EVALUATION, BEHAVIORAL SCIENCE RESEARCH, USER PARTICIPATION: A MODEL FOR ARCHITECTURAL DESIGN

BY

JOHN PAUL VOSBURGH
EVALUATION, BEHAVIORAL SCIENCE RESEARCH, USER PARTICIPATION.  
A MODEL FOR ARCHITECTURAL DESIGN. 

by 

John Paul Vosburgh 

An undergraduate thesis submitted in partial fulfillment of the requirements of the degree of 

BACHELOR OF ARCHITECTURE 

in 

Architecture 

Approved: 

Ilmar Reinvald, Director 
School of Architecture 

Montana State University 
Bozeman, Montana 

March, 1978
PERMISSION TO COPY

In presenting this thesis in partial fulfillment of the require­ments for an under­graduate degree at Montana State University; I agree that the library shall make it freely available for inspection. I further agree that permission for copying of this thesis for scholarly purposes may be granted by my advisor, or in his absence, by the director of libraries. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

John Paul Vosburgh

March 17, 1978

March 17, 1978
DEDICATION

This thesis is dedicated to my parents, John A. and Barbara Vosburgh, and to my wife Pam.

I am indebted to my parents for their intellectual stimulation, their sense of moral and social responsibility, and for their financial support.

I am indebted to my wife Pam, for her love, encouragement, and companionship which sustained me throughout my academic career.
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Part I - Thesis</strong></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
</tr>
<tr>
<td><strong>Observation</strong></td>
</tr>
<tr>
<td><strong>Survey</strong></td>
</tr>
<tr>
<td><strong>Research</strong></td>
</tr>
<tr>
<td><strong>Behavioral Sciences</strong></td>
</tr>
<tr>
<td><strong>Anatomical Dimensions</strong></td>
</tr>
<tr>
<td><strong>Physiological Dimensions</strong></td>
</tr>
<tr>
<td><strong>Psychological Dimensions</strong></td>
</tr>
<tr>
<td><strong>Sociological Dimensions</strong></td>
</tr>
<tr>
<td><strong>The Applicability Gap</strong></td>
</tr>
<tr>
<td><strong>Two Design Sourcebooks</strong></td>
</tr>
<tr>
<td><strong>User Participation</strong></td>
</tr>
<tr>
<td><strong>Individual Differences</strong></td>
</tr>
<tr>
<td><strong>Awareness vs. Ignorance</strong></td>
</tr>
<tr>
<td><strong>Levels and Means</strong></td>
</tr>
<tr>
<td><strong>Bibliography</strong></td>
</tr>
<tr>
<td><strong>Footnotes</strong></td>
</tr>
<tr>
<td><strong>Appendix</strong></td>
</tr>
<tr>
<td><strong>Part II - Project</strong></td>
</tr>
<tr>
<td><strong>Evaluation</strong></td>
</tr>
<tr>
<td><strong>Family Housing Survey</strong></td>
</tr>
<tr>
<td><strong>Summary</strong></td>
</tr>
<tr>
<td><strong>Behavioral Science Research</strong></td>
</tr>
<tr>
<td><strong>Guidelines: Site Layout</strong></td>
</tr>
<tr>
<td><strong>Arrangement of Dwelling Units on the Site</strong></td>
</tr>
<tr>
<td><strong>Access to Dwellings</strong></td>
</tr>
<tr>
<td><strong>Communal Open Space</strong></td>
</tr>
<tr>
<td><strong>Children's Play and Teenage Activities</strong></td>
</tr>
<tr>
<td><strong>Community Facilities</strong></td>
</tr>
<tr>
<td><strong>Parking</strong></td>
</tr>
<tr>
<td><strong>Garbage Disposal</strong></td>
</tr>
<tr>
<td><strong>Pedestrian Circulation</strong></td>
</tr>
<tr>
<td><strong>Landscaping and Street Furniture</strong></td>
</tr>
<tr>
<td><strong>Private Open Space</strong></td>
</tr>
<tr>
<td>Section</td>
</tr>
<tr>
<td>----------------------------------------------</td>
</tr>
<tr>
<td>Guidelines: Building Considerations</td>
</tr>
<tr>
<td>Entrances</td>
</tr>
<tr>
<td>Kitchen and Dining Areas</td>
</tr>
<tr>
<td>Living Room</td>
</tr>
<tr>
<td>Bedrooms</td>
</tr>
<tr>
<td>Bathrooms</td>
</tr>
<tr>
<td>Services, Finishes and Laundry Facilities</td>
</tr>
<tr>
<td>Sound Control</td>
</tr>
<tr>
<td>Study Area</td>
</tr>
<tr>
<td>Storage</td>
</tr>
<tr>
<td>Bibliography</td>
</tr>
<tr>
<td>Design Drawings</td>
</tr>
</tbody>
</table>
Part I
Thesis

Architectural design, as currently taught and practiced, may be lacking as a tool for effectively designing human environments. "Present approaches to designing are those inherited from the Beaux-Arts tradition. Designing within this tradition is largely intuitive, poorly structured, and solution oriented. While this approach encourages divergent and creative thinking which can result in highly innovative design it also increases the probability that the wrong problem will have been solved." Design currently starts with a building program and not with a need to produce better buildings for people to live and work in. "Problem-oriented approaches, on the other hand, emphasize the identification and descriptive analysis of the problem prior to the attempt to synthesize solutions." Effective design constitutes an understanding of all aspects of the problem and the involvement and consideration of all individuals named by problem definition.

This thesis promotes a problem-oriented approach to designing through the tools of evaluation, behavioral science research, and user participation.

Evaluation

"Architects have always been well intentioned with their designs but there exists a disparity between his intentions and his achievements. The disparity is a direct result of the difficulty architects
have in predicting the outcome of their designs, and their effect on people. Design schools rely too much on learning by experience rather than learning from experience. Architects, lacking on information base, make many assumptions about the future uses and users of buildings. "The assumptions we make are by no means trivial. They involve conceptions of what people: need, want, and are able to cope with as far as the nature of a given physical setting is concerned. There is nothing wrong with making assumptions as long as they remain explicit and their validity is tested." Rather than relying on assumptions, instead, we should make predictions based on the best information possible. Systematic evaluation and research are the best possible tools we have to establish that information base.

As Robert Sommer in his book Design Awareness admonishes, one can excuse one part of a building that doesn't work, but when that same mistake is continually repeated, it is not excusable. He suggests a model of "incremental improvements" which will guaranty that any new building will be better than any of its predecessors of the same type. This evaluation and subsequent application will benefit all buildings and it is especially suited to institutional architecture, where the consumer is not the purchaser. He concludes that constant evaluation will result in progressively better prototypes, and that the lack of evaluation not only causes neglect of good design solutions but it encourages an attitude of novelty for its own sake.

At the outset, any systematic evaluation should be done in conjunction with a professional in the behavioral sciences because their techniques and training are geared specifically toward this
type of information gathering and interpreting. When availability and budget restraints preclude this relationship the architect should perform the evaluation himself. When undertaking an evaluation there are a few points to keep in mind. Existing buildings must be considered as systems in flux; what they have been, what they are now, and what they are becoming. Post-construction evaluation should occur after a minimum of six months to a year of occupancy for the use in programming of other similar projects. Techniques for building evaluation focus on the assessment of user satisfaction in terms of carrying out activities and fulfilling goals and expectations.

**Observation**

Observation is the necessary prerequisite to any evaluation. Observation takes place in or around the space or building that is being evaluated, and is done by an impartial and inconspicuous observer. The purpose of observation is to get an idea of what the salient issues and activities are. Detailed procedures might include counting heads, identifying groups and noting the small details of behavior and space modification. From the results of the observation it should be possible to organize a survey that asks the right questions.

**Survey**

Surveys involve asking the user to rate the level of satisfaction with his environment across varying activities and physical features.
In doing a survey there is an important distinction between asking people what they want and to evaluate what they have. Satisfying people's needs is not a one-shot process. When any particular need is satisfied, attention is turned to the satisfaction of a higher order need. Surveys take the form of an interview or questionnaire and it is important to realize when to employ each form. One does not use printed questionnaires with those who will not respond to them; children, migrant workers and geriatric patients whereas they are most successful with students and office personnel.

Robert Sommer, an eminent sociologist, has prepared a list of guidelines for surveys.

In general:

-questions should deal with topics relevant to respondents,
-questions should be asked in good faith, information will be used directly or turned over to those who will use it,
-reports have less significance than the educational value of the survey for the participants. Questions about satisfaction generate more questions when one is sensitized to the environment.

Guidelines for surveys:

1. Avoid asking people to rate "apartments in general" as there are good, bad, as well as mediocre ones. It is best to ask a person about their own house or apartment.

2. Observation should precede interviews or questionnaires -- one should have an idea of what to ask about.

3. One should sample uses as well as users. For example, a library may be a suitable place for reference scholars, and still be a poor place to study.
4. Avoid asking detailed questions first, instead begin with general issues.

5. Avoid using a vocabulary not consistent with the age and education of the respondents. Avoid using technical jargon.

6. Always pretest a questionnaire.

Research

Researching evaluations of similar building types is another possibility. In the periodicals related to architecture one is likely to find many articles regarding a similar building type. For example, the Building Types Study published by Architectural Record. The problem with most of these articles is that they do not evaluate how well the building works as seen by the users, very often the building is critiqued only by other designers who are apt to judge the building along a professional, rather than user, criteria. There is a growing volume of books that deal with one particular building type. If a university library is not available the best source is the library bibliographies published by the American Institute of Architects who also maintain a loaning library.

What is needed is a central clearing house for information specifically for building evaluation. Robert Sommer proposes a Data Bank of Design Information for Building Types. He suggests the university as a good place to start, and maintain, a data bank of building evaluations; students would provide the labor in return for a valuable learning experience. University departments would take full responsibility for conducting evaluations and assure credibility
by involving students and faculty. This system would open up a whole new realm of continuing education for the practicing architect. 

Behavioral Sciences

"Architectural theory, has traditionally focused on the relationship of the architect to the artifact he produces, and thus on ideologies and testaments of individual designers, rather than on the relationship between people, individuals or in general, and the built environment." The nature of the buildings that we live and work in affect our lives, contacts, and identities but the traditional processes of design do not deal with behavioral factors in a rational and systematic way. The design profession, in addition to having no method of defining behavioral goals, also has no tradition of research to provide that information. Designers need, and lack presently, a real understanding of man-environment relationships. This need is in the process of being fulfilled by the behavioral sciences.

A basic starting point in the discussion of man-environment relationships is the theory of basic human needs advanced by the psychologist, Abraham Maslow. These needs are listed in hierarchical order from the top and descending:

Physiological needs - hunger, thirst, sex.
Safety needs - orientation, security, protection.
Belonging needs - social contact, affection, authority.
Esteem needs - recognition, pride.
Cognitive Aesthetic needs - knowledge, beauty.
Actualization needs - desire to fulfill one's total capacities.
It should be obvious that lower order needs must be satisfied less frequently than higher order needs, and that needs are determined in part by one's stage in life cycle. Implied in the concept of needs is the idea that there is a biological basis for behavior and furthermore that the frustrations of a need will produce observable biological damage. By replacing the concept of needs with concepts of wants, values, or tendencies, one can avoid this pitfall. It is preferable to speak of human values; what people believe is good, human wants; what people desire, and human tendencies; what people will do when given the choice, rather than needs. To understand the relationship of man and building we must consider that man has several sets of dimensions of particular importance in building: anatomical, physiological, psychological and sociological.

Anatomical - environmentally defined in terms of man's physical proportions; arm reach, height, comfortable posture, etc. The book *Human Scale* gives an excellent description of this dimension.

Physiological - environmentally defined in terms of the amount and type of light, heat, air, and sound that are comfortable for the accomplishment of tasks in a specific context. Books that discuss these topics include:

Design with Climate by Victor Olgyay
Environmental Acoustics by Leslie Doelle
Perception and Lighting as Formgivers for Architecture by William Lam.

Psychological - environmentally defined in terms of perception, cognition, and meaning. Not only must the environment be perceived as being potentially capable of supporting the desired behavior, but the
user must realize this and know how to use the environment, and the environment must actually support the activity.

Evidence has suggested wrongly that the individual is constantly reacting to a series of changing stimuli in response to forms around him, but the environment is largely on indistinct background because we employ two different modes of locomotion and two different modes of perception.

Type I - Whenever we encounter a new environment we move in an exploratory mode, sensing and scanning for information about the new environment.

Type II - Once a new territory has been explored we shift from an exploratory mode to a habitual mode of movement. Our surroundings fade into an indistinct background, we become intent on our destination, and our personal concerns become paramount. "Rather, the architectural presents opportunities for perception, opportunities for activities, and opportunity for emotional responses. It will not automatically elicit these."\(^{11}\)

In terms of cognition people need information to understand their environment. This information must fulfill these needs we have in regard to "knowing" a building. These needs can be briefly outlined as follows: location, time, weather, enclosure, the presence of other living things, territory, places of refuge, and opportunities for relaxation and stimulation.\(^{12}\) From a design standpoint these clues are most important and the architect's problem is to find out what settings; forms, colors, texture convey to people and use that information as a basis for design decisions. This involves looking at the visual meanings...
of these settings, the "house rules" as Clovis Heimsath calls them. A stark austere environment doesn't lack cues about the house rules, it defines them as rigid, heirorchol and subliminating. Carl Jung has theorized that these are four modalities through which man experiences his world; sensation, thinking, feeling, and intuition. At any period in history the prevailing mode is reflected in buildings. The present mode seems to reflect the cognitive-intellectual mode which is manifested in linear and rectilinear spatial organization and on the emphasis on functionality. However, the architect should at least be aware of the other modalities through which people perceive buildings. Sensation, as a mode of experience is manifested by accentuating the sculptural, visual, and tactile qualities; the dramatic vistas, rain on the roof, reflections on the ceiling, etc. When emotions are held to be extremely important, decorations, colors, textures, dramatic and romantic relationships are emphasized. When intuitive experience is emphasized, architecture attempts to reflect in microcosm man's relation to the universe.

