Some of these intentions failed by not being incorporated into the design in a manner which induced complete resident satisfaction. For instance, individuals' rooms were not fully adaptable to all forms of personalization, temperature control in residents' rooms was subject to Housing Service's overall control, and, although the general lounge-special function room in Wallace Hall adequately fulfilled its intended purpose, it was located where bothersome noise could disseminate to residents' rooms. Other intentions were not entirely successful because of the financial constraints imposed upon the development of the dormitory. For example, the number and size of buildings constructed, the density of each floor of the residence, and the external appearance of the buildings were all altered from the original goals because of financial problems. Therefore, the goals were not totally realized, and varying degrees of resident satisfaction or dissatisfaction resulted.

Finally, several goals intended in Gordon Head Residence were unsuccessful. These failures are a result of financial restrictions, misinterpretations of residents' preferences, or unsuccessful aspects of the actual design. In the former instance, inadequate soundproofing, and the loss of the covered access to the Commons Building, were both unsuccessful intentions because of financial constraints. The adoption of a dormitory style of residence, the location of services and facilities, the non-integration of the three halls comprising Gordon Head, and the design-induced, limited vertical movements of residents are

examples of the misinterpretation of residents' preferences. Finally, the double lounge concept of Wallace Hall, the misplacing of the elevator and washrooms for handicapped persons, the inadequate intercom-lock security system, and the failure of the "jogs" to reduce monotony and enhance orientation, are examples of inappropriate aspects of the actual design.

The student residence research discussed in Chapter 2 was primarily non-evaluative. The present study attempted to adopt an evaluative component, although incorporating all three levels discussed in the scalar overview of literature. For example, at the macro-scale, a limited attempt was made to investigate the influence of design on friendship formation, although friendship formation patterns were not specifically assessed. In contrast to results found by Martin (1974) in other dormitories, residents indicated that the design of Gordon Head had little influence upon their friendship formations. This was especially true of younger residents. Observation of this activity, however, contradicted this stated response, and more closely paralleled Martin's findings. As well, as Moos and Otto (1975) discovered, the coeducational living arrangements in Gordon Head appeared to foster healthier and more mature social relationships.

At the meso-scale, mismatches between design and behavior were evident, as past research has also found. However, the impact of different designs upon behavior could not be assessed as only a single design type was studied. At the smallest scale, the internal characteristics of rooms were investigated although different aspects of rooms were studied than in past micro-scale research. For example, the

present study could not assess roommate conditions (an important area in much past research), because all rooms were single occupancy.

The present research is different from most previous studies in one other respect. Past research focussed upon specific overt behaviors, and has ignored the satisfactions and preferences of occupants. The present study attempted to focus more directly upon this latter consideration. The research does, however, lack the comparative component of some studies, such as those done by Corbett (1973a, 1973b), Sommer (1968), and Ankele and Sommer (1973). These researchers investigated different residence types; the present research assessed only the condition of a single dormitory.

The present research most closely parallels the study of Simon (1973), and the evaluation of Butterfield Hall (University of Rhode Island) by the Research and Design Institute (Friedmann, Zimring and Zube, 1978). In both instances, the same components, as assessed in the present study (intentions, preferences and satisfaction), were appraised. In these studies, design-behavior incongruities were elicited, and new facilities were planned with the added knowledge concerning residents' feelings and preferences. In all three cases, improving the design of future buildings was the major aim of the research.

8.2 Recommendations

Recommendations are presented in two parts. First, alterations to existing facilities are outlined; second, recommendations for future residences are made. Suggestions made for existing buildings apply also to buildings which may yet be constructed.

Recommendations are made on the basis of: (1) observed incongruities in the present designs; (2) suggestions made during interviews; (3) residents' stated satisfaction levels; and (4) residents' expressed preferences.

In the strictest sense, a building evaluation enables only the determination of the success of design goals incorporated into buildings which are evaluated (such as outlined in Table 8.1). However, as the ideal design process is cyclical, results may be utilized in a more applied manner. This involves the provision of recommendations concerning alterations to existing facilities.

In the previous chapter, residents indicated that they were willing to pay increased residence fees to improve on-campus living conditions. Representatives from Housing Services also expressed a desire to enhance resident satisfaction through the provision of adequate facilities. Considering this, recommendations are provided as an aid in the realization of these goals. As a portion of the university's budget is allocated to the maintenance of residences on campus, some costs may be covered by these funds.

Recommendations should take into account the expense of incorporating each suggestion. To fulfil this role, recommendations concerning existing buildings are presented in three groups. First, improvements which would lead to increased satisfaction and which are relatively inexpensive to incorporate are outlined (noted as type 1). Second, alterations which involve substantial costs, but which would greatly increase resident satisfaction, are presented (type 2). Finally, recommendations which would incur substantial costs, and which would

moderately increase satisfaction, are noted (type 3).

8.2.1 Recommendations for Existing Facilities

Recommendations made in this regard are more restricted in nature than those in the following section. They must necessarily take into account the great expense necessary for major alterations. Several of the suggestions for future developments could also be applied to present buildings, if financing allowed.

- Locks in end exitways of Wilson and Haig-Brown Halls should be changed to a type similar to that found in Wallace Hall. This will allow direct access from parking lots, and thus increase use of these doors [1].
- The intercom and lock security systems require improvement so that main entry doors will not prematurely release when residents respond to intercoms in their rooms [1].
- It is recommended that rooms designated for dons be located farther from stairwells and other noise-generating facilities, particularly in Wallace and Haig-Brown Halls. This would reduce excessive disturbances to dons [1].
- Typing rooms are virtually unused as they presently exist. Better use of them could be made by (1) providing typing equipment and making residents aware of their existence, or (2) altering these facilities into television rooms or other facilities [1].
- It is recommended that the male-female distribution system in the Halls be established permanently, and not altered yearly. This will enable the facilities to be better adapted to residents'

functioning in two ways: first, personalization of facilities will be more permanent; second, maintenance problems will be reduced [1].

- Gordon Head is most suited to older students (those in at least second year). Although increasing age generally reduced satisfaction with the residence, much discontent was due to the presence of younger residents. Occupancy should be restricted to older residents, or else to young residents only. In the latter case, future residences could be established for older residents [1].
- It is recommended that means be developed to increase the social integration of the three Halls comprising Gordon Head, if this is still a desired aspect of the residence on the part of Housing Services, and as students expressed dissatisfaction with the absence of such conditions [1].
- More efficient heating is essential for semi-private social areas, such as washrooms and hallways [2].
- Shower areas in washrooms should be made more private with partitions [2].
- A switchboard telephone system similar to those found in Craigdarroch and Lansdowne Residences should be incorporated into Gordon Head. This would primarily serve those residents unable to afford a private telephone [3].
- It is recommended that a covered access be built between the residence buildings and the Commons Building, as originally planned. This would shelter residents from unfavorable weather [3].
- If possible, washroom facilities in Wallace Hall should be adapted to enable handicapped persons to use them [3].

8.2.2 Recommendations for Future Designs

Recommendations made for future building construction projects reflect user preferences and desires. Suggestions in the previous section apply also to future buildings. In this section, costs are not considered since they can presumably be incorporated into the original design with no major increases in expense.

- An on-campus apartment block is recommended for the next building project. Failing this, suites are recommended.
- A cluster style of arranging residents, in which the sexes maintain partial segregation, should be maintained. In this manner, a coeducational atmosphere can be preserved, although adequate privacy will also be secured. As a secondary suggestion, completely coeducational facilities are preferable to single-sex residences.
- Rooms should be single occupancy in type. Much satisfaction is obtained from having a space of one's own.
- Regardless of the type of residence built, facilities should be available for residents to store and cook their own food. This corresponds well with the desire for on-campus apartments.
- If a fourth building is added to the Gordon Head complex, it should be so arranged that a 'quad' is created between the four buildings. This would facilitate interaction, and serve as an additional, open-air meeting place for residents.
- The external appearance of future buildings should be more congruent with other buildings on campus. User input could be advan-

tageous in fulfilling such a commitment.

