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PUBLIC HOUSING FOR THE ELDERLY: THE
RELATIONSHIP OF SELECTED PHYSICAL
STANDARDS TO RESIDENT SATISFACTION

BY

KATHLEEN L. ZOELLNER

A thesis submitted
in partial fulfillment of the requirements for the
degree Master of Science, Major in
Home Economics, South
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1980

PUBLIC HOUSING FOR THE ELDERLY: THE
RELATIONSHIP OF SELECTED PHYSICAL
STANDARDS TO RESIDENT SATISFACTION

This thesis is approved as a creditable and independent investigation by a candidate for the degree, Master of Science, and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply the conclusions reached by the candidate are necessarily the conclusions of the major department.

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KLZ

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Chapter 1

INTRODUCTION

The treatment and mistreatment of old people is a widely discussed and debated topic in our nation today. People have become increasingly aware of the frightening extent to which millions of older Americans are victimized and deprived of their right and ability to function normally in society. Many elderly rely solely on a social security income, which may not be sufficient to cover basic expenses. In the future social security may not even be available for elderly people. Inflation tends to eat away at elderly's savings and affordable housing is not always desirable. Last of all, elderly may be deprived of their right to function normally in society because they tend to be stereotyped.

Part of the increased emphasis on the problems of the elderly may be attributed to the rapidly increasing numbers of elderly people in the United States. A decline in mortality rates due to medical advances has led to an increase in the proportion of elderly in the population (Morris and Winter, 1978). Persons age 65 and over have almost doubled in proportion to the rest of the population since 1930 (Bild and Havighurst, 1976). Presently there are over 22 million persons age 65 or older, a figure expected to double in the next 40 years (Salmon and Salmon, 1978).

Importance of Housing for the Elderly

A major area of recent interest to the elderly is housing. One

of the reasons housing has become a major concern is because housing represents much more than a physical structure in our society. Housing is a subject of highly charged emotional content with many strong feelings attached. The housing environment seems to have considerable control over the way in which individuals perceive themselves and over others perception of them.

The design of buildings can have an important effect on the persons who live and move around in them. Lieberman, Tobin and Slover's (1971) research implies that environmental characteristics may be more salient factors in social-psychological adjustment than personal factors. In a study of psychiatric patients, characteristics of the post-discharge environment were found to predict adjustment better than the pre-discharge personal characteristics such as coping style, mood and activity pattern. One's physical setting can be expected to evoke a range of behaviors whose variations could be studied as a function not of physical parameters but of those complex social and psychological determinants that are rooted in all human activities and relationships (Hartman, 1975).

While the environment influences all people the special vulnerability of the aged has been expressed by Lawton and Simon (1968). Elderly have increased sensitivity to their environment because of often limited mobility which usually leads to spending more time in their immediate surroundings (Duffy and Weinstein, 1978).

As a whole, recent literature in environment and aging has given much support to the idea that the environmental circumstances of the older person may bear a critical relationship to their well-being in

many areas (Lawton, Broody, Turner-Massesey, 1978). These areas include the physical, the psychological and the social.

The many needs of older people in relation to housing must be considered. Housing designed for the aged should provide the best possible environment for individuals in later years, a physical and social environment that extends the time during which the elderly can live independently. The physical surrounding should provide safety and convenience plus stimulate a zest for life.

Before solving the housing problems of the aged population, there must be a comprehensive understanding of the characteristics of human performance of elderly and their needs by governmental agencies, the building industry and families. Widely accepted housing design decisions for the elderly will be possible only when such knowledge and understanding is attained (Jones and Catlin, 1978).

Statement of the Problem

In the United States there has been experimentation with a variety of housing alternatives for the elderly. A few of these options are high rises, retirement communities, nursing homes, hospitals, and various types of public housing. So far there has been limited research on the effects of these residences on the elderly (Duffy and Weinstein, 1978).

Information on the effects of housing on the elderly would seem to be critical at this stage. Investing large amounts of money in housing, when it is not known whether the units are fulfilling their purpose would seem to be a great mistake. If present units are found

not to be meeting elderly housing needs, the problems and alternatives for their solution should be explored before large numbers are built.