**Sociological**

The sociological dimension is defined in terms of individual and group, behavior patterns and activities, an environment which facilitates the behavior needed or desired by people in order to achieve their goals. Activities take on natural configurations when allowed and when not encumbered by superimposed density, spatial organization, or fixed furniture types. Activities also fall into reasonably repetitive geometric forms. Mayer Spivak has done extensive research
defining these repetitive forms which he calls archetypal place listing in support of those places, repetitive tasks. One author goes on to ask what the real connection is between activities and their architectural settings. He feels that one step is missing, one cannot talk about archetypal space without talking about archetypal geometries. There are a limited number of geometric configurations that can accommodate activities because of human constraints, our physical nature, and building constraints; adjacency requirements.

Instead of archetypal space behavioral scientists use the term behavior setting. "Behavior settings are the physical interface between man and his environment and thus relevant to both the behavioral scientist and the designer. Specifically, behavior settings are a sequence of activity with people, that is planned, in which recurrent patterns of behavior with appropriate objects are combined in complex ways within clearly defined spatial and temporal boundaries." C.M. Deasey defines a behavior setting for the entrance to a California university building. His analysis and subsequent recommendations include aspects across the four dimensions previously outlined. A pattern statement like this synthesizes information from observation, surveys, and the literature of the behavioral sciences. I have discussed observation and surveys and given an outline of the type of information available to the designer from the behavioral sciences. As Clare Cooper said, the point is, there is nothing inevitable about 10 by 10 bedrooms. "Once these ideas about people in-and-of their environments become principles from which we design, the structure will be generated not from the ideas of other times and men, but from the social order of the living present."
The Applicability Gap

The title of the EDRA 7 Conference held in Vancouver, B.C. was Beyond the Applicability Gap, The Behavioral Basis of Design. However, at the conclusion of that conference there was little agreement among the participants as to whether the applicability gap had been bridged or whether they had merely reached an understanding of the magnitude of the gap. A recent article in the Journal of Architectural Education sums up the situation accurately. The authors have outlined four implications of the gap.

1. The rapid application of research findings has lead to immature programs. Studies undertaken within controlled conditions are often not applicable to real world situations. The problem of validity is serious for the architect trying to apply it to design.

2. A second implication is that the bulk of environment-behavior research is done and will continue to be done by the social science disciplines because of a shortage of design educated researchers. Thus information is not likely to be communicated in a form useful to the designer.

3. Findings are reported in the form of general conclusions and provide no direct analysis of physical design. The same problem exists with the concepts architects design with, they are not specific in regards to individuals, situations, or contexts.

4. Even though research is not in a readily usable format, it is valuable. A great deal of work; sifting, integrating, and testing is needed before application is likely to be successful.
Their conclusion was that translation is necessary and possible, and that we ought to learn to deal with it. The authors also synthesized a list of criteria for the translation of behavioral information into information useful for designers. Situation specific - the information should be applicable whether a given context or behavior setting. Concepts do not meet this criteria.

**Imageability** - the information must appeal to the designer's preference for the visual and concrete rather than the verbal and abstract. Verbal information can be imageable if it invokes a clear picture through analogy or metaphor.

**Testability** - the information should be presented in the form of a hypothesis with supporting evidence. It must be open to criticism and allow for comparison with past experience, other research, and simple intuition.

**Variety of Levels** - the information should be applicable to a broad range of issues. For example, the decision whether to integrate single and married students in a housing situation require information at a different level than whether to use prefabricated or hand-built play equipment.

In conclusion it seems that the behavior setting model has good potential for meeting these criteria.

**Two Design Sourcebooks**

At the present time there are two source books, that I know of, available to the designer seeking information that fulfills the above criteria. These books are not a substitute for research but they give an indication of the behavior and activity issues and the physical geometry
of the space to best accommodate those behaviors and activities. These are the Design Guide and A Pattern Language developed by the United States Corps of Engineers and Christopher Alexander in conjunction with the Center for Environmental Structure respectively. In the Appendix there are xerox copies of roughly the same behavior setting as analyzed by each group.

User Participation

The third area in which the designer can delve in order to make buildings more humane is the technique of user participation in both the programming and design phases. To introduce this section, a quote from Aristotle. "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 is a better judge of the rudder than the carpenter, and the guest a better judge of the feast than the cook." Not only is the user a better judge than the builder but it has been suggested that the fact of participation may be more important than the quality of the design itself.

Individual Differences

User participation is a necessary part of both the programming and design phases of any building project. Behavioral science research supplies information about man based on similarities of the group, but acknowledges individual differences. One author has theorized that on individual's responses to the built environment vary along five dimensions: life cycle, stage in life cycle, social status, value orientation, and personality. It is precisely these five factors that
make user participation a necessary accompaniment to building activity. In the traditional programming activity it is only the client who provides his needs for the project. This is not to say that other users are not considered, but their concerns are not taken care of in the systematic way that the clients are. Daily users know more about their needs than anyone else and certainly more than any centrally administered planning process. Often the issue is raised of the validity of one's group's output for the group following. Christopher Alexander answers this question by pointing out what he considers a misunderstanding of the real purpose and effect of user design. He cites the example of a group of graduate students designing a lounge. The place they create is not primarily adapted to their needs as individuals. Rather it is adapted to the needs of the graduate students discussing their classes, etc., and as such should be comfortable for the next group of students as it was for the first, although it will not match the needs of the latter group perfectly. The alternative is to have an architect design it, but it seems clear that people who are as similar as possible to the needs and habits of all users will have the best insight.

Awareness vs. Ignorance

"Participation is inherently good; it involves them in their world, it brings people together; it creates feeling between people and the world around them, because it is a world they have helped to make."24 A great hindrance to good design and good environments is a lack of awareness; ignorance and apathy on the part of the user. There are essentially four reasons for this state of affairs.25
Environments are seldom so restrictive that they incite revolt. The effect of the physical environment is largely a matter of degree. We are a supremely adaptable species and can tolerate a considerable amount of discomfort and inconvenience, particularly if bringing about a change would appear to require more effort than adapting. Ours is a lifelong training in accepting the restraints of social conditions.

Before anything will be done a problem must be recognized as such and there must be an indication that the individual can do something to correct it. The feeling of remoteness from any action to remedy the situation must be overcome. The problem with problems is the Webner-Fechner effect. In a place where there is no pollution, a little is easily noticed. In a place where there is much pollution, it takes that much more pollution before any change is noted.

Levels and Means

There are many levels of involvement but studies indicate that the most effective results are produced when problems are tackled at the level of the home, because that is where the greatest potential for action exists. When people get concerned about the quality of their living environments and develop a competent attitude about their decision making, the potential for action at the community and city level is much greater. Participation in the form of answering a survey does not allow one to develop their innate capacities for decision making. To achieve this end participation must involve active decision making.
that is manifested by an observable physical result. In new building projects the process outlined by Christopher Alexander in The Oregon Experiment illustrates the level of involvement and type of decision making necessary. For existing buildings undergoing renovation the Environmental Workshop as outlined by Robert Sommer in his book Design Awareness seems to foster and achieve the same end.
Bibliography

Books


Moore, Gary T., and Golledge, Reginald, Environmental Knowing, Theories, Research and Methods, Dowden, Hutchinson and Ross Inc., Stroudsburg, 1976.


Periodicals


Footnotes


2. See Appendix for an example of program and project requirements typical of an architectural student’s design experience at MSU.


4. Ibid, p. 22.


6. For an excellent example of a survey that tests the validity of assumptions see Clare Cooper. Easterhill Village.

7. See Appendix.

8. For further information regarding evolution techniques see:
   a. Canter, David, Psychology for Architects.
   b. Lang, Jon, Designing for Human Behavior.


10. Sommer, Robert, Design Awareness, p. 35.

11. Lang, Jon, Designing for Human Behavior, p. 11.


14. Crowhurst, Suzanne, A House is a Metaphor, p. 35.

15. Heimsath, Clovis, Behavioral Architecture, p. 61.


"In Manhattan, a real-estate executive named Fred Manocherian has set next June for the opening of what he claims will be the largest indoor sports facility in the U.S. Spanning a full block, the eleven-story "country club in the city" will house eighteen tennis and squash courts, a 600-foot running track, a swimming pool, health club, dance-floor, restaurant, and game room."

Newsweek, May 23, 1977

STATEMENT

Ivan Goodbody, developer and entrepreneur, has chosen to follow in the steps of Fred Manocherian by developing his own skyscraper for sports (SPORTS-SCRAPER) in downtown Houston. Mr. Goodbody is President of Goodbodies, Inc. and the developer of the Goodbody Tensio-Metric Exerciser and the Goodbody Bionic Body Building Systems.

Goodbodies, Inc. feels that such a development is timely and highly marketable and represents THE new "social-club" form.

IMAGE

A machine for developing the 21st Century body.

THE new "social-club" form.

A confident, tawny, muscular, distinctive building looking towards the future rather than the past for inspiration.

MARKET

The health and fitness minded, all ages and classes from 18-80 years.

The club will, however, primarily address young, active, professional singles and young, active professional couples.
SITE & ENVIRONS

A nondescript lot in Downtown Houston, a bleak, heterogeneous combustion of architectural styles dating primarily from the 50's and 60's with some scattered Art Deco remnants of earlier times.

Sizeable nearby existing parking facilities; dense daytime professional population.

See attached Site Plan.

PROGRAM

I. Zoning

Programmed uses conform to municipal zoning ordinances.

Setbacks as indicated on Site Plan.

Maximum eleven stories above grade.

II. UBC

Building to conform to safety/occupancy regulations as per UBC, 1976 edition.

III. Parking and Circulation

Underground parking - 30 spaces minimum; privileged and handicapped parking.

Two (2) truck docks for delivery of food, office and athletic supplies.

Two (2) freight elevators.

Passenger elevators as required.

Fire stairs as required by Code.

IV. Public

Users: general public, club members.

<table>
<thead>
<tr>
<th>Space</th>
<th>Min. Sq. Ft. Each</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditorium/theatre/cinema</td>
<td>-</td>
<td>250-300 seats</td>
</tr>
<tr>
<td>- multi-use space</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health food restaurant</td>
<td></td>
<td>200 seats</td>
</tr>
<tr>
<td>Juice bar &amp; lounge</td>
<td></td>
<td>75 persons</td>
</tr>
<tr>
<td>Disco/dance floor</td>
<td></td>
<td>250-300 persons</td>
</tr>
<tr>
<td>Reception to building</td>
<td>As needed</td>
<td></td>
</tr>
<tr>
<td>Membership office (club)</td>
<td></td>
<td>180</td>
</tr>
</tbody>
</table>

V. Recreational

Users: members/guests/day pass subscribers

12 tennis courts
1 exhibition court with spectator gallery for 250 persons
6 squash courts
1 competition 50 meter pool with temporary bleacher facilities for 250-300 persons
1 running track - quarter mile optimal - compromise to fit existing site.

Exercise room/gymnasium (divisible into 2 spaces) 80' x 120' min. Yoga, calisthenics, etc.

<table>
<thead>
<tr>
<th>Lockers</th>
<th>Male</th>
<th>500 persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>500 persons</td>
</tr>
<tr>
<td>Allow 100% expansion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Saunas</th>
<th>Male</th>
<th>20 persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Female</td>
<td>20 persons</td>
</tr>
<tr>
<td>Allow 50% expansion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(Recreational, cont'd)

<table>
<thead>
<tr>
<th>Service</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massage</td>
<td>4 @ 80 sq. ft.</td>
<td>4 @ 80 sq. ft.</td>
</tr>
</tbody>
</table>

Jacuzzi whirl-pools
Male (1) 10 persons pool capacity
Female (1) 10 persons pool capacity

VI. Corporate Offices: Goodbodies, Inc.

A. General office space:

Provide a general work area of approximately 150,000 gross sq. ft. for employees - to be open-landscaped.

<table>
<thead>
<tr>
<th>Spaces</th>
<th>Min. Sq.Ft. Each</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Executive Suite:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>President's Office (1)</td>
<td>130</td>
<td></td>
</tr>
<tr>
<td>Vice President's Offices (2)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Secretary/Treasurer (1)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Board of Directors (6)</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>Executive/Board of Directors Conference Room (1)</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>C. Operations:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bookkeeping (4)</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Clerical/Mail Room (1)</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>Conference Rooms (10)</td>
<td>220</td>
<td></td>
</tr>
<tr>
<td>Lawyers (2)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Public Relations/Advertising (2)</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Head of Sales (1)</td>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>
VII. General Services, Storage, Mechanical

Provide all required general services (public telephones, washrooms, etc.), storage, and mechanical spaces as appropriate to your design.