- It is recommended that staggered entranceways be built to separate rooms from the main entranceways. All rooms should be protected from wind and cold, and provide privacy for residents. If possible, this improvement should also be made to existing facilities.
- Stairwells should be segregated from rooms and facilities. This will help reduce inconvenience due to noise.
- User orientation needs to be improved through whatever means possible. For instance, the inclusion of "jogs" in designs should be reconsidered.
- It is recommended that covered accessways join any new facilities with existing residence buildings, and with the Commons Building.
- Internal access should be provided to all services and facilities. This will make it easier to use facilities, increase use, and enhance residents' satisfaction.
- Buildings should be better soundproofed than those comprising Gordon Head. Soundproofing can be improved through better quality construction material. An acoustical consultant should be approached.
- Larger central floor lounges are favored over small lounges, intended to serve small portions of a floor's population. Lounges similar to those in Wilson and Haig-Brown Halls in Gordon Head, are favored over those in Wallace Hall.
- No elevator is necessary if buildings do not exceed four storeys. If handicapped persons are to be served, they should be allocated to existing washroom facilities located on the lower floor of

Wilson and Haig-Brown Halls. This allocation will also allow them to choose between an academic or a social residence atmosphere.

- Washrooms for the handicapped should be placed more conveniently than in existing facilities, or not included at all. If a sincere effort is to be made to serve handicapped persons on a large scale, the previous recommendation may be ignored.
- Any general lounges or special function rooms built (such as A150 in Wallace Hall) should be placed so that no resident's room is located directly adjacent to these facilities. Attention must be given to reducing inconveniences due to noise for residents located above these facilities.
- Larger windows in residents' rooms are required. If possible, two windows per room are recommended, to facilitate through ventilation.
- Social areas of the dormitory (washrooms, hallways, and so on) should be provided with heating adequate for residents' comfort.
- Services and facilities should be located more conveniently than they presently are in Gordon Head. In general, a more balanced and accessible distribution of facilities is recommended.
- More television rooms than presently found in Gordon Head should be provided. These should be readily available and accessible for use by all residents.
- A switchboard system, similar to that found in Lansdowne and Craigdarroch Residences, is recommended, in addition to provision for obtaining a private phone if a resident so desires. In this manner, all residents could be served, and emergencies efficiently handled.

- A better distribution of laundry facilities than found in Gordon Head is recommended. Laundry rooms should be smaller and should be distributed evenly throughout any residences which are built, rather than at a limited number of centralized locations.
- Food services provided in the Commons Building should be improved. Residents' input in such a procedure is desirable.
- A games room or physical fitness room could be provided for use by all residents. This would provide recreation and increase fitness and satisfaction. Facilities such as these could help to alleviate the high demand for use of the McKinnon Gymnasium.
- Provision must also be made for an area in which residents could study. A location similar to that found in Lansdowne Residence is recommended.
- It is strongly recommended that residents and potential users have a significant input in the design of future facilities. This should enhance the fit between user preferences and built environmental conditions.
- Further, consideration should be given to (1) residents' reasons for living in residence, (2) present levels of satisfaction, and (3) expressed preferences, in future residence developments.

The preceding recommendations are based on the results of the present study of Gordon Head. Some problems are apparent in the study, however, as will be discussed.

8.3 Problems and Limitations of the Research

A major limitation of the present research is that the author did not reside in the residence during the study. Living in Gordon Head would have (1) improved the author's understanding of the dormitory's functioning, (2) aided in data collection, and (3) made the author's presence less obtrusive, particularly during periods of observation. The focus of the research on the elicitation of attitude related concepts (preferences and satisfactions), rather than residents' behavior, may also be a problem. Although major attitude-behavior inconsistencies are not apparent, more emphasis would have been devoted to behavior observation if time had permitted.

A further problem is that initial intentions in the residence's design could not be tested. Many discrepancies exist between the designers' initial goals and the facilities eventually constructed. As a result, only final intentions could be tested. As well, some intentions, such as an integrated character among the three halls, were not built directly into the design. These goals are therefore difficult to assess.

Better priorization of goals by individuals who were interviewed would have improved results. Such a priorization should be established during the design process, rather than 'after the fact'. In this instance, interviewees attempted to outline and rank objectives one year after the construction of Gordon Head, and nearly four years after the planning of the residence.

Further, the views of residents of the other residences on campus (Craigdarroch and Lansdowne) would have permitted useful comparisons.

This is especially true concerning preferences for future facilities. The ideal study would elicit the views of all users, and those of the other dormitories, and provide comparative analysis. Temporal and financial constraints prevented such a major study, however.

8.4 Suggestions for Further Research

As suggested above, several avenues for further research exist. Results found in the present study should be replicated. The residence should be evaluated at several points in time, by various user groups, as indicated in Figure 2.2. Such time series research could elicit further user-design inconsistencies. This is expecially true if research were to focus upon residents' behavior. However, further satisfaction research is also required as a means of providing incremental improvements in residence hall design.

A study of the friendship formation patterns of Gordon Head residents could prove useful in assessing the impact of the design in influencing this behavior. Although residents indicated the design's influence to be minimal, observations of this behavior within the residence contradicted this response. Therefore, research on this aspect of Gordon Head is recommended.

In addition, future residences should incorporate the financially feasible recommendations made above concerning Gordon Head. Following completion of the facilities, new and existing buildings should be re-evaluated. This would permit an assessment of the success of recommendations made, and verification of present results. This procedure is outlined in Figure 2.2, in which continual evaluations are made of newly

constructed buildings. Gradually, improvements are incorporated into the design of these and future facilities.

A further potential research area is a comparative analysis of all three residences on campus. In particular, satisfying aspects of each design could be elicited and incorporated into future designs. As well, increased awareness of residents' preferences would result. The views of other residents on campus, especially regarding Gordon Head, would add much to the results already obtained.

Finally, the views of different user and non-user groups should be elicited. For instance, summer conference users, janitors, and maintenance personnel, all have important views regarding the success of a dormitory. These feelings, combined with the views of the primary users, the residents, could enable better assessment of the successful and unsuccessful aspects of Gordon Head Residence.

Several further research areas have been suggested. It is hoped that the present research has provided initial impetus to improve student living conditions at the University of Victoria. Increased resident satisfaction will be best obtained with incremental improvements in design, as a result of continual monitoring and evaluation of existing facilities.

8.5 Conclusions

This research has shown that, despite several successful aspects of Gordon Head Residence, much can yet be done to improve facilities to enhance resident satisfaction. The best way of improving conditions is through incremental improvements. Little by little, facilities are

altered, and their utility to users gradually increased. Continual re-evaluations assess the success of various alterations made.

In the case of student residences, alterations made at any one time have to be more major. The number of new residences likely to be constructed is small. Therefore, such frequent improvements cannot be made and evaluated. However, continual reassessment of existing facilities is feasible. Testing building utility to various users, over time, is an important way of providing the information necessary to improve conditions.

Modern man spends considerable portions of his time in building environments. To design such milieux without regard to users and their needs, has been traditional in western societies. Traditions are hard to break. However, a major role can be played by researchers in providing the information necessary to break such traditions. Designers must then take the initiative and make use of the data supplied by such user-oriented evaluation studies.

Student residences represent a significant aspect of university life. Not only is space provided for young adults to reside in, but the maturation of those persons is fostered. Physically, socially, and academically, the resident undergoes important development. The conditions provided for this development should be optimal, and provide utmost satisfaction. Designs should meet user needs.

The conditions provided in Gordon Head are not wholly successful in meeting user needs. Some aspects of the dormitory evoke dissatisfaction, while others do elicit satisfaction. In this respect, much improvement can yet be made in the conditions provided in Gordon Head.

The research outlined has indicated some aspects of resident-building incongruity, and made several recommendations to heighten user satisfaction. It is hoped that university officials will consider these recommendations when designing future halls of residence. A copy of the thesis is being forwarded for consideration to the university's Committee on Campus Development.

Footnotes

[1]H. Cantril, cited in David Lowenthal, "Geography, Experience, and Imagination: Towards a Geographical Epistemology," *Annals of the Association of American Geographers*, 1961, 51:246.

Sewell, W.R. Derrick and James T. Coppock (eds.) (1977) *Public Participation in Planning*. New York: John Wiley and Sons.

Simon, Joan C. (1973) "The Value of User Evaluation Studies to the Design Process," in Preiser (ed.) *Environmental Design Research, Edra 4*, Stroudsburg, Pa.: Dowden, Hutchinson and Ross, pp. 348-358.