One area of special concern is public housing for the elderly. About two-fifths of all public housing residents (or 1,200,000 households) are elderly individuals. Therefore, public housing is a major housing alternative for elderly (Hartman, 1975).

Building subsidized housing units so the elderly can enjoy the greatest possible amount of safety, comfort, independence and productivity is an important consideration. Since no simple generalizations about the elderly are valid, input from the elderly themselves is important if future housing provisions are to meet the needs of the people and allow independent living to the extent possible for each person (Lindamood and Hanna, 1979). The researcher chose to examine one of the housing alternatives for the aged, federally subsidized housing, to identify the extent to which it presently meets elderly individual's physical needs.

Objectives of The Research

The purpose of the research was to critique some of the physical characteristics of subsidized housing designed particularly for the elderly. More specifically, the objectives of the study were to:

1. Identify from literature certain physical standards of subsidized housing for the elderly considered critical to their well-being.
2. Determine the extent to which elderly subsidized housing meets the physical standards identified in the literature review.

3. Determine elderly resident's satisfaction with the physical characteristics of their subsidized housing.
4. Investigate the influence of selected personal characteristics on housing satisfaction.
5. Ascertain the relationship between physical standards and the housing satisfaction of elderly residents.

Definitions

Elderly - Persons late in life; the group of persons who are considered old; anyone over 65 years of age (Morris and Winter, 1978).

Subsidized housing - Federally funded programs administered at the local level that aid the construction and operation of housing units for low-income families through paying the cost of debt retirement and other costs (Morris and Winter, 1978).

Housing units - A structure containing multiple family dwellings in which each housing space is used by only one family. The only common facilities are laundry and possibly recreational areas.

Housing Satisfaction Questionnaire - A data gathering instrument developed by the researcher to measure elderly satisfaction with physical aspects of their living environment.

Housing Standards Questionnaire - An instrument developed by the researcher to evaluate some of the physical aspects of elderly subsidized housing units.

HUD - United States Department of Housing and Urban Development. An agency which handles government housing programs, both subsidized and non-subsidized.

Chapter 2

REVIEW OF LITERATURE

The focus of the literature review was subsidized housing for the elderly. While very little research has been done in this area, a considerable amount of non-research material exists and was reviewed for this chapter. Understanding the housing needs and problems of the elderly population is aided by a knowledge of aging in general. For this reason the literature review begins with a brief section on the aging process. A brief section on federal programs through which elderly housing is subsidized has been included to help clarify sources of rental assistance.

The Aging Process

As a person ages, many physical and psychological changes occur. Generally, an individual gradually loses physical skills and capabilities and becomes less able to perform routine daily tasks. Limitations on the mobility of elderly persons may vary from slight loss of agility to complete dependence on a wheel chair. Some of the losses in physiological abilities may be attributed to psychological events. For example, a sudden disruption, such as an accident or death of a spouse could precipitate a deficiency or imbalance caused by an aspect of the environment (Morris and Winter, 1978).

Aging has definite effects on the senses of the individual, including sight, hearing, smelling, touch and physical mobility. Decline in the sense of sight frequently occurs with advancing years.

Poor eyesight is often accompanied by the inability to adapt from light to dark and dark to light (Salmon and Salmon, 1978). Sight losses in older people often require higher intensities of light for them to obtain the same degree of visibility as younger persons (Weston, 1949; Guth, Eastman and McNeilis, 1956).

Perception of sound decreases as age increases. This may mean a tone adjustment on door bells and alert systems in places where elderly reside. Another adaptation for sound in the elderly person's living environment is insulation for prevention of sound transmission since many older people talk loudly or need higher volume from television or radio. Good insulation would benefit those who live in close proximity (Salmon and Salmon, 1978).

Decline in the sense of smell also occurs with aging and could be hazardous to the elderly in being able to detect gas fumes or smoke. Due to the loss of this sense, automatic fire alarm systems and automatic shut-offs should be provided on all gas equipment (Salmon and Salmon, 1978).