VIII. Others

Provide other facilities as recommended by Architectural/Planning Consultants to contribute to the unique experience of Goodbody's Health Club.

SCHEDULE OF PRESENTATIONS: To Follow

SUBMISSION REQUIREMENTS: To Follow

EVALUATION CRITERIA: To Follow
SITE PLAN:
Goodbody's Health Club
Scale: 1" = 100' - 0"

6 LEVEL PARKING STRUCTURE
6 STORY COMMERCIAL
15' SETBACK
30'"
"SPORTS-SCRAPER" - Goodbody's Health Club

Issued: Friday, 24 June 1977 @ 3:00 p.m.
Due: Wednesday, 17 August 1977 @ 3:00 p.m.
Crits: Wednesday, 17 August 1977 @ 3:00 p.m.
Friday, 19 August 1977 @ 3:00 p.m.

By Tuesday, 5 July @ 3:00 p.m., discussion of the following:
Concept and preliminary zoning of the Goodbody Health Club by floors.

By Friday, 8 July @ 3:00 p.m., mass model of the BUILDING ONLY at
1/16" = 1'-0"

By Monday, 11 July @ 3:00 p.m., preliminary sketches of floor plans
and elevations.

Discussion of Structure, Mechanical/Electrical Systems, Building Costs
and Budget.
"SPORTS-SCRAPER" - Goodbody's Health Club

By Friday, 15 July © 3:00 p.m.

Freehand Plans of ALL floor levels.

Freehand Structural plans of typical office AND pool or tennis court levels to illustrate major structural modules OR basic structural grid system for entire building.

Freehand Plan diagram of ALL vertical circulation elements and building circulation paths and parking level.

Freehand Critical building section showing functions and schematic structure.

By Friday, 22 July © 3:00 p.m.

GENERAL class discussion and comparison of individual solutions.

Monday, 18 July © 3:00 p.m.

GENERAL class discussion and comparison of individual solutions.

By Friday, 22 July © 3:00 p.m.

Three variations of sketch elevations -- massing, materials, etc.

Monday, 25 July © 3:00 p.m.

GENERAL class discussion and comparison of individual solutions.

ALL please attend and participate.
"SPORTS-SCRAPER" - Goodbody's Health Club

DUE: Wednesday, 17 August 1977 @ 3:00 p.m.
CRITS: Wednesday, 17 August 1977 @ 3:00 p.m.
     Friday, 19 August 1977 @ 3:00 p.m.

The following drawings are required to be submitted on vellum, executed in the medium of your choice:

<table>
<thead>
<tr>
<th>DRAWING</th>
<th>SCALE (metric)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept diagram</td>
<td>As req'd</td>
</tr>
<tr>
<td>Floor plans of ALL levels</td>
<td>1:33.33</td>
</tr>
<tr>
<td>Plan of typ. structural system</td>
<td>1:33.33</td>
</tr>
<tr>
<td>Plan of typ. circulation</td>
<td>1:33.33</td>
</tr>
<tr>
<td>Building Sections</td>
<td>1:33.33</td>
</tr>
<tr>
<td>(2 minimum) N-S, E-W</td>
<td></td>
</tr>
<tr>
<td>Elevations - front, rear</td>
<td>1:33.33</td>
</tr>
<tr>
<td>1 interior perspective @ entry level</td>
<td>As req'd</td>
</tr>
<tr>
<td>1 mass model</td>
<td>1:33.33</td>
</tr>
<tr>
<td>illustrating floor levels, window placement, sizes, etc.</td>
<td></td>
</tr>
</tbody>
</table>

A triangular KOH-I-NOOR metric scale is available at the MSU Bookstore for the nominal price of U.S. $1.00.
EVALUATION CRITERIA

The criteria used to evaluate each design exercise are as follows:

1. Completeness of project
2. Clarity of thought process
3. Design merit
4. Graphic clarity
5. Verbal presentation (when appropriate)
6. Effort, attitude, improvement, increased awareness

A "C" grade represents an average, competent solution.
Please ADD to final presentation:

DRAWING

Detail of window and exterior wall construction, slab-to-slab, on any floor

SCALE

1:10 minimum
AIA LIBRARY BIBLIOGRAPHIES

One of the AIA library's services to members is the compilation of bibliographies on specific subjects. These bibliographies are either a list of the library's holdings, a list of periodical articles, or, often, a combination of both. On the following pages we have listed subjects on which the library staff has recently compiled bibliographies. Please request only those bibliographies in which you are particularly interested. We cannot, because of the time and cost involved in photocopying, supply you with all of the bibliographies on this list at one time. We do plan, however, to publish a cumulation in July, 1977, which will contain all of the bibliographies compiled in the first half of 1977. This cumulation will be announced and will be available to members for a nominal fee.

HOW TO USE AIA LIBRARY BIBLIOGRAPHIES

These sample excerpts from AIA library bibliographies show you what kind of information you will receive in response to a request. If you need information on a subject not covered on the following list, we will be glad to prepare a new bibliography for your specific needs. You can use AIA library bibliographies either to borrow books directly from the AIA library or to alert you to the range of information which you can search for in a local library or bookstore. We welcome any suggestions you may have for making this service more valuable to you.

AIA library bibliography '77 no. 29

SOLAR ENERGY


Use the call numbers (the letters and numbers immediately following the date of publication) on Library Holdings bibliographies to request books you wish to borrow from the AIA library. Corporate members of the AIA may borrow up to six books at one time. The only charge to you is return postage, via UPS, at the end of the two-week loan period. You may renew any book as long as no one else is waiting for it.


---

We cannot lend our magazines, nor do we have photocopying facilities in the library. Periodical Articles bibliographies are prepared to help you locate information in your local library or in your office resources.
AIA library bibliographies available on:

**AESTHETIC AND BEHAVIORAL ASPECTS OF ARCHITECTURE**

Architectural Decoration and Ornament  
Architectural Sculpture  
Architecture for Crime Prevention  
Art in Architecture  
Christian Art and Symbolism  
Color in Architecture  
Creativity and Creative Thinking  
Interior Design  
Mural Painting  
Psychological Aspects of Architecture

**ARCHITECTURAL PRACTICE**

Architects - Legal Status, Laws, etc.  
Architects' Offices  
Architectural Copyright  
Architectural Drawing  
Architectural Models  
Architectural Programming  
Architectural Services Marketing  
Architecture - Practice  
Architecture as a Profession  
Building Estimates  
Computer Applications in Architectural Practice  
Construction Management  
Minorities in Architecture  
Photography  
Professional Corporations  
Specification Writing  
Value Engineering and Life Cycle Costing  
Women in Architecture

**ARCHITECTURE BY PLACE**

AIA Convention City Guidebooks  
Africa - Architecture  
American Architecture  
California - Architecture  
Florida - Architecture  
Housing in Latin America  
Housing and Urbanization in Developing Countries  
Scandinavian Architecture  
Swiss Architecture  
Tennessee - Architecture  
West Indies Architecture and Planning

**COMMERCIAL FACILITIES**

Airports and Heliports  
Automobile Showrooms  
Banks  
Drugstores  
Law Offices  
Office Building Condominiums  
Offices and Office Buildings  
Open Plan Offices  
Parking Facilities  
Prefabricated Office Buildings  
Publishers Buildings  
Radio Stations  
Shopping Centers  
Skyscrapers  
Stores  
Television Stations  
Warehouses  
Wine Cellars

**CULTURAL FACILITIES**

Archive Buildings  
Art Galleries  
Arts and Performing Arts Centers  
Auditoriums and Music Centers  
College and University Libraries  
Cultural Centers  
Exhibition Buildings  
Library Architecture  
Maritime Museums  
Museums  
Open Air Theaters  
School Libraries  
Theater Restoration  
Theaters and Movie Theaters
### EDUCATIONAL FACILITIES

- Art Schools
- College and University Libraries
- College and University Planning
- Community Colleges
- Dental Offices and Schools
- Junior High and High Schools
- Laboratories and Science Buildings
- Medical Centers and Medical Education Facilities
- Middle Schools
- Preschools
- Remodeled School Buildings
- Research Centers
- School Auditoriums
- School Facilities
- School Libraries
- Student Union Buildings
- University and College Buildings
- University Science Buildings
- Vocational Education Facilities

### GOVERNMENTAL FACILITIES

- Courthouses
- Fire Houses
- Municipal Buildings
- Police Stations
- Prisons

### HEALTH FACILITIES

- Architecture for the Blind
- Architecture for the Deaf
- Architecture for the Mentally Handicapped
- Barrier Free Architecture
- Dental Offices and Schools
- Gynecologic and Obstetric Hospitals
- Hospitals (General)
- Medical Centers and Medical Education Facilities
- Medical Offices and Clinics
- Nursing Homes
- Rehabilitation Centers
- Remodeling Hospitals and Nursing Homes
- Veterinary Facilities

### HISTORIC ASPECTS AND STYLES OF ARCHITECTURE

- Architecture - Conservation and Restoration
- Colonial Architecture
- Greek Revival Architecture
- Historic American Buildings Survey Publications
- Modern Architecture
- Victorian Architecture

### HOUSING AND DOMESTIC ARCHITECTURE

- Aged Housing
- American Mansions
- Apartment Houses
- Books for the Layman Planning to Buy, Build, Redecorate or Remodel His Home
- Condominiums
- Domestic Architecture (General)
- Farm Buildings
- Housing (General)
- Housing and Urbanization in Developing Countries
- Housing for Single People
- Housing in Latin America
- Low and Moderate Cost Housing
- Mobile Homes and Mobile Home Parks
- Spanish American Homes
- Swiss Architecture
INDUSTRIAL FACILITIES

Boiler Houses
Cold Storage Facilities
Computer Centers
Industrial Buildings and Factories

Industrial Buildings and Industrial Parks
Industrial Laboratories
Water Towers

RECREATIONAL FACILITIES

Camps
Community and Recreation Centers
Convention Centers
Country Clubs
Hotels, Motels and Resorts
Marinas
Parks and Recreation Areas
Race Tracks

Restaurants and Bars
Skating Rinks
Ski Resorts
Stadiums and Sports Buildings
Swimming Pools
Tennis Facilities
Zoological Parks

TECHNICAL CONCERNS

Acoustics
Adobe
Architecture and Climate
Barrier Free Architecture
Building Failures
Buildings - Demolition
Dampness in Buildings
Earthquakes and Building
Energy and Energy Conservation
Environmental Engineering
Environmental Impact Statements

Industrialized Building, Prefabrication and Systems Building
Lightning Protection
Metric System
Modular Coordination
Solar Energy
Thatched Roofs
Underground Construction
Underwater Construction
Wind Effects
Wooden Construction

URBAN CONCERNS

Air Rights
Architecture for Crime Prevention
Central Business Districts
Community Planning and Development
History of Urban Planning
Housing and Urbanization in Developing Countries
Land and Land Use
Landscape Architecture and Landscape Gardening

New Capital Cities
New Towns
Pedestrian Facilities Design
Real Estate Business and Property Valuation
Signs
Transportation
Urban Planning (General)
Waterfronts
Zoning

MISCELLANEOUS BUILDING TYPES

Air-Supported Structures
Architectural Follies
Armories
Cemeteries
Church Architecture
Decks and Patios
Greenhouses

Mausoleums
Multiple-Use Buildings
Observatories
Pedestrian Bridges
Round Buildings
Temporary Buildings
Tension Structures
A) Activities / Participants:
The narthex is the major entry for all Chapel Center visitors. The narthex provides for socializing and informal gathering or waiting before and after services. Display areas and information areas should be provided including building register, pamphlet display, artwork, and access to information desk or window. The narthex must allow the congregation to exit quickly and easily after services or in case of emergency.

B) Character:
The narthex should prepare persons psychologically to enter into the sanctified atmosphere of the chapel interior. The narthex should lend an air of welcome and provide a positive first impression for the Chapel Center. The narthex should be easily located from the exterior and provide exterior and interior orientation.

C) Adjacency:
The narthex must be directly adjacent to the nave, circulation and secretary / receptionist's area. Convenient access should be provided to the bride's room, chaplain's offices, choir room, religious education facilities, nave/activity area, and assembly/classroom. The narthex should not be adjacent to kitchens, or private spaces. Coat and hat storage areas and restrooms should be provided nearby.

D) Accessibility:
The narthex must remain unlocked for access to the nave for private worship. A direct fire exit to outdoors is required with panic hardware.

E) Spatial Definition:
The floor area should be 6%—12% of the gross area of the Chapel. A clear circulation path equal to occupant load divided by 50 feet must be maintained for fire exit. (UBC) The narthex must be oriented to provide easy circulation to all major plan elements. A 10'-0" minimum ceiling height should be maintained. The building entry should be on axis with entry to the nave.

F) Size Variation:
Refer to spatial definition.

G) View:
Approaching visitors should have a view into the narthex for orientation. The secretary/receptionist or assistants, and optionally, REF, administration office or director of religious education offices,
... the position and overall shape of entrances is given by family of entrances (102), main entrance (110) and entrance transition (112). This pattern gives the entrances their detailed shape, their shape and body and three dimensions, and helps complete the form begun by car connection (113), and the private terrace on the street (140).

Arriving in a building, or leaving it, you need a room to pass through, both inside the building and outside it. This is the entrance room.