Sloan, S.A. (1972) "Translating Psycho-Social Criteria into Design Determinants," in Mitchell (ed.), *Environmental Design: Research and Practice*. Los Angeles: University of California, pp. 14.5.1-14.5.10.

Sommer, Robert (1968) "Student Reactions to Four Types of Residence Halls." *Journal of College Student Personnel*, 4:232-237.

Sommer, Robert (1971) "The New Evaluator Cookbook." *Design and Environment*, 2(4):35-37, 59.

Sommer, Robert (1972) *Design Awareness*. Corte Madera, California: Rinehart.

Sommer, Robert (1974) *Tight Spaces: Hard Architecture and How to Humanize It*. Englewood Cliffs, N.J.: Prentice-Hall.

Sprout, H. and M. Sprout (1957) "Environmental Factors in the Study of International Politics." *Journal of Conflict Resolution*, 1(4):309-328.

Stea, D. and R.M. Downs (1970) "From the Outside Looking In at the Inside Looking Out." *Environment and Behavior*, 2(1):3-12.

Stockham, David H. (1974) "A Comparison of Attitudes Between Students Living in Coeducational and Non-Coeducational Housing and A Pre and Post Assessment of Academic Performance of Coed Residences." Unpublished Ed.D. Dissertation, University of Kentucky.

Suchman, E.A. (1967) *Evaluative Research*. New York: Russell Sage Foundation.

Sweeney, Michael (1978) "Who Designs the Built Environment: A Model for Public Awareness in Environmental Design," in W.E. Rogers and W.E. Ittelson (eds.), *New Directions in Environmental Design Research, Edra 9*, Tuscon, Arizona: University of Arizona, pp. 499-510.

Trindis, H.C. (1971) *Attitude and Attitude Change*. Toronto: John Wiley and Sons.

Tuan, Y.-F. (1967) "Attitudes Toward Environment: Themes and Approaches," in D. Lowenthal (ed.), *Environmental Perception and Behavior*. Chicago: University of Chicago, Department of Geography Research Paper No. 109, pp. 4-17.

Tuan, Y.-F. (1968) "Discrepancies Between Environmental Attitudes and Behavior." *Canadian Geographer*, 12:176-191.

Tuan, Y.-F. (1972) "Environmental Psychology: A Review." *The Geographical Review*, 62:245-256.

Turner, John F.C. (1977) *Housing by People: Towards Autonomy in Building Environments*. New York: Pantheon Books.

Tushup, Richard John (1977) "Heterosexual Behavior as a Function of Proximity in Living Space." Unpublished Ph.D. Dissertation, University of Delaware.

Ulrich, Roger S. (1978) "Visual Landscape and Psychological Well-Being." *Landscape Research*, 3(3) (Summer, 1978).

University of Victoria, Gordon Head Project Planning Committee, *Programme of Requirements for Additional Dormitory Type Student Residences*. May 13, 1975 and Revised July 23, 1975.

Valins, S. and A. Baum (1973) "Residential Group Size, Social Interaction, and Crowding." *Environment and Behavior*, 5(4):421-439.

Wandersman, Abraham (1976) "Applying Humanism, Behaviorism, and a Broader Social Development View to Understanding and Researching the Design Process," in P. Suedfeld and J.A. Russell (eds.), *The Behavioral Basis of Design*. Stroudsburg, Pa.: Dowden, Hutchinson and Ross, pp. 9-20.

Wandersman, Abraham (1979) "User Participation in Planning Environments: A Conceptual Approach." *Environment and Behavior*, 11(4):465-482.

Webb, Eugene J., Donald T. Campbell, Richard D. Schwartz and Lee Sechrest (1969) *Unobtrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.

Wheeler, Lawrence (1972) "Student Reactions to Campus Planning Options: A Regional Comparison," in Mitchell (ed.) *Environmental Design: Research and Practice*. Los Angeles: University of California, pp. 12.8.1-12.8.9.

White, G.F. (1972) "Geography and Public Policy." *The Professional Geographer*, 24(2):101-104.

Wicker, Allan (1979) *An Introduction to Ecological Psychology*. Monterey, California: Brooks/Cole.

Worchel, Stephen and Joel Cooper (1976) *Understanding Social Psychology*. Homewood, Illinois: The Dorsey Press.

Wright, James R. (1971) "Performance Criteria in Buildings." *Scientific American*, 224(3):17-25.

Yancey, W.L. (1978) "Architecture, Interaction, and Social Control," in Stephen Kaplan and Rachel Kaplan (eds.), *Humanscape: Environments for People*. North Scituate, Mass.: Duxbury, pp. 293-307.

Yeates, M. and B. Garner (1971) *The North American City*. New York: Harper and Row.

Zeisel, John (1974) "Fundamental Values in Planning With the Nonpaying Client," in J. Lang et al. (eds.), *Designing for Human Behavior: Architecture and the Behavioral Sciences*. Stroudsburg, Pa.: Dowden, Hutchinson and Ross, pp. 293-301.

Zeisel, John (1975) *Sociology and Architectural Design*. Social Science Frontiers Occasional Publications Reviewing New Fields for Social Science Development, New York: Russell Sage Foundation.

Addenda:

Rokeach, M. (1967) "Attitude Change and Behavior Change." *Public Opinion Quarterly*, 30:529-550.

Rokeach, M. (1970) *Beliefs, Attitudes and Values*. San Francisco: Jossey-Bass Inc.

APPENDIX A

OBSERVATION SCHEDULES AND QUESTIONNAIRE

BUILDING

GORDON HEAD
OBSERVATION SCHEDULE 1a

STARTING POINT

DAY OF WEEK | DATE | STARTING TIME | WEATHER

LOCATION	ACTIVITIES	NUMBER AND SEX OF ACTORS	
		NO. OF MALES	NO. OF FEMALES
TYPING ROOM			
STAIRWELL			
RES LAUNDRY			
WALKWAY			
HALLWAY			
LAUNDRY			
LOUNGE			
MAIL ROOM			
FOYER			
T.V. ROOM			
WALKWAY			
RES LAUNDRY			
TYPING ROOM			

ADDITIONAL COMMENTS:

BUILDING

GORDON HEAD
OBSERVATION SCHEDULE 1b

STARTING POINT

DAY OF WEEK | DATE | STARTING TIME | WEATHER

LOCATION	ACTIVITIES	NUMBER AND SEX OF ACTORS	
		NO. OF MALES	NO. OF FEMALES
STAIRWELL			
LOUNGE			
HALLWAY			
WASHROOM			
FOYER			
ELEVATOR			
STAIRWELL			
HALLWAY			
LOUNGE			
STAIRWELL			
LOUNGE			
HALLWAY			
WASHROOM			
FOYER			

ADDITIONAL COMMENTS:

BUILDING

CORDON HEAD
OBSERVATION SCHEDULE 1c

STARTING POINT

DAY OF WEEK | DATE | STARTING TIME | WEATHER

LOCATION	ACTIVITIES	NUMBER AND SEX OF ACTORS	
		NO. OF MALES	NO. OF FEMALES
STAIRWELL			
ELEVATOR			
HALLWAY			
LOUNGE			
STAIRWELL			
LOUNGE			
HALLWAY			
WASHROOM			
FOYER			
ELEVATOR			
STAIRWELL			
HALLWAY			
LOUNGE			
STAIRWELL			

ADDITIONAL COMMENTS:

BUILDING

GORDON HEAD
OBSERVATION SCHEDULE 2a

STARTING POINT

DAY OF WEEK | DATE | STARTING TIME | WEATHER

LOCATION	ACTIVITIES	NUMBER AND SEX OF ACTORS	
		NO. OF MALES	NO. OF FEMALES
STAIRWELL			
HALLWAY			
WASHROOM			
LOUNGE			
LOBBY			
STAIRWELL			
FOYER			
HALLWAY			
STAIRWELL			
HALLWAY			
WASHROOM			
LOBBY			
LOUNGE			

ADDITIONAL COMMENTS:

BUILDING

CORDON HEAD
OBSERVATION SCHEDULE 2b

STARTING POINT

DAY OF WEEK | DATE | STARTING TIME | WEATHER

LOCATION	ACTIVITIES	NUMBER AND SEX OF ACTORS	
		NO. OF MALES	NO. OF FEMALES
STAIRWELL			
HALLWAY			
STAIRWELL			
HALLWAY			
WASHROOM			
LOUNGE			
LOBBY			
STAIRWELL			
HALLWAY			
STAIRWELL			

ADDITIONAL COMMENTS:

GORDON HEAD RESIDENCE HALL
EVALUATION QUESTIONNAIRE

I AM A GEOGRAPHY GRADUATE STUDENT INTERESTED IN STUDENTS' FEELINGS REGARDING THEIR LIVING CONDITIONS. AS YOU MAY KNOW, STUDENTS WERE INVOLVED IN THE PLANNING AND DESIGN OF GORDON HEAD RESIDENCE. I WISH TO INVESTIGATE YOUR SATISFACTION WITH VARIOUS ASPECTS OF GORDON HEAD AS A MEANS OF EVALUATING THE DORM. THIS STUDY IS BEING DONE AS MY MASTERS THESIS.