The thermal environment is also important to the comfort and health of elderly people. Extreme temperatures are poorly tolerated by older people (Gover, 1938). Elderly individuals are vulnerable to accidental hypothermia, a drop in body temperature that could be fatal. It is also known that elderly individuals have poor circulation and therefore become colder quicker than younger individuals. The temperature perceived by elderly not only depends on the degree of warmth, but also on air movement, humidity, and the balance between the individual's heat production and heat loss (Yaglou, 1927).

The sense of touch becomes less acute for aged so they tend to be more subject to burns. Therefore, hot water pipes should be covered with an insulating material and hot water heaters should be set at 110 degrees Fahrenheit (Salmon and Salmon, 1978; American Public Health Association, 1953).

Elderly individuals are more accident prone due to a lessened neuromuscular capacity. Factors associated with lessened muscular strength and proper sensitivity, which cause falling and slipping, are confusion, staggering, tremors, hesitation, fainting and blackouts. When compared to young people, the aged have an increased need for more environmental protective devices such as non-slip floors, grab bars, and low risers on steps (White House Conference on Aging, 1971). The physical environmental characteristics are all the more important since elderly are more environmental-bound than younger persons (Duffy and Weinstein, 1978).

Physical problems, such as a loss of senses, result in a decline in ability to care for oneself and maintain an independent household. A loss of physical independence may cause deficiencies in housing and neighborhood conditions that would not occur for independent, mobile individuals. As independence declines, there is a tendency in elderly to think about moving out of their present home to a different dwelling with added features that meet their immediate needs (Morris and Winter, 1978).

Design Considerations in Housing the Elderly

The literature on the effects of physical design variables in

residential settings for the elderly has a short history (Duffy and Weinstein, 1978). However, a satisfactory dwelling for anyone undergoing physical changes should have adequate space, be safe, comfortable and convenient. These are basic essentials for all dwellings. There are some special provisions in the housing design and other aspects of the environment which are important for the elderly individual to compensate for deficits associated with aging (White House Conference on Aging, 1971).

Specific design features for housing the aged are usually broken into categories on general criteria, bedroom, bathroom, and kitchen. The criteria in each of these areas are identified below and have been pooled from a variety of sources (Carp, 1966; Goldsmith, 1967; Hiatt, 1978; Kira, 1960; Lawton and Cohen, 1974; Lembeck and Puskar, 1972; Lindamood and Hanna, 1979; Morris and Winter, 1978; Salmon and Salmon, 1978; Tucker, Combs and Woolrich, 1975; White House Conference on Aging, 1971; Zeisel and Demos, 1977).

General Criteria

1. Small, compact unit.
2. Fireproof construction with fire alarms.
3. No stairs.
4. Temperature of 80 degrees Fahrenheit.
5. Cheerful colors.
6. Large amount of lighting.
7. Sufficient number of switches.
8. Change in textures of materials to show elevation changes and turns in corridors.

9. No slippery surfaces or scatter rugs.
10. Vinyl asbestos, unglazed tile, cork or thin wall-to-wall carpeting as floor materials.
11. Three foot wide door openings.
12. Window sill heights no more than 30 inches high.

Bedroom criteria

1. Minimum clearance on three sides of bed of 18 inches, with at least five feet at one side of bed for a wheelchair.
2. Room for large bedside table to hold medicines, etc.
3. Direct access to bathroom.
4. Buzzer near the bed.

Bathroom criteria

1. Grab bars one inch in diameter securely fastened.
2. Toilet installed 20 inches from floor; located near tub for resting.
3. Bench in the shower.
4. Minimum 36 inch square shower with a very low curb.
5. Sink, shower or bathtub with thermostatic controls.
6. Sink 36 inches from the floor.
7. Lever rather than knob type faucet handles.

Kitchen criteria

1. Shallow sink set in 32 inch high counter.
2. Wall-oven door is 30 inches from floor.
3. Built-in range in 32 inch high cabinet.
4. Range controls in front of the range.

5. Staggered burners to reduce hazards from reaching across burners.
6. Cabinets with drawers that roll out on ball bearings.
7. Lazy susans in corner cabinets.
8. Avoid storage space in very high or low space.
9. Avoid sharp corners.