The most impressionistic and intuitive way to describe the need for the entrance room is to say that the time of arriving, or leaving, seems to swell with respect to the minutes which precede and follow it, and that in order to be congruent with the importance of the moment, the space too must follow suit and swell with respect to the immediate inside and the immediate outside of the building.

We shall see now that there are a tremendous number of miniscule forces which all come together to support this general intuition. All these forces, tendencies, and solutions were originally describe by Alexander and Poyner, in the Atom of Environmental Structure, Ministry of Public Works, Research and Development, SFB B4, London, 1966. At that time it seemed important to emphasize the separate and individual patterns defined by these forces. However, at the present writing it seems clear that these original patterns are, in fact, all faces of the one larger and more comprehensive entity, which we call the entrance room (130).

1. The relationship of windows to the entrance
   (a) A person answering the door often tries to see who is at the door before they open it.
   (b) People do not want to go out of their way to peer at people on the doorstep.
BUILDINGS

(c) If the people meeting are old friends, they seek a chance to shout out and wave in anticipation.

The entrance room therefore needs a window—or windows—on the path from the family room or kitchen to the door, facing the area outside the door from the side.

2. The need for shelter outside the door
(a) People try to get shelter from the rain, wind, and cold while they are waiting.
(b) People stand near the door while they are waiting for it to open.
On the outside, therefore, give the entrance room walls enclosing three sides of a covered space.

3. The subtleties of saying goodbye
When hosts and guests are saying goodbye, the lack of a clearly marked "goodbye" point can easily lead to endless "Well, we really must be going now," and then further conversations lingering on, over and over again.
(a) Once they have finally decided to go, people try to leave without hesitation.
(b) People try to make their goodbye as nonabrupt as possible and seek a comfortable break.
Give the entrance room, therefore, a clearly defined area, at least 20 square feet, outside the front door, raised with a natural threshold—perhaps a railing, or a low wall, or a step—between it and the visitors' cars.

4. Shelf near the entrance
When a person is going into the house with a package:
(a) He tries to hold onto the package; he tries to keep it upright, and off the ground.
(b) At the same time he tries to get both hands free to hunt through pockets or handbag for a key.
And leaving the house with a package:
(c) At the moment of leaving people tend to be preoccupied with other things, and this makes them forget the package which they meant to take.

130 ENTRANCE ROOM

You can avoid these conflicts if there are shelves both inside and outside the door, at about waist height; a place to leave packages in readiness; a place to put them down while opening the door.

5. Interior of the entrance room
(a) Politeness demands that when someone comes to the door, the door is opened wide.
(b) People seek privacy for the inside of their houses.
(c) The family, sitting, talking, or at table, do not want to feel disturbed or intruded upon when someone comes to the door.
Make the inside of the entrance room zigzag, or obstructed, so that a person standing on the doorstep of the open door can see no rooms inside, except the entrance room itself, nor through the doors of any rooms.

6. Coats, shoes, children's bikes...
(a) Muddy boots have got to come off.
(b) People need a five foot diameter of clear space to take off their coats.
(c) People take prams, bicycles, and so on indoors to protect them from theft and weather; and children will tend to leave all kinds of clutter—bikes, wagons, roller skates, trikes, shovels, balls—around the door they use most often.
Therefore, give the entrance room a dead corner for storage, put coat pegs in a position which can be seen from the front door, and make an area five feet in diameter next to the pegs.
Therefore:

At the main entrance to a building, make a light-filled room which marks the entrance and straddles the boundary between indoors and outdous, covering some space outdoors and some space indoors. The outside part may be like an old-fashioned porch; the inside like a hall or sitting room.
Give that part of the entrance which sticks out into the street or garden a physical character which, as far as possible, make it one of the family of entrances along the street—FAMILY OF ENTRANCES (102); where it is appropriate, make it a porch—GALLERY SURROUND (166); and include a bench or seat, where people can watch the world go by or wait for someone—FRONT DOOR BENCH (242). As for the indoor part of the entrance room, above all, make sure that it is filled with light from two or even three sides, so that the first impression of the building is of light—TAPESTRY OF LIGHT AND DARK (133), LIGHT ON TWO SIDES OF EVERY ROOM (159). Put windows in the door itself—SOLID DOORS WITH GLASS (237). Put in BUILT-IN SEATS (202) and make the room part of the SEQUENCE OF SITTING SPACES (142); provide a WAIST-HIGH SHELF (204) for packages. And finally, for the overall shape of the entrance room and its construction, begin with THE SHAPE OF INDOOR SPACE (191). . . .
Part II

Project

The evaluation, research and preliminary design of family housing for the Montana State University Campus.

Evaluation

Observation was done informally over a period of three years by myself, a resident of Married Student Housing. I have been in most of the housing types provided and have discussed their dwellings with residents in all of the housing types. Through discussions with residents and with Andy Blank, Director of Housing, I feel a questionnaire representing the interests and concerns of all residents was formulated. Survey - took the form of a printed questionnaire distributed to residents of approximately 130 of 680 dwelling units on campus. The questionnaire was designed to yield, in general terms, the feelings of satisfaction residents experience with their housing environments across a broad range of activities and physical design features. The results of the survey are compiled by housing type. The raw scores for each question are tabulated on the survey itself. The tick marks in the left column indicate the number of times a comment was made. The full range of comments are reproduced in the section labeled comments under each question. A summary of the survey based on raw scores and comments is given at the end of the section.
The intent of this questionnaire is to obtain information about the quality of married student housing on the HSU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop an undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at the evening at 547-2250.

Sincerely,

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section I. Please state generally how satisfactorily your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>1</td>
<td>8</td>
<td>1</td>
</tr>
</tbody>
</table>

- **Bathing/Dressing**
  - Comments: 
  - No shower, need mirror in bedroom. (8)

- **Cooking/Meal Preparation**
  - Comments: 
  - More cupboards, more counter space by sink, no exhaust fan. (1)

- **Eating**
  - Comments: 
  - No quiet place, need a desk, shelves. (3)

- **Sleeping**
  - Comments: 

- **Studying**
  - Comments: 
  - Hook ups provided - noise and safety, more clotheslines. (6)
<table>
<thead>
<tr>
<th>Section</th>
<th>Rating</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Housing</td>
<td>Neutral</td>
<td>Visitors get ticketed for overnight.</td>
</tr>
<tr>
<td>M.S.H. restrictions, maintenance, carpeting</td>
<td>Neutral</td>
<td>No room inside, outdoors not safe.</td>
</tr>
<tr>
<td>Socializing</td>
<td>Very Unsatisfactory</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Mailing New People</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Adult Recreation</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Children's Play Area</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Unimpressive Features</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Lawn equipment, checkout anytime</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Keep close to campus</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Activities/Services Available</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Location (on campus)</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>Very Unsatisfactory</td>
<td>Neutral</td>
<td>Social gathering, no room - put up... take down.</td>
</tr>
<tr>
<td>No.</td>
<td>Item</td>
<td>1</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------</td>
<td>----</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Very</td>
</tr>
<tr>
<td>22</td>
<td>Children's Areas</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of equipment for older children.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Outdoor Yard Space</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nice to be able to grow flowers.</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Entry/Stairwell</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Back door for safety, wider porch, railings, more shelter, entry way. (5)</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Family Privacy</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noise (own)</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Noise Control</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Construction poor-noise problem.</td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Personal Privacy</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Apartment/Room Size</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More room, kitchen/dining - living separation, small enough to heat. (2)</td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Storage Space</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not enough, most have sheds, no linen closet, no bathroom shelves. (8)</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Window Area/Placement</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>More windows, no metal windows - conduction. (1)</td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Heat/Ventilation</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Forced air or electric, anything but space heaters, insulation. (10)</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Appliances</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Larger range and oven, gas stoves and pilot lights unsafe, 2 oven racks, hot water heater is noisy. (7)</td>
<td></td>
</tr>
</tbody>
</table>
Very Interior Finishes
Comments: Poor light placement, lack of finishes.

Furniture (if furnished) Comments: Uncomfortable, poor repair. (2)

Do you feel there should be some sort of social center for the residents of Married Student Housing?

Yes 11 No 5

If your answer was yes, complete the following questions. Check the activities you feel should be available there.

Day Care
Laundry Facilities
Game Room
Paperback Book Swap
Sauna
Pub
Small Store

List your preferences for additional activities or services below!

Automotive pit
Craft & hobby instruction
Volley ball nets
Day care (under 2 years)
Ice skating
Tennis courts

How much extra rent per month would you be willing to pay for this center?

$1.00
$5.00
$10.00
$15.00
$20.00

I am Male 6 Female 8 1 couple

I have children. Age(s) 4(1) 3(2) 1(3)

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm 1 Rural Non-farm 2 Small Town (under 2,000) 5

Large Town (2,000-10,000) 3 City (over 10,000) 5
My father's occupation is:

I live in:

A Single Family House

An Attached House

The Stacks

Julia Martin Drive

The Towers

Grant Chamberlain Drive

This completes the questionnaire. Please place it in the self-addressed stamped envelope enclosed and mail as soon as possible. Thank you for your cooperation.

Many people missed questions on reverse side.
The intent of this questionnaire is to obtain information about the quality of married student housing on the HNU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop my undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at home at 847-2250.

Sincerely,

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section 1. Please state generally how satisfactorily your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Very Unsatisfactory Unsatisfactory Neutral Satisfactory Satisfactory</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Bathing/Dressing
Comments:
No shower.

Cooking/Meal Preparation
Comments:
No counter, not enough cabinets. (3)

Eating
Comments:
No visitor parking

Sleeping
Comments:
No desk, no room - alcove would be nice. (2)

Studying
Comments:
No room, no hook-up, not provided. (4)

Laundry
<table>
<thead>
<tr>
<th>IBR Column #</th>
<th>Very</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. Children's Play (Indoors &amp; Outdoors)</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td>No room indoors, lack of outdoor equipment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Sewing or Hobbies</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Adult Recreation</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td>None for single parents.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Meeting New People</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Socializing</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Home Decorating</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Parking</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td>No visitor parking.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. Overall Housing Quality</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td>Should be destroyed.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section II: Please rate your house or apartment on the following features commenting with suggestions for improvement as in the previous questions.

<p>| 20. Location (on campus) | 0 | 0 | 0 | 3 | 3 |
| Comments: | Not comfortable, insulation lacking, wind and rain enter. |
| 21. Activities/Services Available | 0 | 0 | 0 | 5 | 1 |
| Comments: | Refrigerator, gas oven in. |</p>
<table>
<thead>
<tr>
<th>Column</th>
<th>Item</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Very Un</th>
<th>Unsatisf</th>
<th>factory Neutral</th>
<th>Satisfactory Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Children's Areas</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Outdoor Yard Space</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fences good, enough room.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Entry/Stairwell</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor repair.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Family Privacy</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Noise Control</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of sound insulation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Personal Privacy</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Apartment/Room Size</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>More 3 bedrooms.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Storage Space</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not enough, bides, sleds, etc. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Window Area/Placement</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bigger and better arrangement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Heat/Ventilation</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not comfortable, insulation lacking, wind and rain enter. (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Appliances</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small refrigerator, gas ovens bad. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Very Very i!

Unsatisfactory Unsatisfactory Neutral Satisfactory Satisfactory

Interior Finish

Comments:
Not maintained, not enough outlets, carpet and panelling nice. (3)

Furniture (if furnished)

Comments:
No storage, not maintained. (1)

Do you feel there should be some sort of social center for the residents of Married Student Housing?

Yes 4 No 2

If your answer was yes, complete the following questions.
Check the activities you feel should be available there.

Day Care

Laundry Facilities

Game Room

Paperback Book Swap

Sauna

Pub

Small Store

List your preferences for additional activities or services below!

Tool and equipment rental.

Single parents group.

Information center.

How much extra rent per month would you be willing to pay for this center?

$1.00 $5.00 $10.00 $15.00 $20.00

2 2

I am Male 1 Female 4 1 couple

I have ______ children. Age(s) 2(2) 3(1)

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm Rural Non-farm Small Town (under 2,000) 1
Large Town (2,000-10,000) 2 City (over 10,000) 3
My father's occupation is: ________________

I live in:

A Single Family House
An Attached House
The Stacks
Julia Martin Drive
The Towers
Grant Chamberlain Drive

This completes the questionnaire. Please place it in the self-addressed stamped envelope enclosed and mail as soon as possible. Thank you for your cooperation.
The intent of this questionnaire is to obtain information about the quality of married student housing on the NMU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop my undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at the evenings at 587-2250.

Sincerely,

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section 1. Please state generally how satisfactorily your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Batter/Dressing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small - lack of storage, no tub. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking/Meal Preparation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No vent, lack of outlets.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studying</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laundry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None provided.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Very Unsatisfactory</td>
<td>2 Unsatisfactory</td>
<td>3 Neutral</td>
<td>4 Satisfactory</td>
<td>5 Very Satisfactory</td>
</tr>
<tr>
<td>---</td>
<td>----------------------</td>
<td>-----------------</td>
<td>-----------</td>
<td>---------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>12</td>
<td>Children's Play (Indoors &amp; Outdoors)</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>13</td>
<td>Sewing or Hobbies</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Adult Recreation</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td>Meeting New People</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Socializing</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>17</td>
<td>Home Decorating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>18</td>
<td>Parking</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>19</td>
<td>Overall Housing Quality</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Section II: Please rate your house or apartment on the following features, commenting with suggestions for improvement as in the previous questions.