PLEASE ANSWER ALL QUESTIONS FULLY AND TO THE BEST OF YOUR ABILITY. ALL INFORMATION WILL BE TREATED WITH THE STRICTEST CONFIDENCE AND ALL RESPONDENTS WILL REMAIN ANONYMOUS. PLEASE DO NOT PUT YOUR NAME ON THIS FORM.

YOUR RESPONSES WILL HAVE IMPLICATIONS FOR FUTURE RESIDENCE HALL DEVELOPMENT AS GENERAL CONCLUSIONS AND FINDINGS WILL BE FORWARDED TO UNIVERSITY OFFICIALS FOR CONSIDERATION IN FUTURE DORMITORY DESIGN. THEREFORE, PLEASE READ ALL STATEMENTS CAREFULLY.

FEEL FREE TO CONTACT ME IF YOU WOULD LIKE MORE INFORMATION ON THE RESULTS OF THE SURVEY.

DEREK STURKO, GEOGRAPHY

INTERVIEW NUMBER: _____

INTERVIEWER: _____

TIME: _____

DATE: _____

INTERVIEW LOCATION: _____

PART A

PLEASE ANSWER THE FOLLOWING QUESTIONS TO HELP IDENTIFY THE KIND OF PEOPLE WHO LIVE IN GORDON HEAD.

1. Hall you reside in: _____ Robert Wallace Hall (A)
   _____ Richard Wilson Hall (B)
   _____ Roderick Haig-Brown Hall (C)

   Room Number: _____

2. Sex: Male _____ Female _____

   Present Age: _____ Year of Study: 1 ☐ 2 ☐ 3 ☐ 4+ ☐ Grad Studies ☐

3. Do you have a car at U. Vic. ? Yes _____ No _____

4. Counting this year, how many years have you lived in a residence at a university ? _____

5. Which of these situations best describes your living conditions during most of your life ?

   _____ one family dwelling
   _____ multiple family dwelling (eg: duplex, condominium)
   _____ apartment
   _____ institution (eg: residence hospital, orphanage)
   _____ other (please specify)

   a) How many rooms were in the house, apartment or institution where you lived most of your life ? _____

   b) How many people normally resided in the house, apartment or institution where you lived ? _____

   c) How many people shared the room you occupied in that dwelling ? _____

6. PLEASE RATE THE IMPORTANCE OF EACH OF THE FOLLOWING REASONS IN INFLUENCING YOUR DECISION TO LIVE IN RESIDENCE. PLEASE NOTE THAT ON THE FOLLOWING SCALES: 1=VERY IMPORTANT, 2=MODERATELY IMPORTANT, 3=SLIGHTLY IMPORTANT, 4=SLIGHTLY UNIMPORTANT, 5=MODERATELY UNIMPORTANT, AND 6=VERY UNIMPORTANT. CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS

VERY IMPORTANT					VERY UNIMPORTANT	
1	2	3	4	5	6	convenience
1	2	3	4	5	6	accessibility to campus services
1	2	3	4	5	6	to live with friends
1	2	3	4	5	6	to make new friends
1	2	3	4	5	6	greater participation in university activities

VERY IMPORTANT					VERY UNIMPORTANT	
1	2	3	4	5	6	better living conditions
1	2	3	4	5	6	better study conditions
1	2	3	4	5	6	it's all I could afford
1	2	3	4	5	6	my parents' influence
1	2	3	4	5	6	easier adjustment to university life
1	2	3	4	5	6	no alternatives available to me

If you have any additional reasons, please briefly state them _____

_____

GENERAL INSTRUCTIONS FOR PARTS B, C, AND D.

THE REMAINDER OF THE QUESTIONNAIRE REQUIRES YOU TO INDICATE YOUR LEVEL OF AGREEMENT WITH SEVERAL STATEMENTS ABOUT CORDON HEAD. INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 TO 6. PLEASE NOTE THAT 1=STRONGLY AGREE, 2=MODERATELY AGREE, 3=SLIGHTLY AGREE, 4=SLIGHTLY DISAGREE, 5=MODERATELY DISAGREE, AND 6=STRONGLY DISAGREE. INDICATE YOUR LEVEL OF AGREEMENT BY CIRCLING THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS. IF YOU HAVE NO OPINION ABOUT ANY OF THE STATEMENTS, PLEASE WRITE 'NO OPINION' ACROSS IT.

7. PLEASE INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 (STRONGLY AGREE) TO 6 (STRONGLY DISAGREE). CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS.

	STRONGLY AGREE					STRONGLY DISAGREE
I had total influence in the choice of my residence hall and room.	1	2	3	4	5	6
It was difficult for me to adjust to residence life from where I lived before.	1	2	3	4	5	6

PART B

180

THE FOLLOWING SECTION REQUIRES YOU TO EVALUATE SEVERAL PHYSICAL ASPECTS OF THE DESIGN OF GORDON HEAD. PLEASE INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 (STRONGLY AGREE) TO 6 STRONGLY DISAGREE). CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS.

	STRONGLY AGREE					STRONGLY DISAGREE
1. The exterior appearance of Gordon Head is attractive.	1	2	3	4	5	6
2. The interior appearance of Gordon Head is attractive.	1	2	3	4	5	6
3. Finding my way around in Gordon Head is difficult.	1	2	3	4	5	6
4. Gordon Head residence is well soundproofed.	1	2	3	4	5	6
5. Having all services and facilities in Robert Wallace Hall is inconvenient.	1	2	3	4	5	6
6. The mixed (male/female) floor styles are inconvenient.	1	2	3	4	5	6
7. The distribution of garbage chutes throughout Gordon Head is adequate.	1	2	3	4	5	6
8. The Gordon Head residences 'fit in' well architecturally with the rest of campus. .	1	2	3	4	5	6
9. My accessibility to the rest of campus is adequate.	1	2	3	4	5	6
10. The general lounge/special function room in Robert Wallace Hall (A Block) is adequate.	1	2	3	4	5	6
11. The lounge on my floor is convenient.	1	2	3	4	5	6
12. The typing rooms in Gordon Head are inadequate.	1	2	3	4	5	6
13. The laundry rooms in Gordon Head are satisfactory.	1	2	3	4	5	6
14. Having a single room is important to me. .	1	2	3	4	5	6
15. The size of my room is inadequate.	1	2	3	4	5	6
16. The interior finish of my room is attractive.	1	2	3	4	5	6

	STRONGLY AGREE					STRONGLY DISAGREE
17. Controlling the temperature in my room is difficult.	1	2	3	4	5	6
18. The window in my room is inadequate.	1	2	3	4	5	6
19. Lighting in my room is adequate.	1	2	3	4	5	6
20. The furniture in my room is satisfactory..	1	2	3	4	5	6
21. It is difficult to personalize my room. ..	1	2	3	4	5	6
22. ROBERT WALLACE RESIDENTS ONLY The elevator in Gordon Head is adequate.	1	2	3	4	5	6

PART C

THE FOLLOWING SECTION REQUIRES YOU TO EVALUATE SEVERAL OF THE SERVICES AND FACILITIES IN GORDON HEAD. PLEASE INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 (STRONGLY AGREE) TO 6 (STRONGLY DISAGREE). CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS.