Living room
Social and Psychological Response to Environment

The response of the elderly to their physical environment is just as important to planners and builders as are the special design features to accommodate age changes. How elderly people behave, how satisfied they are with their housing, and even their self-image, is conditioned to a significant extent by the dwellings they occupy. The physical environment, if properly designed, can foster personal motivation and social interaction (Gerontological Society, 1969).

Loneliness or lack of social interaction has been frequently mentioned in the literature as the major problem of the elderly. Havighurst (1974) has identified association with friends of the same age as one of the developmental tasks of old age. Others have noted the importance of being close to friends and relatives, particularly among elderly with limited mobility. An additional consideration is the desire to maintain independence while needing contact with others. Sheldon (1956) was one of the first to suggest that loneliness was a factor in the rate of physical and mental health deterioration of the elderly.

Specialized multiple unit complexes offer a major advantage in

the physical proximity they provide and the resulting opportunity for interaction. Some researchers have found that congregate housing for the elderly has resulted in an increase in social interaction (Lawton, 1969; Rosow, 1967). Carp's (1966) study showed that the total amount of social interaction increased directly as the number of older people in the environment increased.

Leisure time has been identified as a problem for elderly individuals living alone (Out Reach, 1977). Multiple unit facilities also have considerable potential for alleviating this problem by including recreational facilities in common gathering places. According to Brody (1978), the opportunity for socialization undoubtedly adds to the tenant's security and well-being.

One matter which is all too frequently overlooked is the older person's need for privacy (Birren and Schaire, 1977). Although older individuals need and enjoy social interaction, they also have a right to some privacy. Carp (1966) suggests the need for elderly to maintain control over the extent of their relationships with others. Lawton's (1970) research revealed that the more highly organized and the more services provided within a housing complex, the larger the number of encounters the residents are likely to have. These research findings enunciate why living environments should be designed and managed so occupants can have some time alone.

Duffy and Weinstein's (1978) study investigated a series of specific design factors in public housing for elderly such as type of house, floor level, number of bedrooms, length of corridor and distance to elevator. The effects of these factors on a series of dependent measures,

such as engagement, morale, and health, were examined.

Several of the physical environmental variables were significantly related to dependent measures. Position on corridor was found to be important in that persons living at the ends of corridors were significantly higher in morale than those living in middle sections of corridors. Also persons who lived closer to elevators were significantly nearer to their close friends than persons more distant from elevators. This suggests the importance of elevators as centers and facilitators of social congregation. Corridor type was found to be significantly related to social lifespaces; persons living on a short corridor revealed a greater amount of social interaction than those on long corridors. These findings suggest that physical environmental characteristics significantly affect the well-being of older people.

Specially designed housing is only part of the answer. In the physical sense, housing is like a therapeutic device, but can have only limited effectiveness when used alone and without the proper sociological and psychological environment. Well-adjusted elderly persons could easily lose their state of well-being without help in maintaining effectiveness in everyday activities. Housing accommodations play an important role, but should not be considered as an end. Kira (1960) states that housing needs to be thought of in a broader sense of the total environment, but that such an idea has been given little consideration.

Meeting Elderly Individuals' Housing Needs

There has been a notable lack of housing options that would fill

in the gap between the independence of living in one's own home and institutional care (Brody, Kleban and Liebowitz, 1975). Since the middle 1960's the public has been widely alerted to the problem of lack of options through the mass media, especially television and newspapers. Response to the problem at the federal level has mainly been the subsidizing of housing to the point that at some periods in time, up to half of all federally subsidized new construction has been for the aged.

Unfortunately, those responsible for designing and constructing the much needed housing often did not have information about preferences and needs of the elderly, partly because of inavailability from lack of research. As a result some of the housing that was built had severe limitations for the population it was intended to serve. For example, elderly housing projects have been used as a device for integrating neighborhoods with that objective taking priority over all needs of the elderly. In the 1960's cities were threatened with cutbacks in federal funds if housing projects were not sited to achieve integration (Lawton, Newcomer and Byerts, 1976).