<table>
<thead>
<tr>
<th></th>
<th>1 Location (on campus)</th>
<th>2 Good Insulation</th>
<th>3 Heating, no central heat</th>
<th>4 Activities/Services Available</th>
<th>5 Have stove and refrigerator</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Column #</td>
<td>Title</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td><strong>Very Unsatisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Unsatisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Neutral</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Satisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Very Satisfactory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Children's Areas</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of equipment.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Outdoor Yard Space</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Entry/Stairwell</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Doors drafty.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Family Privacy</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Noise Control</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Personal Privacy</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Apartment/Room Size</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Storage Space</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lacking in kitchen. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Window Area/Placement</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Heat/Ventilation</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cold, insulation lacking, no central heat. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Appliances</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Should have stove and refrigerator.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Anterior Finishes

Comments:
Poor color.

Furniture (if furnished) 0 0 1 0

Comments:

Do you feel there should be some sort of social center for the residents of Married Student Housing?

Yes 4 No

If your answer was yes, complete the following questions.
Check the activities you feel should be available there.

Day Care 3

Laundry Facilities 4

Game Room 2

Paperback Book Swap 1

Sauna 2

Pub 0

Small Store 3

List your preferences for additional activities or services below!

How much extra rent per month would you be willing to pay for this center?

$1.00 $5.00 $10.00 $15.00 $20.00

I am Male 2 Female 2

I have 2 children. Age(s) 1(1) 1(2)

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm 2 Rural Non-farm Small Town (under 2,000)

Large Town (2,000-10,000) 1 City (over 10,000) 1
The intent of this questionnaire is to obtain information about the quality of married student housing on the MSU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop my undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at home in the evening at 587-2250.

Sincerely,

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

**Section 1.** Please state generally how satisfactorily your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very Unsatisfactory</th>
<th>Unsatisfactory</th>
<th>Neutral</th>
<th>Satisfactory</th>
<th>Very Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>06 Bathing/Dressing</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No storage, small, no shelves, racks, no window, poor ventilation. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>07 Cooking/Meal Preparation</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of counter space. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>08 Eating</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Next to door, small. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>09 Sleeping</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Not big enough for queensize bed. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Studying</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>No space. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Laundry</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Schedules not adhered to, slop sink, times should be signed-up. (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Children's Play (indoors &amp; outdoors)</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Comments: Outdoors - fair. Indoor - poor; no room; winter - cold. (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sawing or Hobbies</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Comments: Childs bedroom, no room take down - put up. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Recreation</td>
<td>2</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Lacking. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meeting New People</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Comments: Not conducive. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Socializing</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Comments: Lack of it, one cannot study while the other entertains. No meeting place. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home Decorating</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Little space, blockwalls, restrictions. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Comments: Not enough, should be assigned. (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall Housing</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>1</td>
</tr>
</tbody>
</table>

Section II. Please rate your house or apartment on the following features commenting with suggestions for improvement as in the previous questions.

<table>
<thead>
<tr>
<th>Feature</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location (on campus)</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Comments: Good, poor in relation to walking, lacks imagination in layout. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activities/Services Available</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Comments: No meeting ground, night-time babysitters, repairmen prompt. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>---</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Very</td>
<td>Unsatisfactory</td>
<td>Unsatisfactory</td>
<td>Neutral</td>
<td>Satisfactory</td>
</tr>
<tr>
<td><strong>Children's Areas</strong></td>
<td><strong>Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toys left out dangerous, for older children, bedrooms too small. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Outdoor Yard Space Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plenty but not exciting, on exhibit, fenced yard nice. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Entry/Stairwell Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noisy, shelter is good, wind. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Family Privacy Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Noise between rooms (apts.), ground floor looked in, opposing windows. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Noise Control Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Water pipes, ST - to below. (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Personal Privacy Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>None - room arrangement.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Apartment/Room Size Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small, don't like one room for living. Third bedroom too small. (9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Storage Space Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don't like steel doors, not enough space. (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td><strong>Window Area/Placement Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor placement, no kitchen window, not enough. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Heat/Ventilation Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor stove vent, condensation, noisy. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Appliances Comments:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oven bigger, another rack, freezer hard to clean. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Column # Unsatisfactory Unsatisfactory Neutral Satisfactory Satisfactory

33 Interior Finishes

Comments:
Lack of diversity - color, closet doors break, University should paint mildew. (3)

34 Furniture (if furnished)

Comments:
Lack of lamps, uncomfortable living set, inadequate rent furniture. (3)

Do you feel there should be some sort of social center for the residents of Married Student Housing?

Yes _11_ No _3_

If your answer was yes, complete the following questions. Check the activities you feel should be available there.

36 Day Care

37 Laundry Facilities

38 Game Room

39 Paperback Book Swap

40 Sauna

41 Pub

42 Small Store

List your preferences for additional activities or services below!

Craft-hobby area, ice skating, basketball, tennis, swimming,
multi-purpose recreation room, volleyball, dancing, etc.

Auto stalls - pit or hoist, heated, sitting service.

How much extra rent per month would you be willing to pay for this center?

<table>
<thead>
<tr>
<th>$1.00</th>
<th>$5.00</th>
<th>$10.00</th>
<th>$15.00</th>
<th>$20.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>

I am Male _6_ Female _4_ 2 couples.

I have __________ children. Age(s) _3(3) 14(2) 7(1)___

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm _2_ Rural Non-farm _1_ Small Town (under 2,000) _0_ Large Town (2,000-10,000) _4_ City (over 10,000) _6_
Hy father's occupation is: 

I live in: 
- A Single Family House
- An Attached House
- The Stacks
- Julia Martin Drive
- The Towers
- Grant Chamberlain Drive

This completes the questionnaire. Please place it in the self-addressed stamped envelope enclosed and mail as soon as possible. Thank you for your cooperation.
The intent of this questionnaire is to obtain information about the quality of married student housing on the HSU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop my undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at the even. ext 537-2250.

Sincerely,

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section 1: Please state generally how satisfactorily your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th>Activity</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bathing/Dressing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small, small tub, lacks outlets. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cooking/Meal Preparation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More counter space, sink placed poorly, storage, double sink. (8)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eating</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It's like eating in the living room, too small, cluttered, small table. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sleeping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hide-a-bed handy, poor mattress. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Studying</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No space, no shelf or alcove, no desk. (6)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laundry</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Table area for folding, hours assigned are impossible, cleaning. (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>--------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>12</td>
<td>Very Unsatisfactory</td>
<td>Unsatisfactory</td>
<td>Neutral</td>
<td>Satisfactory</td>
<td>Very Satisfactory</td>
</tr>
<tr>
<td>Children's Play (Indoors &amp; Outdoors)</td>
<td>0</td>
<td>2</td>
<td>8</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Children's noise distracting.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Sewing or Hobbies</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No room, no space provided. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Adult Recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No organized recreation, SOB great. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Meeting New People</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>0</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Socializing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>0</td>
<td>5</td>
<td>5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No place for it. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Home Decorating</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>0</td>
<td>3</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Restrictions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Parking</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Too crowded, should be assigned, plug-ins better spaced. (5)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Overall Housing Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Good for rent, pleased.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section II. Please rate your house or apartment on the following features commenting with suggestions for improvement as in the previous questions.

<p>| 20     | Location (on campus) | | | | |
| Comments: | 0 | 0 | 0 | 9 | 5 |
| | Good, walk nice to be out of traffic. |
| 21     | Activities/Services Available | | | | |
| Comments: | 0 | 0 | 5 | 8 | 1 |
| | Steam doesn't work, very outdated, only one large burner. (3) |</p>
<table>
<thead>
<tr>
<th>Column #</th>
<th>Very Ununsatisfactory</th>
<th>Unsatisfactory</th>
<th>Neutral</th>
<th>Satisfactory</th>
<th>Very Satisfactory</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Children's Areas</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Playground.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Outdoor Yard Space</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Entry/Stairwell</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Family Privacy</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Noise Control</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Elevator, floor transmission, children playing. (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Personal Privacy</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Soliciting, too small. (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Apartment/Room Size</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Small-no study area, freezers, nice for two. (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Storage Space</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>More hanger rods, nice lockers, more cabinets. (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Window Area/Placement</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>More centered preferred, good view, small. (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Heat/Ventilation</td>
<td>0</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Not good regulatable. (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Appliances</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Comments:</td>
<td>Stove doesn't work, more outlets, only one large burner. (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
33 Interior Finishes
   Comments:
      Lack of color, panelling and brick nice, curtains too short, cat damage, wind and water leak. (5)
34 Furniture (if furnished)
   Comments:
      Plastic furniture yuk!, storage, dull, hide-a-bed nice. (3)

Do you feel there should be some sort of social center for the residents of Married Student Housing?
Yes 8  No 6

If your answer was yes, complete the following questions.
Check the activities you feel should be available there.

Day Care 3
Laundry Facilities 2
Game Room 6
Paperback Book Swap 2
Sauna 6
Pub 2
Small Store 4

List your preferences for additional activities or services below!

Auto shop.
Children's playground - swings.

How much extra rent per month would you be willing to pay for this center?
$1.00 $5.00 $10.00 $15.00 $20.00
2 4 2

I am Male 4  Female 7
I have 0 children. Age(s) 0

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm 2  Rural Non-farm 1  Small Town (under 2,000) 3
Large Town (2,000-10,000) 1  City (over 10,000) 7
My father's occupation is:

I live in:
A Single Family House
An Attached House
The Stacks
Julia Martin Drive
The Towers
Grant Chamberlain Drive

This completes the questionnaire. Please place it in the self-addressed stamped envelope enclosed and mail as soon as possible. Thank you for your cooperation.
The intent of this questionnaire is to obtain information about the quality of married student housing on the HSU campus. It is important that each respondent complete the entire questionnaire so that valid and reliable conclusions may be obtained. Results of the survey will be provided to the On-Campus Living Office in the form of guidelines and suggestions for future married student housing construction. The results will also be used to develop my undergraduate thesis in the School of Architecture.

If you have any questions concerning this research please contact me at the evenings at 587-2260.

Sincerely,

[Signature]

Paul Vosburgh

There are three sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section I: Please state generally how satisfactory your house or apartment permits each of the following activities:

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section II: Here are four sections of questions concerning married student housing. In this section please check the appropriate level of satisfaction and comment on the issue by providing suggestions for improvements in the space below.

Section II: Bathing/Dressing

Comments: 

Too small, hot water lack, tub too small, no window, towel and linen closet. (4)

Section II: Cooking/Meal Preparation

Comments: 

No large burners on stove, not enough counter, poor lighting, not enough cupboards, no pantry, small, double sink if no dishwasher. (7)

Section II: Eating

Comments: 

Section II: Sleeping

Comments: 

Telephone jack, headboards. (1)

Section II: Studying

Comments: 

No desks or room for desks, lighting. (6)

Section II: Laundry

Comments: 

Maintenance, cleaning, non-student use, poor assigned times. (2)
| Column 3 |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 5 |
| **Children’s Play** (Indoors & Outdoors) | | | | | |
| Comments: | No facilities for young children, noisy on floors. |
| **Sewing or Hobbies** | | | | | |
| Comments: | No space. (2) |
| **Adult Recreation** | | | | | |
| Comments: | Outdoor space unusable. |
| **Meeting New People** | | | | | |
| Comments: | |
| **Socializing** | | | | | |
| Comments: | Restrictions, wall surface too hard. (9) |
| **Parking** | | | | | |
| Comments: | Parking should be assigned, not enough. (8) |
| **Overall Housing Quality** | | | | | |
| Comments: | |

Section II. Please rate your house or apartment on the following features commenting with suggestions for improvement as in the previous questions.

<p>| Location (on campus) | | | | | |
| Comments: | Too far off campus, too near singles. (2) |
| Activities/Services Available | | | | | |
| Comments: | More speeding tickets given here. |</p>
<table>
<thead>
<tr>
<th>Column #</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children’s Areas</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Sandboxes, not enough equipment. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Outdoor Yard Space</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Comments:</td>
<td>Terrific.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Entry/Stairwell</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Snow, cold air, cut lights and save energy, cement too smooth. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family Privacy</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Bathroom noises, ground floor has less. (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise Control</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Comments:</td>
<td>Little acoustic privacy, water pipes, bedrooms by cars. (10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Personal Privacy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Apartment/Room Size</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>One room for living is lacking, too small, second bedroom small. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage Space</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Comments:</td>
<td>More, tires, bicycles, for unwanted furniture, skiis, less. (9)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Window Area/Placement</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Comments:</td>
<td>Bedroom - not enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heat/Ventilation</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td>Fan above stove useless, screen doors, bathroom gets steamy, baseboard heat poor, falls apart. (4)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appliances</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Comments:</td>
<td>Range too small, no large burners, dishwashers, more than one rack. (12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Interior Finishes

- Very Unsatisfactory
- Unsatisfactory Neutral
- Satisfactory Satisfactory

Comments:

Paint chips easily, better lighting, carpeting, walls too hard, cupboards too high. (4)

Furniture (if furnished)

- Very Unsatisfactory
- Unsatisfactory Neutral
- Satisfactory Satisfactory

Comments:

Cheap, uncomfortable junk. (5)

Do you feel there should be some sort of social center for the residents of Married Student Housing?

Yes 9  No 9

If your answer was yes, complete the following questions. Check the activities you feel should be available there.