	STRONGLY AGREE					STRONGLY DISAGREE
1. Food services are adequate.	1	2	3	4	5	6
2. Food services are easily accessible to me.	1	2	3	4	5	6
3. Parking facilities for Gordon Head residents are inadequate.	1	2	3	4	5	6
4. The roads around Gordon Head are of much help in baggage handling (for example, when moving in).	1	2	3	4	5	6
5. The intercom system in Gordon Head is inconvenient.	1	2	3	4	5	6
6. The lock security system in Gordon Head is inconvenient.	1	2	3	4	5	6
7. Having access to my own telephone is a convenience.	1	2	3	4	5	6
8. The services in Gordon Head (laundry, garbage, etc.) are generally good.	1	2	3	4	5	6

PART D

THE FOLLOWING SECTION REQUIRES YOU TO EVALUATE SEVERAL ASPECTS OF THE SOCIAL ENVIRONMENT OF GORDON HEAD. PLEASE INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 (STRONGLY AGREE) TO 6 (STRONGLY DISAGREE). CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS.

	STRONGLY AGREE					STRONGLY DISAGREE
1. In my opinion, all of the halls in Gordon Head are closely integrated.	1	2	3	4	5	6
2. Friendships are strongly influenced by the design of the dorm.	1	2	3	4	5	6
3. Crowding is a problem in Gordon Head residence.	1	2	3	4	5	6
4. The number of people per floor in Gordon Head is too high.	1	2	3	4	5	6
5. People's movements and activities in Gordon Head are commonly disruptive to me.	1	2	3	4	5	6
6. Studying is difficult in Gordon Head due to noise interruptions.	1	2	3	4	5	6
7. Lounges are not frequently used in my hall.	1	2	3	4	5	6
8. HAIG-BROWN RESIDENTS ONLY The academic atmosphere of my residence is well maintained.	1	2	3	4	5	6

PART E

THE FOLLOWING, FINAL SECTION REQUIRES YOU TO PROVIDE A GENERAL RATING OF THE RESIDENCE AND AN INDICATION OF PREFERENCES FOR FUTURE RESIDENCE HALL DESIGNS.

1. PLEASE INDICATE HOW STRONGLY YOU AGREE WITH THE FOLLOWING STATEMENTS ON A SCALE OF 1 (STRONGLY AGREE) TO 6 (STRONGLY DISAGREE). CIRCLE THE RESPONSE WHICH BEST DESCRIBES YOUR FEELINGS.

	STRONGLY AGREE					STRONGLY DISAGREE
a. Considering everything, Gordon Head residence fulfills my needs.	1	2	3	4	5	6
b. Considering everything, I am extremely satisfied with my present living conditions.	1	2	3	4	5	6

2. ASSUMING ALL ARE THE SAME EXPENSE, PLEASE INDICATE YOUR ORDER OF PREFERENCE FOR THE FOLLOWING RESIDENCE TYPES. 1 WILL EQUAL YOUR MOST PREFERRED, 2 YOUR 2ND MOST PREFERRED, AND SO ON. 183

_____ dormitory (long, straight hallway arrangement)
_____ dormitory (suite arrangement - with several residents sharing kitchen and dining facilities)
_____ on-campus apartment
_____ off-campus apartment
_____ shared house
_____ other (please specify)

3. PLEASE INDICATE YOUR ORDER OF PREFERENCE FROM 1 (MOST PREFERRED) TO 3 (LEAST PREFERRED) FOR THE FOLLOWING RESIDENCE STYLES.

_____ completely coeducational (people assigned to rooms irrespective of sex)
_____ partially coeducational (people assigned to rooms in clusters based on sex, for example: at corridor ends like Gordon Head)
_____ single sex residence (the entire residence is composed of either males or females)

4. IF YOU ARE FAMILIAR WITH ALL THE RESIDENCES ON CAMPUS, AND ASSUMING YOU WERE TO SELECT YOUR LIVING QUARTERS, RANK THE FOLLOWING CHOICES FROM 1 (MOST PREFERRED) TO 3 (LEAST PREFERRED). INDICATE YOUR REASONS.

( ) Lansdowne _____

_____

( ) Gordon Head _____

_____

( ) Craigdarroch _____

_____

5. NAME FACILITIES WHICH ARE NOT IN GORDON HEAD NOW, BUT WHICH YOU FEEL COULD BE IMPORTANT FOR ENJOYABLE RESIDENCE LIVING. IF YOU HAVE INSUFFICIENT SPACE, PLEASE USE THE BACK OF THIS PAGE.

6. WHAT DESIGN IMPROVEMENTS WOULD YOU SUGGEST TO THE ARCHITECT TO MAKE GORDON HEAD MORE COMFORTABLE. SUGGEST AS MANY ALTERATIONS AS YOU FEEL ARE NECESSARY. INDICATE REASONS FOR YOUR CHOICE. IF YOU HAVE INSUFFICIENT SPACE, PLEASE USE THE BACK OF THIS PAGE. 184

7. WHAT PERCENTAGE INCREASE IN RESIDENCE FEES WOULD YOU BE WILLING TO PAY IN ORDER TO ENSURE HIGHER LIVING STANDARDS AND TO ENABLE THE IMPROVEMENTS YOU FEEL ARE NECESSARY.

8. DO YOU HAVE ANY ADDITIONAL COMMENTS ON GORDON HEAD RESIDENCE OR THIS QUESTIONNAIRE ? IF YOU HAVE INSUFFICIENT SPACE, PLEASE USE THE BACK OF THIS PAGE.

THANK YOU VERY MUCH

APPENDIX B

QUESTIONNAIRE MEAN RESPONSES FOR POPULATION SUBGROUPS

TABLE 1: INTENTIONS IN LIVING IN RESIDENCE BY SEX, HALL, AGE, AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Convenience	1.47	1.57	1.36	1.38	1.74	1.28	1.71	1.55	1.37	1.19	1.55	1.51	1.35	1.59	1.50	1.14
Accessibility	2.03	2.18	1.87	1.67	2.42	2.00	2.13	2.13	2.07	1.67	2.11	2.07	1.94	2.33	2.00	1.52
To live with friends	3.33	3.33	3.32	3.25	3.54	3.20	3.74	3.26	3.33	3.07	3.41	3.11	3.44	3.91	3.13	2.66
To make new friends	2.32	2.43	2.21	2.41	2.08	2.48	1.92	2.44	2.35	2.37	2.24	2.31	2.44	2.02	2.55	2.41
Participation	3.23	3.43	3.12	3.00	3.08	3.60	2.63	3.56	3.05	3.41	3.18	3.27	3.27	2.80	3.58	3.35
Better accommodation	4.08	4.03	4.13	4.00	4.32	3.96	4.33	4.04	4.16	3.81	4.09	4.23	4.00	4.36	4.02	3.68
Better study accommodation	3.46	3.50	3.42	3.49	3.74	3.14	2.63	3.52	3.37	3.35	3.56	3.33	3.51	3.55	3.53	3.12
All respondent could afford	4.57	4.48	4.67	4.70	4.49	4.54	4.74	4.39	4.70	4.60	4.38	4.84	4.51	4.65	4.41	4.83
Parents' influence	4.96	5.12	4.80	4.71	4.76	5.40	4.46	4.76	5.02	5.67	4.51	5.00	5.42	4.87	4.86	4.38
Adjustment to university	3.48	3.50	3.51	3.63	3.42	3.40	2.83	3.65	3.44	3.70	3.15	3.71	3.71	3.24	3.84	3.17
No available alternatives	4.73	4.70	4.76	4.84	4.38	4.98	4.58	4.74	4.50	5.15	4.69	4.62	4.85	4.60	4.73	5.00
Importance of a single room	1.25	1.29	1.20	1.20	1.34	1.20	1.17	1.35	1.23	1.11	1.27	1.36	1.12	1.21	1.31	1.17

* Includes 4th year, 5th year, and graduate students.