With respect to low-income groups, many programs and policies have worked counter to national housing objectives. For example, Housing and Urban Development administrative restrictions in Section 236 are limiting. Overall project costs, including land and site improvement is estimated at \$2,400 per room. Building anything with this amount of money requires sacrificing site selection and building type. The result is often a poor location for low-income housing (Lawton, Newcomer and Byerts, 1976). Not only are the units built in the slums but their distribution bears no relationship to the older people living in an

area (White House Conference on Aging, 1971).

Housing assistance or allowance to the individual renter is viewed as the probable major type of assistance in the future. The role of private-market housing would be maximized in the form of housing subsidy. "Emerging too are provisions that allow local housing authorities, using the 1937 Housing Act, Section 23 to contract with private owners for the leasing of units to individuals and families meeting the criteria for public" (Lawton, Newcomer and Byerts, 1976). Any successful housing program needs to insure that mechanisms are available for matching people with needed housing.

The Development of Subsidized Housing

The oldest and largest housing assistance program for the poor is public housing. Low rent housing originated with the U.S. Housing Act of 1937 and was started as an anti-depression measure to stimulate employment. The federal government and local housing authorities were responsible for all areas of developing and operating the project under the 1937 Act. The government was to supply the amounts needed to amortize the full capital costs of the projects. Tenant rental costs were used to cover the operating costs. Recent amendments to the original act have authorized additional federal payments in the form of operating subsidies to meet deficits caused by the statutory limitations on tenant rent and by increasing operating costs (Department of Housing and Urban Development, 1974).

Several significant changes have occurred in subsidized housing since its 1937 inception. In 1965, local housing authorities were

permitted to lease private units which were sublet to public housing tenants. The next modification in subsidized housing authorized local housing authorities to purchase a housing project which was built by an independent developer. Also in 1967, the Department of Housing and Urban Development developed a program to provide additional annual contributions to amortize the cost of modernizing older subsidized housing projects. Another change in the low rent housing program took place in 1969 when the rent a family paid for a subsidized housing unit was limited to 25 percent of its annual adjusted income, no matter how low that income was (Department of Housing and Urban Development, 1974).

Approximately one million subsidized housing units were occupied by more than three million people by the end of 1971. At this time the cost of the services for individuals provided by public housing units was roughly \$2.3 billion. Of the total cost, only 26 percent was paid by the tenants with federal and local governments paying the remaining 74 percent (Department of Housing and Urban Development, 1974).

Building and operating housing for low-income elderly is a huge undertaking. The public housing program as a whole has produced nearly 1.2 million housing units (Hartman, 1975). In 1975, 1,151,000 units operated at an annual subsidy of about \$850 per unit, not including an operating subsidy of an additional \$400 per unit. Projections for 1977 were more than 294,000 additional units ready for occupancy and 800,000 units approved for construction and rehabilitation (Levitan, 1976).

Of the families that moved in these public housing units in 1975,

more than two-thirds had no one working. A quarter to a third of the families were headed by an elderly person. The median income for all the families was about \$3,350, with each family paying a median annual rent of \$660 (Levitan, 1976).

The acceptance of public housing projects has been very low. For many residents and outsiders there is a stigma attached to living in subsidized housing. Even though millions of dollars are spent each year on building quality subsidized housing units, the stigma still exists (Morris and Winter, 1978).

Types of Subsidized Housing for the Elderly

The Department of Housing and Urban Development provides a variety of subsidized housing programs for the elderly. Major subsidy programs assist by:

1. Helping to pay for the production of housing.
2. Reducing the interest rates on home loans, either through direct payments to private lenders or by direct loans, from the government.
3. Increasing the amount of money households have for housing.
4. Providing rental assistance.

Direct subsidy housing programs include public housing, low-income loans, low-cost mortgages, low-cost home improvement loans, direct payments to landlords, and the housing portion of welfare.

Housing subsidy programs have been authorized through a variety of means. Direct rental subsidy programs for the elderly are Section 202 of the Housing and Community Development Act of 1959, Section 202/8 of

the Housing and Community Development Act of 1974, Section 231 of the Housing Act of 1959, Section 236 E of the Housing and Urban Development Act of 1968, Public Housing, and Section 8 of the Housing and Community Development Act of 1974. Each of the programs will be briefly discussed.