- Day Care
- Laundry Facilities
- Game Room
- Paperback Book Swap
- Sauna
- Pub
- Small Store

List your preferences for additional activities or services below!

Automotive pit, tennis courts, party room,

social activities for marrieds, conference room,

message center.

How much extra rent per month would you be willing to pay for this center?

$1.00  $5.00  $10.00  $15.00  $20.00

I am Male 6  Female 10  1 couple

I have children. Age(s) 4(1)  1(2)

Please check one of the following descriptions about the type of environment you grew up in.

Rural Farm 2  Rural Non-farm 1  Small Town (under 2,000) 1

Large Town (2,000-10,000) 9  City (over 10,000) 5
My father's occupation is: ________________________________________________________________

I live in:

A Single Family House
An Attached House
The Stacks
Julia Martin Drive
The Towers
Grant Chamberlain Drive

This completes the questionnaire. Please place it in the self-addressed stamped envelope enclosed and mail as soon as possible. Thank you for your cooperation.

People don't understand operation of temperature controls for refrigerator and freezer.
Questionnaire Results

The results of the questionnaire indicate that the following items are most important to the residents, in terms of not being fulfilled by their present accommodations.

The first grouping consists of the most important items in rank order. The second grouping consists of lesser, but still important, items.

Single Family Houses

- Heat/Ventilation
- Storage
- Bathing/Dressing, Appliances
- Laundry
- Adult Recreation
- Home Decoration

Attached Houses

- Heat/Ventilation
- Cooking, Interior Finishes
- Studying, Storage
- Laundry
- Appliances
- Home Decoration
- Children's Area
- Entry

The Stacks

- Heat/Ventilation
- Storage, Appliances, Interior Finishes
- Laundry
- Sleeping
- Parking
- Overall Housing Quality
- Entry
Julia Martin Drive

- Apartment Room Size
- Storage Space
- Parking
- Children's Play, Noise Control
- Family Privacy, Window Placement

The Towers

- Cooking/Meal Preparation
- Studying
- Parking
- Adult Recreation

- Laundry, Interior Finishes
- Bathing/Dressing, Apartment Room Size

Grant Chamberlain Drive

- Noise Control
- Home Decoration
- Parking
- Cooking
- Studying

- Appliances
- Adult Recreation
- Furniture

In response to the question regarding the need for a social center for married student housing residents: Yes 47 No 25 or a 2/3 majority for the center.

The following activities or services were found desirable. In descending order:
Additional services requested were: Automotive stalls
Skating
Volleyball, crafts workshop

Of the 47 respondents indicating a need for a social center:

- 44% were willing to pay an additional $10.00 in rent.
- 23% were willing to pay an additional $5.00 in rent.
- 33% were willing to pay an additional $1.00 in rent.

Behavioral Science Research

Research is summarized in the form of written guidelines and graphic illustrations applicable to family housing environments. The research is a synthesis of three primary sources: the survey, Easter Hill Village by Clare Cooper, and A Pattern Language by Christopher Alexander.

In the last section of her book, Ms. Cooper set forth a series of guidelines for low and medium income multifamily housing based on almost 100 housing studies she performed or researched. The guidelines and their format in the next section were taken from her book. In most cases they were edited or expanded by; the uniqueness of the family housing situation at Montana State University and the survey, or by the patterns developed in Christopher Alexander's book. Where a pattern was used, it is referenced in the text by the following type of notation. #52 Networks of Paths and Cars. The graphic illustration provided for each set of guidelines is one, or a synthesis of a series of Alexander's graphic pattern displays. Additional sources of infor-
mation that influenced the guidelines are listed in the bibliography at the end of this section.

It is my intention that the guidelines be used as a working loose-leaf notebook by the residents and administrators of family housing to evaluate future designs for new housing and to pinpoint possibilities for improvement in the current housing situation. As such it should be expanded, edited or otherwise changed as knowledge about the needs of family housing residents is improved.
Guidelines: Site Layout

1. A multifamily housing development should contain approximately 64 dwellings. A smaller development (10-30 dwellings) might not provide enough playmates for children or support all types of play. A larger development (100 or more dwellings) might take on a project like appearance.

2. Density per se is not as important a predictor of satisfaction as is density combined with a number of other variables.
   a. Overall size - densities should generally be less than 10 families per acre.
   b. Visual and functional areas to open space from the dwelling.
   c. Division into small clusters.
   d. Variety in facade design.
   e. Variety in layout - a large number of units should not be visible from any one place in the development.
   f. Minimum of noise intrusion.
   g. Protection of privacy - courtyard or atrium housing provides the highest degree of privacy.

3. A clear delineation should be made between publicly-controlled space (streets), community-controlled space (shared open space, play areas, laundries), and privately-controlled space (dwellings and private open space), so that there is no ambiguity as to who has access to, responsibility toward, and control over that space.

4. Quietness and attractiveness are among the most desirable attributes of a residential environment.
   a. Quietness = minimum of noise from adjacent units, traffic, children.
   b. Attractiveness = landscaping, good layout, preferred views (distant open spaces, grass and trees, human activity), and good maintenance.

5. Families with children under about the age of 10 high value a safe (i.e. accident-free) residential environment - the exclusion of moving cars from the site.

6. It is essential that a delicate balance be struck between the need for community and the need for privacy. To foster the sense of community:
   a. residents should have common values and goals - school, similar stage in life cycle.
   b. visual and physical access to others when desired - private, open space, common land.
   c. opportunities for meeting and knowing neighbors.
To foster a sense of privacy:
a. residents should have control over physical, visual, and aural access to one's private living space.
b. having complete freedom of choice regarding behavior in the home.
c. limited experiencing of forced social encounters.

7. A stronger sense of security and community is likely to arise when access to the site by outsiders is discouraged.

8. A degree of homogeneity of the population is required for any housing development to evolve into a community.
fast outside traffic

64 families

density approx.
10 families/acre

safe interior connections

courtyard or atrium housing

communal open space
play areas

exclusion of moving
traffic from site
Arrangement of Dwelling Units on the Site

1. Never build large monolithic buildings. Whenever possible translate your building program into a building complex, whose parts manifest the actual social facts of the situation. At low densities, a building complex may take the form of a collection of small buildings connected by paths, bridges, arcades, gardens, etc.

2. Building height should conform to the predominant height of surrounding buildings, and in any case, never be more than four stories high.

3. In order to accommodate individual preferences for local contracts, a variety of orientations should be provided; homes on quiet backwaters, those on busy streets and those in between, in equal numbers.

4. Encourage growth towards a mixture of household types in every neighborhood and in every cluster so that singles, couples, and families are side by side, and so they can more within the development as their space needs change.

5. Arrange the houses to form very rough but identifiable clusters of 5-12 households around some common land and paths.

6. Families with small children have special locational requirements: ideally ground level units with enclosed yards or patios, overlooking, from a slightly elevated position, on enclosed common open space for pre-school activity.

7. Dwellings should not be arranged so that doors and windows are exactly opposite, or have common entries, in order that neighbor contact is neither strongly encouraged nor strongly discouraged.

8. Neighbor contacts tend to be greater where dwellings are grouped around a common pedestrian open space or other shared facility such as laundry, parking, play areas, etc.
separate private entries

2 story limit families w/ children at ground level

clusters of 5-12 families with shared open space

collections of small buildings

couples

49% 10% singles

41% families

variety of orientations
public private semi-private
Access to Dwellings

1. The form of access to dwellings appears to have crucial implications for privacy, sociability, and feelings of loneliness: ideally, a private entry, at grade, leading through a semi-private transition space (yard, porch, patio, etc.) from an open space or street used by pedestrians. Mark it with a change of level, sound, direction, etc. #112 Entrance Transition.

2. A semi-private transition space between the privacy of the house and the publicness of the street, footpath or accessory provides an extremely important locale for casual socializing.

3. Security is much enhanced when entrances to individual dwellings or group of dwellings are under potentially continuous surveillance: windows overlooking a moderate-sized open space to doorways or stairs opposite.

4. A delicate balance must be struck between designing for ease of surveillance and designing for privacy.
- view out to a larger space
- change of direction
- clearly defined boundaries
- semi-private transition space
- pedestrian street

communal open space

potential surveillance
Communal Open Space

1. Outdoor spaces "left over" between buildings are generally not used. Instead surround each with some degree of enclosure; building wings, trees, arcades, etc. until it becomes a positive entity with clearly defined boundaries. #106 Positive Outdoor Space.

2. Common open space will be used only if it is provided with a social focus; benches, children's play and adult recreation, and attractively landscaped with sun and shade.

3. Recognition of a common open space as the indisputable territory of a group of dwellings provides, for many residents and their children, a needed sense of place and belonging: all dwellings should have direct access to communal open space.

4. Many families with children, once they have experienced it, like to have access to shared communal open space for play and will be prepared to make do with relatively small private yards or patios in return for this shared space.

5. Considerable dissatisfaction will be expressed with both private and communal outdoor space unless the boundaries are strictly defined and privacy is ensured in the former.

6. Maintenance of communal open space is a crucial factor in resident satisfaction with it: responsibility for such (tenant or housing authority) must be established at the design or construction phase.

7. Children in the active group-play age range (5 to 10) use the entire neighborhood to play. They prefer moderate sized, spatially enclosed outdoor areas, and supervising adults like to be able to oversee the whole of such an area from some place in the dwelling. - 70 foot maximum width dimension. - roughly square or rectangular. - not separated from dwellings by roads or parking.

8. For aesthetic reasons, identification of sub areas within the development, and variety of play spaces; a series of connected medium-sized spaces, of varying shape and appearance, is more suitable than one large or several identical spaces.

9. Surround these spaces with pockets of activities - small, partly enclosed at the edges, which get formed into the open space between the paths, and make it natural for children and adults to pause and get involved. #124 Activity Pockets.
all units open onto communal space

small private yards

children's play

semi-enclosed outdoor space surrounded by pockets of activity

strictly defined boundaries

-70' maximum dimension

-not separated from dwellings by roads or parking
Children's Play and Teenage Activities

By far the greatest users of public open spaces in multifamily housing are children. Since most housing-evaluation studies indicate problems with children's play as being one of the most frequent subjects of complaint, more effort should go into designing the site for children's rather than adults' use.

A. General Guidelines

1. Children tend to play anywhere and everywhere and not just in designated play spaces.
   - activities should be place-structured.

2. Children will be attracted to safe, interior landscaped areas of Radburn-type layouts only if they find them more interesting play spaces than the surrounding roads or parking areas.
   - The shortest pedestrian path to the local grade school should pass through them.

3. Children prefer to play and move around in an environment that is varied and full of surprises.

4. The most frequent outdoor play activity of children is moving around the home neighborhood.
   - walking, running, cycling, roller-skating, etc.

5. Children tend to play more frequently on hard surfaces than on grass.

B. Needs of Preschool Children

6. Children under 6 and their parents have very distinct needs, and it is most critical that they be met. Most children under 6 like to play within sight and/or calling distance of their parents or other adults known to them.

7. Small children tend to play close to the most frequently used entrance to a dwelling or building.

8. Specific design requirements for tot lots include:
   a. a location both sheltered and sunny.
   b. a location close to dwellings most likely to use it.
   c. planting or fencing to give a sense of enclosure and security.
   d. scaled down play equipment.
   e. a sand pit with water spigot and good drainage.
   f. flat surfaces surrounding or within the sand area.
   g. areas for tricycling.
   h. grass for rolling on.
   i. comfortable benches with a view for supervising adults.
Children's Play and Teenage Activities (continued)

C. Needs of Children Aged 5 through 10 years

9. Children aged approximately 5-10 will be the most frequent users of public outdoor space, and it is this group in particular who will tend to use the whole site for their play activities. Specific playgrounds for children in this group should also be provided.

10. Play spaces for pre-schoolers and for 5-10 year olds should be separate, for safety reasons, but not necessarily completely segregated.

11. The use of an equipped playground depends largely on the variety of the equipment provided and the location of the playground.

12. It is probably better to provide a number of small, closely spaced play equipment areas situated at the junction of routes rather than one or two widely spaced areas.

13. Play equipment should be selected with two important criteria in mind: children's preferences and durability.
   a. equipment that moves; swings, merry-go-rounds, etc.
   b. equipment on which children can move - slide.
   c. places to sit and wait or table.

14. Provide an unfinished play area with raw materials of all kinds - nets, boxes, barrels, trees, ropes, frames, grass and water - where children can create and re-create playgrounds of their own. #73 Adventure Playground.

15. Conventional play equipment tends to be a better investment than specifically designed play sculpture unless they include the following features:
   a. a number of different ways of climbing up and down.
   b. a slide, slippery pole, and pulley swing.
   c. a variety of levels and sizes of spaces.

16. Provide space for group play; ball games, etc.

D. Needs of Teenagers

17. Teenagers like informal gathering places where they can "watch the action".
   - street corners, path intersections, rear parking lots, etc.
   - benches for conversation, litter container.

18. Teenage boys need a place for group play.
   - benches for girls.
   - visible location.
Children's Play and Teenage Activities (continued)

19. Some teenage boys will welcome a place to work on their cars.
   - workspace.
   - tool lock-up facilities.
   - hose bibs

20. Indoor social space should be provided for teenagers.
hard surfaces for cycling or skating on shortest route to school

tot lot for pre-schoolers

connected play
- grass and sand
- raw materials
- adventure playground

safe connections

teenage gathering place

interior social space corner location
Community Facilities

1. For any collection of buildings, decide which building or the group houses the most essential function - which building is the soul of the group, as a human institution. Then form this building as the main building, with a central position, higher roof.
   #99 Main Building.