TABLE 2: PERCEIVED INFLUENCE IN ROOM AND SELECTION, AND DIFFICULTY IN ADJUSTING TO RESIDENCE LIFE, BY SEX, HALL, AGE, AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Influence in choice of room and residence	38.85	3.72	3.98	4.12	4.00	3.41	3.83	3.93	.379	3.82	3.72	3.89	3.90	3.91	3.92	3.48
Difficulty in adjusting to university	2.36	2.40	2.32	2.34	2.16	2.58	2.46	2.26	2.35	2.52	2.18	2.33	2.55	2.39	2.38	2.21

* Includes 4th year, 5th year, and graduate students

TABLE 3: SATISFACTION WITH PHYSICAL AND DESIGN ASPECTS OF GORDON HEAD RESIDENCE, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Architectural fit	2.78	2.86	2.70	2.70	2.88	2.77	2.46	2.91	2.78	2.85	2.80	2.63	2.94	2.80	2.89	2.94
Access to campus	1.69	1.83	1.55	1.66	1.74	1.66	1.75	1.69	1.54	1.82	1.73	1.58	1.76	1.82	1.64	1.52
External appearance	2.66	2.67	2.65	2.56	2.84	2.58	2.75	2.62	2.74	2.52	2.71	2.76	2.55	2.55	2.81	2.45
Internal appearance	2.87	3.01	2.72	2.84	2.98	2.78	2.75	2.75	2.95	3.04	2.73	2.91	3.02	2.79	2.92	2.83
Ease of orientation	2.78	2.81	2.75	2.64	3.26	2.44	2.33	3.09	2.67	2.63	2.71	2.91	2.78	2.78	2.94	2.38
Soundproofing	5.64	5.60	5.68	5.67	5.70	5.54	5.70	5.60	5.72	5.59	5.72	5.62	5.63	5.62	5.64	5.66
Alternating sex floor patterns	1.61	1.55	1.68	1.80	1.69	1.34	1.35	1.71	1.47	1.85	1.61	1.56	1.63	1.49	1.73	1.55
Elevator (A Block)	2.50	2.74	2.26	2.50	-	-	2.44	2.42	2.33	2.75	2.76	2.29	2.62	2.45	2.71	2.00
Services/ facilities	3.28	3.16	3.39	2.37	3.72	3.72	3.04	3.33	3.30	3.39	3.38	3.20	3.27	3.23	3.40	3.07
Floor lounges	2.49	2.56	2.41	3.66	2.06	1.74	2.38	2.67	2.02	2.93	2.58	2.16	2.63	2.66	2.31	2.48
Special function room	3.13	3.35	2.92	3.32	3.12	2.96	3.00	3.00	3.12	3.58	3.04	2.84	3.48	2.93	3.09	3.57
Garbage chute distribution	2.77	2.89	2.65	2.86	2.96	2.50	2.42	2.79	2.69	3.19	2.45	2.59	3.20	2.84	2.76	2.69
Laundry rooms	2.85	2.68	3.01	2.44	3.18	2.92	3.13	2.89	2.79	2.63	3.06	2.80	2.65	2.91	2.81	2.76
Typing rooms	3.81	3.89	3.72	3.52	4.35	3.60	4.21	3.44	3.86	4.18	3.79.	3.53	4.07	3.73	3.72	4.13

* Includes 4th year, 5th year, and graduate students.

TABLE 4: SATISFACTION WITH DESIGN ASPECTS OF RESIDENTS' ROOMS, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Room size	2.59	2.61	2.51	2.34	2.76	2.68	2.67	2.47	2.63	2.74	2.46	2.56	2.82	2.52	2.50	2.97
Room interior	2.89	3.00	2.79	2.84	3.10	2.74	3.08	2.93	2.72	2.93	3.04	2.60	3.04	2.89	3.16	2.35
Room window	3.64	3.66	3.61	3.46	3.70	3.75	3.54	3.57	3.67	3.69	3.50	3.58	3.90	3.79	3.49	3.59
Room light	2.59	2.68	2.49	2.12	2.82	2.82	2.46	2.58	3.84	2.33	2.56	2.62	2.61	2.52	2.78	2.28
Temperature control	2.23	2.82	2.19	2.50	2.26	1.94	2.75	2.07	2.21	2.15	2.56	1.93	2.16	2.32	2.36	1.83
Room furniture	2.39	2.68	2.09	2.52	2.38	2.26	2.54	2.26	2.28	2.70	2.31	1.98	2.89	2.45	2.30	2.45
Room personalization	2.13	2.31	1.95	2.02	2.14	2.22	2.04	1.89	2.33	2.33	1.98	2.02	2.41	2.07	2.34	1.97

*Includes 4th year, 5th year, and graduate students.

TABLE 5: SATISFACTION WITH SERVICES AND FACILITIES, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Food service adequacy	4.13	3.99	4.28	3.74	4.36	4.30	4.13	4.27	4.09	3.96	4.24	4.00	4.20	4.04	4.23	4.07
Food service accessibility	2.57	2.64	2.49	2.16	2.48	3.06	2.38	2.71	2.44	2.67	2.64	2.38	2.70	2.29	2.84	2.45
Parking facilities	2.60	2.71	2.49	2.65	2.59	2.55	2.86	2.50	2.51	2.73	2.62	2.40	2.77	2.50	2.52	2.96
Roads	2.31	2.34	2.28	2.22	2.27	2.45	2.17	2.06	2.31	2.96	2.13	2.11	2.68	2.29	2.28	2.44
Intercom	3.30	3.44	3.14	3.02	3.40	3.46	3.38	2.94	3.57	3.44	3.17	3.32	3.35	3.16	3.35	3.38
Lock security system	3.70	3.73	3.68	3.24	4.06	3.82	3.92	3.76	3.64	3.54	3.91	3.77	3.35	3.53	3.80	3.86
Access to a phone	1.78	1.81	1.75	1.93	1.82	1.62	1.91	1.96	1.63	1.58	2.00	1.74	1.50	1.88	1.76	1.68
Services in general	2.11	2.15	2.08	1.98	2.30	2.06	2.13	2.04	2.19	2.04	2.09	2.07	2.20	2.11	2.11	2.14

*Includes 4th year, 5th year, and graduate students.

TABLE 6: SATISFACTION WITH THE SOCIAL ENVIRONMENT BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Hall integration	3.91	3.84	3.97	4.14	3.84	3.74	3.75	3.98	3.74	4.19	3.93	3.76	3.99	3.86	3.94	3.90
Design influence on friendship	2.87	2.74	3.00	2.63	2.98	3.00	3.50	3.02	2.35	2.89	3.20	2.60	2.80	3.13	2.88	2.38
Crowding	2.33	2.41	2.25	2.30	2.38	2.32	2.25	2.44	2.09	2.56	2.35	2.20	2.47	2.29	2.38	2.31
Density adequacy	2.23	2.37	2.09	2.26	2.46	1.98	2.25	2.26	2.16	2.30	2.29	1.87	2.43	2.20	2.27	2.21
Movement and activities	3.43	3.25	3.61	3.66	3.22	3.42	3.00	3.36	3.70	3.52	3.24	3.58	3.57	3.43	3.44	3.41
Study interruptions	3.77	3.55	3.99	4.00	3.84	3.46	3.83	3.64	3.91	3.74	3.58	3.73	4.06	4.04	3.64	3.55
Lounge use	2.60	2.61	2.58	3.64	2.37	1.82	2.42	2.58	2.54	2.89	2.53	2.44	2.75	2.66	2.64	2.32
Academic atmosphere (C Block)	2.69	2.28	3.13	-	-	2.69	-	2.54	2.61	3.00	2.30	2.87	2.75	2.83	2.45	3.00

*Includes 4th year, 5th year, and graduate students.

TABLE 7: GENERAL SATISFACTION WITH GORDON HEAD RESIDENCE, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Factor	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Need fulfillment	2.19	2.24	2.15	1.96	2.38	2.24	2.29	2.07	2.14	2.44	2.09	2.04	2.47	2.18	2.28	2.00
General satisfaction	2.49	2.65	2.33	2.34	2.66	2.48	2.33	2.42	2.44	2.85	2.33	2.42	2.78	2.36	2.61	2.48

* Includes 4th year, 5th year, and graduate students.