Section 202, Housing Act of 1959. Eligible occupants are families which consist of two or more persons with the head or spouse being 62 years of age or over or handicapped. A single person living alone who is 62 years of age or over is also eligible. Types of housing included in this program are rental or cooperatives with related facilities for the elderly or handicapped. New construction or rehabilitation, alteration conversion or improvement of existing structures can be subsidized under the program. This program provides low-interest loans to developers of rentals or cooperative housing for elderly. To be eligible to participate in the Section 202 program, income must not exceed 80 percent of the national median income.

Section 202/8, Housing and Community Development Act of 1974. This program has the same guidelines for eligible occupant as Section 202, with the same income stipulations prevailing. Funds are for new construction or substantial rehabilitation rental and cooperative housing. Construction may be financed by businesses or nonprofit groups.

Section 231, Housing Act of 1959. This program provides housing for elderly and handicapped. New or rehabilitated rental projects of eight or more units designed for the elderly or handicapped can be

funded under this program.

Section 236 E, Housing and Urban Development Act of 1968. Housing is provided for lower income families or individuals 62 years of age or older or handicapped. New or substantially rehabilitated rental or cooperative housing of five or more units can be funded by this program. Income limits for this program are basically the same as the others.

Public Housing Authority, Housing Act of 1937. This is the major vehicle for direct federal assistance in helping improve the housing situation of low income households. Eligible occupants are families, handicapped or elderly, who cannot afford to pay enough to cause private enterprise in their area to build an adequate supply of decent, safe and sanitary housing. Types of housing funded are newly constructed, substantially rehabilitated and existing rental housing. Income limits are fixed by the Public Housing Authority and approved by the secretary of HUD.

Section 8, Housing and Community Development Act of 1974. Housing alternatives are provided for low-income families, elderly and handicapped whose incomes do not exceed 80 percent of the median income. Existing housing, substantial rehabilitation and new construction can be funded by this program. Congregate housing with common eating facilities may be used for the elderly and handicapped.

Evaluation of Planned Public Housing

Little systematic, scientific research has been conducted in the area of elderly subsidized housing. Data have been accumulated and

reported relative to number and characteristics of housing units and residents but qualitative factors remain largely uninvestigated.

Carp (1966) studied resident satisfaction levels at Victoria Plaza in San Antonio, one of the first public housing environments built explicitly for older people. He found higher levels of satisfaction among people who had been accepted in public housing than among those who had applied for admission to the complex, but had not been accepted. Data was collected prior to the move and one year after residents had lived there. Elderly were equal in housing satisfaction before the move but those still living in private housing one year later were less satisfied.

Lawton and Cohen (1974) conducted a longitudinal study of the impact of age-segregated housing units. Data were collected from two groups of elderly, one group planning to move to age-segregated units, and the other group from the surrounding community. Data were then collected from both groups a year after the move. Results showed that tenants in age-segregated units showed a decline in functional health. However, the residents of the age-segregated housing scored higher on housing satisfaction.

Other studies have not supported the findings of Carp (1966) and Lawton and Cohen (1974). Bell (1976) hypothesized that there would be higher levels of interaction among residents of age-segregated dwellings than among residents of what he termed independent dwellings. The greater amount of interaction would be reflected in higher degrees of life satisfaction in congregate dwellings. Not only were there no differences in interaction, but residents of independent housing had

higher life satisfaction than those in congregate housing.

Evidence of feelings contrary to those found by Carp (1966) is apparent in other locations. St. Louis' huge Pruitt-Igoe project of over 5,000 units built in 1954 for low income people, has been completely abandoned and partially razed. Poor design and location, bad management and exclusive occupancy for the poor have been cited as factors contributing to the failure of the St. Louis project, as well as similar unsuccessful housing projects for the elderly. Herbers (1970) describes some of the abhorrent conditions in the Pruitt-Igoe project.