2. Residents of this campus have, in the majority, expressed the desire for the formation of a community social center providing the following services:
   a. a pub.
   b. small store.
   c. meeting room for community gatherings and dances (SOB barn).

3. Additional services requested were:
   a. automotive stalls - pit or hoist, that are heated.
   b. tool loaning service.
   c. skating.

4. Certain kinds of facilities may not be feasible in developments of less than about 200 units. However, certain facilities should be provided in smaller groups of dwellings in this climate.
   a. small centralized day-care center.
   b. a game room for children and adults.
   c. a medium sized room for group meetings.
   d. a few smaller rooms for group study.
high roof
social center

central location
day care
game room
meeting rooms
Parking

1. Communal parking should be in a number of small, covered, locked structures wherever possible; if in open lots, they should be visible from at least some of the dwellings served.

2. Make parking lots small, serving each cluster of dwellings rather than providing one or two large lots. 
   #103 Small Parking Lots.

3. Where parking is provided in communal lots, the design should ensure that:
   a. the number spaces is in equal number to the units plus one-half.
   b. spaces are numbered and assigned, and clear directions are provided to visitor parking areas.
   c. lockable storage cabinets for tires, tools, etc. are provided for each resident parking space.
   d. hose bibs are located so as to serve each group of spaces.
   e. parking spaces are screened from the street by means of planting, walls, earth berms, or changes in level.
   f. trees which provide shade and filtered screening.
house cluster

hose bib

shade and screen

street

1.5 spaces per unit
assigned parking
Garbage Disposal

1. When possible, most families will prefer to have their own garbage cans close to the kitchen entrance.

2. If communal collection points for garbage are provided, they should be:
   a. conveniently situated for all, but especially for large families.
   b. not so visible as to become an eyesore and not so close to dwellings and private open space as to create problems with odors.
   c. enclosed or otherwise screened from view.
   d. inaccessible to children at play and animals and impervious to strong winds.
   e. provided with a hose bib for easy cleaning.
   f. easily approachable by collection vehicles.

3. As in the case of most communal facilities, the fewer the number of families sharing each facility the greater will be the sense of individual responsibility and the better the upkeep of that facility.
dwelling cluster

road

easy access from each household

hose bib enclosure
Pedestrian Circulation

1. Lay out pedestrian paths at right angles to roads, not along them, so that paths begin to form a second network, distinct from the road system and orthogonal to it.
   #52 Network of Paths and Cars.

2. Lay out collections of buildings so that one reaches a given point inside by passing through a sequence of realms, each marked by a gateway and becoming smaller as one passes to the next.
   #98 Circulation Realms.

3. Arrange buildings so that they form pedestrian streets with many entrances and open stairs opening directly from upper stories to the street.
   #100 Pedestrian Streets.

4. Layout of the footpath system should:
   a. accommodate predictable traffic patterns - internal footpaths will not be used by the majority of residents unless it forms the shortest route to school, cars, communal facilities.
   b. run parallel to access roads and adjacent streets.
   c. minimize nuisance and annoyance to individual dwellings.
   d. take cognizance of the location of off-site facilities that residents are likely to want access to.
   e. be multipurpose - sunny and sheltered places for sitting, visiting and activity watching.

5. Footpaths are an important location for children's play and should:
   a. provide a safe and interesting play circuit.
   b. be sufficiently wide to accommodate children on bicycles and adults on foot.
   c. discourage fast cycling or noisy skateboarding on long downhill sections close to dwellings.

6. Detailed design features which facilitate pedestrian circulation and footpath maintenance include:
   a. rounded corners and intersections.
   b. ramped entrances and level changes.
   c. wider pavements near entrances to buildings and communal facilities.
   d. provision of handrails beside stairs and ramps.
   e. sloped to drain in wet weather.
paths at right angles to roads

major entrances

minor entrances

sun & shade

major realms

minor realms

accommodate existing traffic patterns

pedestrian streets

paths as play circuit
Landscaping and Street Furniture

1. Several housing evaluation studies have shown that the exterior appearance of individual dwellings matters less to residents than the layout and landscaping of the scheme as a whole. Consequently a considerable portion of the budget and design effort should be spent on landscaping and site planning.

2. The designers must make it clear to the client, the builder, loaning authorities, and management that landscaping, play equipment, fences, benches, etc. are not "extras" that can be eliminated at the construction phase without altering the whole social and aesthetic effectiveness of the design.

3. The landscaping of the whole site must be carefully planned, installed, and reasonably well established before occupancy.

4. Use of the site by children must be a critical consideration in landscape design, because they are the most frequent users of public open space.

5. When considering the inclusion of a grassed area, the designer must decide whether its purpose is solely for appearance or, additionally for children's use. If so, it should:
   a. be large enough to equalize intensity of use.
   b. have several points of access to avoid excessive wear and tear.
   c. be separated from dwellings by some means to reduce noise problems.

6. Provide planting spaces where individual households can add to the general landscaping of the development:
   - window boxes and planting strips.

7. Plant native species.

8. Choose trees to enhance the microclimate, and minimize maintenance problems.

9. Other than lawns, all planted areas next to hard surfaces must have wooden edges, raised borders, or retaining walls.

10. Ground cover and shrub plantings should be used only where it is specifically desired to keep people off.

11. Plan hard surfaces around play equipment areas:
   - sand, redwood chips, or rubber matting under the equipment.
   - a hard surface area, cobbles or concrete, surrounding the play area.
   - grass beyond that.
12. Litter receptacles should be placed at frequent intervals close to play areas and sitting places.

13. Lighting should be provided so that the whole site is safe at night.

14. Outdoor sitting areas should be provided, if possible, in all the following locations:
   a. adjacent to, and slightly above, preschool play areas.
   b. within viewing and calling distance of playgrounds for older children.
   c. along frequently used pathways or overlooking scenes of activity.
   d. in private, quiet and secluded spots.
   e. L or U shapes for group discussion near a community building.
raised borders for planting areas

seating L or U shaped
litter receptacle

place for landscaping by residents

soft surfaces under play equipment
hard surfaces around play areas

trees to enhance microclimate

landscaping and play areas are not "extras"
Private Open Space

1. The designers should make every effort to provide a private garden, yard, patio, or balcony for every dwelling, with the size in some degree proportioned to the size of the unit.

2. Always place buildings to the north of the outdoor spaces that go with them, and keep the outdoor space to the south. Never leave a deep band of shade between the building and the sunny part of outdoors.
   #105 South Facing Outdoors.

3. Place private open space in such a way that there is a view out of it to some larger space. At one edge beside a door make a roofed veranda or porch which is continuous with the inside and the porch.
   #115 Courtyards That Live.

4. It is essential that a clear delimitation be made between private and public space. Where private open space is intended for leisure time activities (rather than solely for utilitarian functions or display) it is essential that it be fenced for privacy.
   - avoid over-viewing from decks above.

5. Front yards often used for display of gardening prowess, should be fenced or otherwise treated so as to discourage trampling by children without blocking the view of passerby.

6. The optimum size of the yard has not been determined but a few studies report that residents will tend to complain when yards are less that 200-300 square feet.

7. Ground level private open space should preferably be within view of the kitchen, and lead out to a safe communal play area.

8. There should be adequate control over access from private to public space.
   - ideally a gate with a high latch.

9. Dwellings not at grade should have access to a balcony of usable dimensions with a southerly orientation.

10. Balconies will be used only if they are reasonably private. It should be a minimum of 6 feet deep and partly recessed into the building and somewhat enclosed.
    #167 Six Foot Balcony.

11. Where possible, the balcony should be adjacent to the living room with floor-to-ceiling sliding glass doors separating the two.
Private Open Space (continued)

12. The balcony should be screened in such a way that small children on the balcony, and adults in the dwelling, can see out.

13. Balcony drainage should be adequate.
buildings to the north

veranda

view

yard approx. 200-300 square feet

south outdoors

partly recessed balcony min 6' deep

low screen

large glass doors

communal space

Bathing and Cooking Considerations

It is evident that there are three distinct factors in connection with space and its occupancy by families. The small families need the space to accommodate, have more freedom for activities and maintain a feeling of privacy. A family of four needs to have a separate room for children's activities, a room for kitchen and eating, and a separate store for keeping household items. A family of five needs a communal space for recreation and a room for kitchen and eating. A family of six needs a communal space for recreation and a room for kitchen and eating. A family of seven needs a communal space for recreation and a room for kitchen and eating. A family of eight needs a communal space for recreation and a room for kitchen and eating.

Partly recessed balcony min 6' deep

low screen

large glass doors

Bathing and Cooking Considerations

It is evident that there are three distinct factors in connection with space and its occupancy by families. The small families need the space to accommodate, have more freedom for activities and maintain a feeling of privacy. A family of four needs to have a separate room for children's activities, a room for kitchen and eating, and a separate store for keeping household items. A family of five needs a communal space for recreation and a room for kitchen and eating. A family of six needs a communal space for recreation and a room for kitchen and eating. A family of seven needs a communal space for recreation and a room for kitchen and eating. A family of eight needs a communal space for recreation and a room for kitchen and eating.

Bathing and Cooking Considerations

It is evident that there are three distinct factors in connection with space and its occupancy by families. The small families need the space to accommodate, have more freedom for activities and maintain a feeling of privacy. A family of four needs to have a separate room for children's activities, a room for kitchen and eating, and a separate store for keeping household items. A family of five needs a communal space for recreation and a room for kitchen and eating. A family of six needs a communal space for recreation and a room for kitchen and eating. A family of seven needs a communal space for recreation and a room for kitchen and eating. A family of eight needs a communal space for recreation and a room for kitchen and eating.
Guidelines: Building Considerations

It should be recognized that there are three distinct social groups that must be accommodated by family housing; small families, couples, and single students.

1. In a house for a family it is the relationship between children and adults that is most critical. Give the house three distinct parts; a realm of parents, a realm for children and a common area. Conceive of these three areas as being roughly similar in size with the common area the largest. #76 House for a Small Family.

2. In a small household shared by two, the most important problem which occurs is the possibility that each may have too little opportunity for solitude and privacy, a house for a couple should have two kinds of places; a shared couples realm and individual private worlds. #77 House for a Couple.

3. In a house for singles the problem is much the same as that for a couple's house. The house should have three parts; a shared communal realm, a shared couples realm, and individual private worlds.

4. The following factors are likely to influence contentment in rank order:
   a. internal space sufficient for family activities.
   b. room arrangement and materials enhancing maintenance.
   c. sufficient aural and visual privacy from neighbors and passersby.
   d. sufficient privacy within the house.
   e. the interior be pleasing in appearance.
   f. a pleasing exterior appearance emphasizing individuality.

5. The ideal dwelling is a single family house, the designer should try and come as close to the ideal as possible.

6. Units with a double aspect are most desirable for reasons of ventilation, natural light, child and car supervision.

7. There is a general preference for one-level or split-level dwellings, especially where there are small children.

8. To achieve the proper conditions of natural light, arrange each building so that it breaks down into wings, corresponding to social groups within the building, never more than 25 feet wide. #107 Wings of Light.

9. For psycho-social reasons, connect your building up whenever possible to the existing, or other, buildings round about. So not to try to keep set backs between buildings, instead try to form new buildings as continuation of other buildings. #108 Connected Buildings
Guidelines: Building Considerations (continued)

10. Build no internal staircases. Connect all autonomous households directly to the ground by means of roofed open stairs. Make open landings or an open arcade where upstairs units share a single stair. #158 Open Stairs.

11. The shape of the dwelling has a great effect on the relative degrees of privacy and overcrowding in it, and this in turn has a critical effect on people's comfort and well being. In small buildings string out the rooms so that the distance between each room is as great as it can be. #109 Long Thin House.

12. Place the most important rooms along the south edge of the building, and spread the building out along the east-west axis; give the common area a full southern exposure, bedrooms south-east, yard and porch; south-west. #128 Indoor Sunlight.

13. Create a single common area for every social group. Locate it at the center of gravity of all the spaces the group occupies, and in such a way that the paths which go in and out of the building lie tangent to it. #129 Common Areas at the Heart.

14. Locate each room so that it has outdoor space outside it on at least two sides, and then place windows in these outdoor walls, so that natural light falls in every room from more than one direction. #159 Light on Two Sides of Every Room.

15. Structure should be of locally acceptable materials, selected to wear well and facilitate future maintenance.

16. Exteriors of dwellings should be articulated or individualized as much as possible.
   - possibilities include varying color, height, and landscaping.

17. A fundamental sense of shelter is only possible when the roof encompasses the entire house. #117 Sheltering Roof.

18. Most people like to "put their mark" on the place in which they live.
   - opportunities for painting, gardening, putting up shelving, etc.
outdoor space on 2 sides of each room
double aspect
common area at the heart
private worlds
connected buildings

encompassing roof
elongated east-west axis

open stair
sleeping to the east
wings of light

locally acceptable materials
long thin house

ideal is single family house
one level or split-level preferred
The Entrance

1. At the main entry to a dwelling, make a light filled room which marks the entrance, and straddle the boundary between indoors and outdoors. The outside part may be like an old-fashioned porch. #130 Entrance Room.