TABLE 8: RESIDENCE TYPE PREFERENCES, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Type	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Dormitory	3.45	3.27	3.63	3.51	3.62	3.23	3.61	3.60	3.31	3.24	3.56	3.44	3.39	3.60	3.58	2.93
Suite	2.65	2.78	2.52	2.96	2.60	2.40	2.87	2.87	2.24	2.69	2.78	2.40	2.69	2.69	2.77	2.35
On-Campus apartment	1.91	1.96	1.86	1.75	2.04	1.94	2.00	1.74	2.29	1.62	1.80	2.33	1.60	1.92	1.86	2.03
Off-Campus apartment	3.40	3.32	3.48	3.27	3.43	3.50	3.29	3.25	3.54	3.60	3.48	3.41	3.33	3.31	3.28	3.85
House	3.50	3.58	3.41	3.33	3.17	3.96	3.00	3.48	3.54	3.88	3.36	3.56	3.80	3.29	3.50	3.89

*Includes 4th year, 5th year, and graduate students.

TABLE 9: RESIDENCE STYLE PREFERENCES BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Style	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Completely coeducational	2.08	1.88	2.29	2.18	2.06	2.00	2.09	2.11	2.07	2.04	2.24	2.07	1.90	1.94	2.14	2.21
Partly coeducational	1.29	1.42	1.16	1.31	1.31	1.26	1.21	1.25	1.28	1.48	1.20	1.27	1.42	1.32	1.30	1.24
Single sex	2.63	2.69	2.56	2.51	2.63	2.74	2.70	2.64	2.65	2.48	2.56	2.69	2.66	2.74	2.56	2.55

*Includes 4th year, 5th year, and graduate students.

TABLE 10: UNIVERSITY OF VICTORIA RESIDENCES PREFERENCES, BY SEX, HALL, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

Residence	Average Response	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
		M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
Lansdowne	2.60	2.54	2.66	2.53	2.58	2.69	2.43	2.59	2.69	2.60	2.53	2.63	2.65	2.63	2.52	2.71
Gordon Head	1.03	.104	1.00	1.00	1.04	1.04	1.00	1.04	1.03	1.04	1.04	1.02	1.02	1.00	1.05	1.03
Craigdarroch	2.35	2.42	2.28	2.40	2.35	2.31	2.53	2.33	2.31	2.36	2.39	2.33	2.33	2.33	2.41	2.29

*Includes 4th year, 5th year, and graduate students.

TABLE 11: PERCENTAGE INCREASE IN RESIDENCE FEES RESPONDENT IS WILLING TO PAY TO ENSURE IMPROVEMENTS, BY SEX, AGE, AND UNIVERSITY AND RESIDENCE EXPERIENCE

AVERAGE RESPONSE (PERCENTAGE)	Sex		Hall of Residence			Year of Study				Age of Respondent			Years Lived In Residence		
	M	F	A	B	C	1	2	3	4*	17-19	20	21-24	1	2	3-5
7.6	9.1	6.2	6.0	7.5	9.2	6.4	6.9	7.6	10.2	7.5	6.3	9.2	6.5	7.6	9.8

*Includes 4th year, 5th year, and graduate students.

APPENDIX C

FREQUENCY OF OBSERVED ACTIVITIES

TABLE 1: FREQUENCY OF OBSERVED ACTIVITIES (BY NUMBER ENGAGED IN ACTIVITY) IN ROBERT WALLACE HALL

Activity Type	Frequency of Occurrence (By Number Participating)											
	1	2	3	4	5	6	7	8	9	10	11+	Total
Academic	8	1	2	1	1							25
Socializing	1	18	7	6	8	7	5		1		7	309
Locomotion	30	24	18	17	10	5	6	6	4	1	9	528
Entertainment	1	4										9
Appearance	9	5	1									28
Survival	2											2
Phone	3											3
Affection	1											1
Maintenance	16	2										20
Stationary	4	4								1		22
Nonverbal	6	3				1						13
Toilet	4	2	2	2								22
Sleep												0

TABLE 2: FREQUENCY OF OBSERVED ACTIVITIES (BY NUMBER ENGAGED IN ACTIVITY) IN RICHARD WILSON HALL

Activity Type	Frequency of Occurrence (By Number Participating)											
	1	2	3	4	5	6	7	8	9	10	11+	Total
Academic	8	2	1									15
Socializing	2	14	13	8	8	2	5	5	1		3	282
Locomotion	35	25	18	18	18	10	6	4	2	2	11	628
Entertainment	1	1		1								7
Appearance	7	4	1	1								22
Survival	8	4	1		1							24
Phone	6											6
Affection												0
Maintenance	9	1	1									14
Stationary	1											1
Nonverbal	3	1										5
Toilet	6	7	1									23
Sleep												0

TABLE 3: FREQUENCY OF OBSERVED ACTIVITIES (BY NUMBER ENGAGED IN ACTIVITY) IN RODERICK HAIG-BROWN HALL

Activity Type	Frequency of Occurrence (By Number Participating)											
	1	2	3	4	5	6	7	8	9	10	11+	Total
Academic	11	5	2	1	2	2	1	1	1		1	60
Socializing		28	9	9	5	5	5	6	4	4	6	237
Locomotion	19	23	19	10	17	15	7					576
Entertainment			1	1								7
Appearance	7	2	1	1	2							28
Survival	2	1	2	3								22
Phone	1											1
Affection												0
Maintenance	12	3										18
Stationary	1											1
Nonverbal	4	1	1									11
Toilet	3	7	1									20
Sleep	1											1

TABLE 4: FREQUENCY OF OBSERVED ACTIVITIES (BY NUMBER ENGAGED IN ACTIVITY) IN FACILITY AREA

Activity Type	Frequency of Occurrence (By Number Participating)											
	1	2	3	4	5	6	7	8	9	10	11+	Total
Academic	4				1							9
Socializing	1	11	2	2		2						37
Locomotion	20	8	6	6	3	1	2			1	1	127
Entertainment	4	2	2	2								42
Appearance	1	2										5
Survival	5	1	2									13
Phone	2											2
Affection		3										6
Mail	2		3	1	1	2		1				40
Laundry	9	5		2								27
Maintenance	5	2										9
Stationary	1											1

APPENDIX D

REASONS CITED IN RATING EXISTING UNIVERSITY OF VICTORIA STUDENT RESIDENCES

TABLE 1: REASONS CITED IN RATING GORDON HEAD RESIDENCE

Rank	Type of Reason	Reason	Number of Responses
1	General	newer and more modern	20
		not as beat up	1
	Philoso-phical	larger and/or single rooms	67*
		older, more mature students	51*
		coeducational	36*
		good academic/social mix	7
		low density	1
		age mix	1
		more independence	1
		like an apartment	1
		more controlled conditions	1
	Physical	nicer rooms	6*
		best design	3
		more soundproof	3
		nice floor layout	1
		nice buildings	1
		don't like split lounges	1
		comfortable	1
		functional rooms	1
		segregated (eg. from SUB)	1
		nice lounges	1
	Social	quieter	22*
		academic orientation	13*
		nice atmosphere	9*
		more privacy	6*
		less rowdy	2
		more 'moderate' lifestyle	1
		freedom of movement	1
		poor social atmosphere	1
	Services	private phone	11*
		individual room heat	5*
		better facilities	1
	Academic	easy to study	7*
2	Physical	disorienting	1
		thin walls	1
		segregated	1
		large rooms	1
	Academic	easy to study	1

TABLE 2: REASONS CITED IN RATING CRAIGDARROCH RESIDENCE

Rank	Type of Reason	Reason	Number of Responses
1	Physical	complex 'a whole'	2
		easy to find way	1
2	General	well built	5*
		better than Lansdowne	4
		newer building	1
		too old	1
	Philoso-phical	single sex	4
		partly coeducational	2
		double rooms	2
		good density	2
		too dense	1
	Physical	bigger rooms	33*
		better soundproofed	19*
		modern single rooms	5*
		buildings well arranged	5*
		like design	4
		attractive	4
		don't like design	2
		variety of room sizes	2
		large windows	2
		large rooms	1
		medium size rooms	1
		small rooms	1
		segregated floors	1
		segregated buildings	1
		close to bus, etc.	1
		nice quad	1
	Social	young	12*
		wild/rowdy	13*
		'homey' atmosphere	2
		quieter	2
		friendly	2
		single room hard to get	1
		friendly	2
		good for first years	1
		dirty	1
	Academic	hard to study	2
		more academic than Lansdowne	1
	Services	no individual phone	1

TABLE 2: REASONS CITED IN RATING CRAIGDARROCH RESIDENCE (CONTINUED)

Rank	Type of Reason	Reason	Number of Responses
3	General	older building	3
		newer building	1
		unacceptable	1
		no single rooms	2
	Philoso-phical	students too young	2
		mostly doubles	1
	Physical	ugly/cold	2
		well constructed	1
		buildings too close	1
		small rooms	1
		large floors	1
		two room styles	1
		dangerous steps	1
	Social	noisy/wild	16*
		run down	3
		too social	2
		dreary atmosphere	1
		young	1
		like a slum	1
	Extra	rats present	1

* Discussed in text.