2. Most people want a small foyer or entry hall. This is especially true in areas of the country with cold winters. This area should contain a place for articles of heavy clothing or outerwear.
The common area

Indoor part
- Double-door entry
- Windows

Outdoor part
- Storm & screen door
- Closet for outerwear

Additional notes:
- The layout should be designed in accordance with the size of the household.
- Kitchen fixtures should be selected to save working as efficient and work free as possible.
- A double sink is preferable, a large one for washing and a smaller one for rinsing.
- There should be at least one larger burner. Burner controls should be on top of the appliance out of a young child's line of sight.
- It should have a functioning ventilation system above it.
- Ideally, an oven should be at eye level with storage room beneath, but a stove with burners above and an oven below saves space. There should be at least two racks in the oven.
The Kitchen and Dining Areas

In almost all housing-evaluation studies, more complaints are voiced about the kitchen than about any other room, largely because that is where most of the work of running a household takes place and thus where design errors are most frustrating.

1. To strike the balance between the kitchen which is too small, and the kitchen which is too spread out, place the stove, sink and food storage and counter in such a way that:
   a. no two of the four are more than 10 feet apart.
   b. the total length of the counter - excluding sink, stove, and refrigerator - is at least 12 feet.
   c. No one section of the counter is less than 4 feet long.

#184 Cooking Layout

2. It is important that the kitchen and dining area be well and cheerfully lit by natural and artificial light.
   - it should have a window over the sink and one near the dining area preferably oriented to the morning sun.

3. The kitchen should open onto a non-carpeted dining area which is large enough to accommodate the whole family plus two or three visitors.
   - most people prefer a dining area that is separate from the kitchen.

4. It should be possible to casually supervise children playing elsewhere while an adult is working in the kitchen, and to carry on a conversation with people in the living area.

5. There should be, ideally, a small bookshelf or office space in the kitchen.

6. The kitchen should be designed in accordance with the size of the family.

7. Kitchen fixtures should be selected to make working as efficient and hazard free as possible.
   Sink: A double sink is preferable; a large one for washing, and one smaller one for rinsing.
   Cook Top: There should be at least one larger burner. Burner controls should be on top of the appliance out of a young child's eye level and reach. It should have a functioning ventilating hood above it.
   Oven: Ideally, an oven should be at eye level with storage room beneath, but a stove with burners above and an oven below saves space. There should be at least two racks in the oven.
Refrigerator: A larger freezer compartment will enable users to buy food in larger quantities, calling for fewer shopping trips.
Dishwasher: If provided, the front-loading variety is preferred as the top can be used as counter space.
Garbage Disposal Units: Means fewer garbage trips and less likelihood of drain problems.

8. There are frequent complaints about the storage facilities in the kitchen in multi-family housing.
   a. Over-the-counter cupboards are hard to reach for most people if the top of the cupboard is over 6 feet 8 inches.
   b. Non-refrigerated food is ideally stored in a walk-in-pantry. An alternative to the pantry would be open shelf space or shallow cupboards with adjustable shelving.
   c. There needs to be a toll closet for brooms, vacuum cleaner, and ironing board, in kitchen or hallway.
   d. A lockable cupboard for dangerous cleaning agents should be provided.
- no section of counter
- less than 4 feet
- 12 feet of counter
windows for natural light and a view

seating for family of +3
morning sun

max 10' diameter

separate dining preferred

supervise children outdoors
The Living Room

Although the living room often takes second place to the kitchen as the most used room in the house, it is ceremonially the most important. Middle-class life-style often entail heavy use of the living room.

1. A living room oriented toward private open space or communal landscaped areas is generally preferred over one oriented toward the street or toward parking areas.

2. Since the living room is rarely used in the morning in most households, it should be oriented to the southwest to receive sunlight later in the day.

3. The living room should be large enough to accommodate all members of the family plus a few guests in a rough circle away from the circulation space. #185 Sitting Circle.

4. The shape of the living room and location of doors and windows should encourage flexibility in arrangement of furniture and use of the room.

5. There should be one wall in the living room uninterpreted by windows; this wall should be long enough so that a sofa can be set against it.

6. Windowsills should be high enough to allow furniture placement underneath, but at least one window should be low enough to permit looking out while seated (sill should be about 12-14" from floor).

7. It should be recognized that a low-income family may not have money to furnish a large room.
The couple’s realm should fulfill the following criteria:

- One wall uninterrupted by windows.
- Rough circle.
- Loose overcrowded arrangement.
- SW orientation.
- One window with low sill away from traffic.
- Private open space.
- Be situated in a private sector of the building. Be adequately sound screened.
- Be close to children’s bedrooms.
- Be large enough to contain all necessary furniture to accommodate a dressing room.

The realm should provide:

- A small deck and seating area.
- A private open space for a small deck and seating area.
- A path that leads to the entrance of the bathroom, the kitchen, and street area.

The use of durable, washable plastic matting should be encouraged to serve the needs of single students by providing a portable "bedroom".
Bedrooms

1. The couple's realm should fulfill the following criteria:
   a. be oriented to the morning sun.
      #138 Sleeping to the East
   b. have a pleasant view as it may have to double as a work or
      study area.
   c. be located in a private sector of the dwelling.
   d. be adequately sound screened.
   e. be close to children's bedrooms.
   f. be large enough to contain all necessary furniture.
   g. accommodate a dressing room.
      #189 Dressing Room
      #136 Couple's Realm.

2. Place the children's realm: their cluster of beds, a small
   playspace, along a path that touches the family rooms children
   need most; the bathroom, the kitchen, to the yard and street.
   #137 Children's Realm.

3. Single bedrooms need space for at least one bed, a bedside table,
   a chair, and a chest of drawers, with space for a small desk and
   additional chair, if possible.

4. Pre-adolescent children often prefer to share a bedroom with a
   sibling. Don't put single beds in empty rooms called bedrooms,
   but instead put individual bed alcoves off rooms with other non-
   sleeping functions (playspace) so the bed itself becomes a
   private tiny haven.
   #188 Bed Alcove.

5. The use of demountable partitions can permit residents to use
   spaces flexibly.
   - this allows a dwelling to serve the needs of single students
     by giving each a private "bedroom".
eastern light

bed alcoves & playspace  dressing area

bath.

common area

demountable partitions give singles a room of their own

-private sector
-physically close but psychologically far from children

The bathroom should also fulfill the following design criteria:
- There should be room for a dirty clothes hamper.
- There should be hooks for hanging clothes, and space for towels for each person.
Bathrooms

Problems in this area are generally centered around storage and child care.

1. In a one-or-two bedroom dwelling, one bathroom is adequate; in units with three or more bedrooms, a second half bath is desirable. - the half bath should be located near the entrance most frequently used by children playing.

2. Where there is only one bathroom, locate it so that it can be used with equal ease by guests and family members. - generally alongside the master bedroom and out of view of the commons areas.

3. Both tub and shower facilities should be provided.

4. Ideally, there should be space in which to put a changing table, with room beneath for diapers, etc. If there is no small child in the family, this space could be used for storage.

5. The sink should be adequately designed for the needs of everyone in the family.
   a. Ideally there should be two sinks: a large one to bathe a baby and a smaller one for everyday hand and face washing.
   b. The sink should be 36 inches from the floor and include a hand sprayer.
   c. The sink should have a vanity for storage of small articles around the basin, open shelves, a lockable medicine cabinet out of reach of children, a closet for cleaning items.
   d. The sink should have a built-in soap dish; towel racks at arms distance; two electrical outlets, a top-let mirror above the sink.

6. The toilet should, if possible, fulfill the following design criteria:
   a. it should be hung from the wall for easier cleaning.
   b. for physiological reasons, be a low fixture, 8 inches from the floor, making it usable by children.
   c. the toilet should be located so that, with the lid down, an adult can conveniently sit on it while bathing children in the tub.
   d. there might be a shelf to the side for books, an ashtray, and a light.

7. The bathroom should also fulfill the following design criteria:
   a. there should be room for a dirty clothes hamper.
   b. there should be hooks for hanging clothes, and space for a towel for each person.
Bathrooms (continued)

c. it should be possible to fix drying lines over the tub or shower.
d. it should have natural light and places for plants.
e. the room needs mechanical as well as natural ventilation.
f. the floor should be of a non-slip, non-pitted surface.
Window
Wide shelf for plants

Private for family
Accessible to guests

Changing table
Storage beneath

Tub & shower
Easily cleaned
Floor

Towel rack & storage

2 outlets over sink
Services, Finishes, and Laundry Facilities

1. Provide space for a washer and dryer.
   - larger families must wash more frequently and most will prefer to have these facilities in the dwelling rather than sharing a communal laundry.

2. Studies indicate that a ratio of one washer and dryer to every four households is a satisfactory arrangement.

3. Laundry schedules are the source of frequent complaints especially when they cannot be enforced. A better situation might evolve by allowing tenants to work out their schedules as a group.

4. It is important to have a heating system with low running costs and with consumption of heat under the tenants' control.

5. The gas space-heating units found in the older housing on campus are generally most unsatisfactory.

6. If wall heaters are provided, they should be located so that:
   a. the maximum amount of space is heated from each unit.
   b. the heat does not all rise up the stairs leaving the downstairs living areas minimally heated.
   c. furniture arrangements are not limited by their location.

7. Ceiling or wall lights should be included in living rooms and bedrooms, as well as lamps to facilitate personal arrangements.

8. Carpeting should be provided, since this is an item few low-to-moderate income families can afford.

9. Washable paint should be used on all internal walls for ease of maintenance, especially where small children are expected to live in the units.

10. Run a strip of picture molding around the walls of all rooms at the top of doors and windows to facilitate home decoration while simplifying costly maintenance.
    - a waist-high shelf will also help fulfill the need for display.

11. Provide durable but liveable furniture in the majority of dwellings.
    - plastic and metal furniture is generally not well received.
Laundry next to living spaces

Ceiling lights

Band of picture molding

Washable paint

Carpeting for soundproofing

Washer & dryer
1 per 4 families

Durable but livable furniture

Sound Control

Inadequate soundproofing between units is a frequent complaint in older multi-family housing, and floors and walls should be treated to effectively reduce noise emanating from them.

Units which are located on above the other, and those above the kitchen, bathroom, and storage areas, should be separated for sound control.

Units potentially used for noise-producing activities, such as living rooms, family rooms with television, or listening to the stereo, should not be located near the bedrooms of adjacent units.

Furniture in adjacent to the bedrooms of other units should be soundproofed, and non-carpeted access areas, common rooms, etc., should be carpeted to an adjacent to the bedrooms of other units.

Linen play is close to home for neighbors but with

0.
Inadequate soundproofing between units is a frequent complaint in multi-family housing, and floors and walls should be detailed carefully to minimize annoyance from noise.

1. Where units are located one above the other, all floors (except kitchen, bathroom, and storage areas) should be carpeted for sound control.

2. Rooms potentially used for noise-producing activities - the living room, for watching TV or listening to the stereo; the toilet; the kitchen, for running a dishwasher or garbage disposal unit - should not be located next to the bedrooms of an adjacent unit.

3. Communal indoor facilities which may be noise producing (for example, non-carpeted access stairs, communal laundry) should not be located adjacent to the bedrooms of dwellings.

4. Dwellings should be located vis-a-vis outdoor sound sources so as to minimize complaints of noise.
   - children's play areas close to home for supervision but with a minimum of noise intrusion.
sound isolation for acoustic privacy

living areas away from noisy traffic

sleeping away from stairs & laundry
Study

Residents in married student housing unanimously indicate a lack of a place to study at home.

1. The study area be located in an area where it will not be disrupted by other family member activities but yet not isolated from other family activities.

2. Make small work places at the edge of any common room usually no more than 6 x 6. These alcoves should be large enough for a desk or table, bookshelves, and a lamp.
   #179 Alcoves.

3. Let the front of the work place be open, always into a larger space. Place the desk so that the person working at it has a view out, either to the front or the side.
   #183 Workspace Enclosure.
one of the most frequently mentioned problems in multi-

The open alcove 50-75% enclosure

Storage

There should be an area for bulk storage within the building.

The alcove is a storage area for equipment, such as

The view out alcove 50-75% enclosure

light
Storage

Storage is one of the most frequently mentioned problems in multi-family housing, in terms of both overall quantity and ability to store certain kinds of items such as bikes, bar-b-ques, tires, extra furniture, etc.

1. Include an area for bulk storage in the building - its floor area at least 15 to 20 percent of the whole building area. Place this storage somewhere in the building where it costs less to furnish than other rooms.
   #145 Bulk Storage.

2. There should be an area for bulk storage within the dwelling.
   - a walk-in storage room or large closets for clothing. Place all closets on those interior walls which lie between rooms where acoustic insulation is needed. Placing closets on exterior walls wastes the opportunity for good acoustic insulation and cuts off precious light.
   #198 Closets Between Rooms.

3. There should be a storage area for equipment used outdoors.
   - gardening equipment, bides, outdoor furniture, etc.

4. Provide an alternative to garage storage.
   - extra furniture, appliances, boxes, etc.
closet between rooms

bulk storage
15-20% of
total area

outdoor storage for
tires, toys, bar-b-ques
Bibliography


* = primary sources.

Becker, Franklin, D., Design for Living; the Residents View of Multi-Family Housing, Center for Urban Development Research, Cornell University, Ithaca, 1974.