TABLE 3: REASONS CITED IN RATING LANSDOWNE RESIDENCE

Rank	Type of Reason	Reason	Number of Responses
1	Social	'close knit' floor	1
		less concern with noise	1
2	General	unacceptable	1
		conditions bearable	1
	Physical/ Design	rooms too small	8*
		unattractive	3
		design leads to meeting people	3
		like the quad	3
		disorienting design	2
		proximity to facilities	2
		pleasant design	1
		good soundproofing	1
		double rooms	1
		few single rooms available	1
		lounges 'cold'	1
		centre of residences	1
	Social	too loud or rowdy	12*
		good for first years to meet people	6*
		'tight knit' floor	4
		quad too loud	2
		immature behavior	2
		too social	2
		good social atmosphere	3
		density too high	1
		more interaction	1
		people approachable	1
		people like in Craigdarroch	1
		like a slum	1
	Philoso-phical	first year students present	3
		single sex buildings	1
	Facilities	no personal phone	1
3	General	older building	2
		the other two are better	2
		bad construction	1

TABLE 3: REASONS CITED IN RATING LANSDOWNE RESIDENCE (CONTINUED)

Rank	Type of Reason	Reason	Number of Responses
3	Philoso-phical	don't like single sex buildings	5*
		social/academic mix	2
		double rooms	2
		non-coeducational	1
		some singles available	1
		only 8 per floor	1
	Physical	small rooms	48*
		cold, concrete appearance	18*
		unattractive	12*
		too 'closed in'	5*
		poor soundproofing	1
		disorienting	1
		floor arrangements	1
		quad design	1
		quad leads to socializing	1
		poor heating	1
	Social	too wild/rowdy	28*
		too immature and young	16*
		too high density	11*
		social atmosphere	3
		no privacy	2
		too low density	1
		convenience only	1
		good for first years	1
		quad loud	1
	Academic	hard to study	2

APPENDIX E

SUGGESTED FACILITIES AND DESIGN IMPROVEMENTS

TABLE 1: SUGGESTED FACILITIES

Facility Type	Facility	Number of Responses
Food/Kitchen	hotplate or microwave in A150, stoves in lounges, kitchen facilities	37*
	evening canteen service	7
	toasters (etc.) in lounge	4
	food machines	3
	larger fridge in lounge	1
	better cafeteria	1
	cigarette machines	1
Recreation	games room	29*
	more than one T.V. room	17*
	physical fitness/exercise room	15*
	sewing room	7*
	outdoor sports (tennis) area	5
	whirlpool/sauna	2
	individual cable hookups	2
	a small bar	1
	fire place	1
	entertainment	1
Academic	study halls	5*
	library	3
	typewriters	2
	more academic buildings	1
	typing rooms	1
	music practice room	1
	piano	1
Furniture	better lounge furniture (couches, etc.)	3
	adaptable furniture	1
	better room carpets	1
	lighter beds	1
	larger beds	1
Storage	larger closet space	3
	more storage space	2
	locked lounge cupboards	2
	more bookshelves	1
	private washroom lockers	1
	clothes drying area	1
Other	more laundry facilities	16*
	ironing board and iron	10*
	emergency or floor phone	6*
	switchboard system	3*
	intercom between Gordon Head and other two residences	1

Table 1: Suggested Facilities (Continued)

Facility Type	Facility	Number of Responses
Services	mailbox	1
	paper towels in washroom	1
	better food	1
	garbage pick up later in the day	1

* Discussed in text

TABLE 2:. SUGGESTED DESIGN IMPROVEMENTS

Improvement Type	Improvement Suggestion	Number of Responses
Location	more scenic location	1
	away from Commons Block	1
Exterior	better use of lock-security system	4
	bigger sundecks	2
	balcony on first floor	1
	hallway connecting all halls	1
	underground tunnel between all halls	1
	covered walk to cafeteria	1
	more landscaping	1
	change location of garbage tank	1
	more parking lots	1
Layout	common lounge in A Block	25*
	staggered entranceway at door or a separating door	10*
	better room locations (re:stairs)	6*
	entry from end doors (B and C)	6*
	more 'box-type' design with a quad	6*
	inside access to facilities	6*
	less of a maze design	4
	a more central washroom	3
	separate A150 from living area (A)	3
	separate elevator from rooms (A)	2
	reduce entrance waste space	2
	correlate elevator and handicapped washrooms	2
	segregate noisy areas	2
	no elevator in A Block	1
	alternate rooms down the hall	1
	all rooms facing one another (ie: remove wahsroom)	1
	suite design	1
	apartment design	1
	elevators in B and C Blocks	1
	taller (to make use of elevator)	1
	more than one T.V. room	1
	remove posts from T.V. room	1
	better location of garbage chutes	1
Noise	better soundproofing	90*
	quieter stairs	1*
	soundproof typing area	1*
	quieter water pipes	1*

TABLE 2: SUGGESTED DESIGN IMPROVEMENTS (Continued)

Improvement Type	Improvement Suggestion	Number of Responses
Room	more and/or bigger windows	34*
	larger rooms	7*
	quieter doors	4
	adaptable or personalizable rooms	3
	more shelf space	3
	more attractive rooms	2
Other rooms	more private showers	5*
	better mirror positioning (washrooms)	2
	bigger lounge	1
	bigger washroom	1
	larger A150	1
	bigger wash-basins	1
Hallway	wider hallway	3
	brigher hallway	1
Heat/Light	heat in washrooms/showers/hallways	15*
	better weather insulation	5*
	better washroom paint	5*
	better room light	1
	better hallway light	1
	less intense room light	1
	better washroom light	1
Furniture	comfortable lounge chairs	3
	lighter beds	2
	more furntirue in A150	1
	night tables beside beds	1
	softer beds	1
General	proper foundations	5*
	less of an institutional look	1
	better construction and furniture	1
Other	more efficient alarm system	4
	copper wiring	2
	better electrical plugs	1
	faster, larger elevator	1
	less impersonal stairwell	1
	lounge phone	1
	better water system	1
	better food	1

* Discussed in text

VITA

Surname: STURKO Given Names: DEREK

Place of Birth: BRANDON, MANITOBA

Date of Birth: December 21, 1955

Educational Institutions Attended,
with Dates of Entering and Leaving:

BRANDON UNIVERSITY, BRANDON, MANITOBA	1974 to 1978
UNIVERSITY OF VICTORIA, VICTORIA, B.C.	1978 to 1980
	___ to ___
	___ to ___

Degrees, Diplomas, Etc., Awarded,
with Dates and Names of Institutions:

B.Sc. (Honours)	1978	Brandon University, Brandon, Man.

Honours and Awards:

University of Victoria, Graduate Teaching Assistantship, 1978/79 and 1979/80

University of Victoria Fellowship, 1978/80

Publications:

When a City is a Town is a City: The "Place" of Brandon, Manitoba in the Urban Hierarchy. (With John C. Everitt) Great-Plains-Rocky Mountain Geographical Journal, Vol. 9, 1980 (forthcoming)

PARTIAL COPYRIGHT LICENSE

I hereby grant the right to lend my thesis or dissertation (the title of which is shown below) to users of the University of Victoria Library, and to make *single copies only* for such users or in response to a request from the library of any other university, or similar institution, on its behalf or for one of its users. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by me or a member of the University designated by me. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of Thesis/Dissertation

A BUILDING EVALUATION OF THE GORDON HEAD STUDENT HALL OF RESIDENCE, UNIVERSITY OF VICTORIA

Author [redacted]

DEREK STURKO
Name

August 13, 1980
Date