Robbers, burglars, narcotics pushers, and street gangs roamed at will through the buildings. Anarchy prevailed. Windows were broken faster than they could be replaced.

The steam pipes were not covered and children were seriously burned. People fell out of windows or walked onto elevator shafts to their deaths.

Last winter, with windows out, pipes froze and broke on some of the top floors, sending streams of water through the buildings and forming glaciers on the stairs.

Tenants moved out as soon as they could find any place to go, some who were paying the minimum \$20 a month rent. The vacancy rate climbed even as housing for black families became more scarce. (p. 48)

A lack of consideration for resident needs in some subsidized housing projects for the elderly has become apparent through descriptions of existing unfavorable conditions. The surrounding environment has also been enunciated as a source of resident dissatisfaction and apathy (Hartman, 1975). The viability of subsidized housing as an alternative for housing the elderly depends not only on the extent to which experimental evidence is utilized but also on the conduct

of further research and application of the subsequent findings.

REFERENCES AND PROCEDURES

The following references were consulted in the preparation of this report. The procedures used in this study are described in the following sections. The results of the study are presented in the following sections. The conclusions of the study are presented in the following sections. The recommendations of the study are presented in the following sections.

Chapter 3

METHODS AND PROCEDURES

The purpose of the study was to evaluate subsidized housing for the elderly. The evaluation involved assessment of housing satisfaction and measurement of the extent to which specific housing units met certain physical standards. All instrumentation was developed and administered by the researcher. Evaluative information was obtained using two questionnaires entitled "The Housing Satisfaction Questionnaire" and "The Housing Standards Questionnaire". The Housing Satisfaction Questionnaire measured satisfaction with subsidized housing while the Housing Standards Questionnaire evaluated the physical aspects of the apartment units. This chapter describes the procedures by which the study was planned and executed.

Questionnaire Development

A search for available instruments which would solicit the information needed revealed that no appropriate instruments were available. Questionnaire construction then emerged as a major step in the research.

Two questionnaires were developed, the first of which was the Housing Standards Questionnaire. Numerous books, journals, and research articles were examined for statements relative to standards for elderly housing. There was some disagreement among sources but if the majority of sources agreed with a specific criteria, the standard was included in the questionnaire. When there was a small

difference in measurements an average was used.

Originally standards were extracted for the kitchen, bathroom, lighting, doors and general design features. The resulting large number of standards were deemed unmanageable for adaption into a usable questionnaire and the decision was made to narrow the project to critique only exterior, general interior design, and electrical features of the apartments. Standards relative to these areas were organized and converted into an appropriate and consistent format to form the Housing Standards Questionnaire. The completed instrument contained 99 items organized into the three areas of exterior, general design, and electrical features. Each of the areas or sets was further divided into subsets. The number of subsets within each set necessarily differed according to the number of relevant concepts that needed to be included. For example, the exterior set contained only the three subsets of garage/parking, apartment location and lot but the interior set addressed ten topics deemed pertinent to the indoor environment. The Housing Standards Questionnaire was designed for use only by the researcher in obtaining an independent evaluation of the extent to which a subsidized housing unit met the specified housing standards.

The Housing Standards Questionnaire was used to develop the Housing Satisfaction Questionnaire, although each item was examined and altered as needed to elicit a response on degree of satisfaction. For example, the items on apartment location specified standard distances on the Housing Standards Questionnaire, but on the satisfaction instrument was confined to asking only if the respondent was satisfied with the existing distances. The same number of sets and

subsets were used for both questionnaires. More items were needed in the Housing Standards Questionnaire to insure inclusion of specific standards.

Three sets and 16 subsets are found in both questionnaires. The three sets dealt with the apartment's exterior, interior, and electrical/lighting. The exterior set contained the three subsets of garage/parking, apartment location, and lot. The 10 subsets included in the interior set were minimum space standards, floor coverings, temperature control, steps, safety devices, and storage. The final set of electrical/lighting dealt with the three subsets of switches, lighting, and windows.

Ten questions on subjects personal background characteristics were developed to be administered with the Housing Satisfaction Questionnaire. These questions were intended to serve as a source of independent variables. Items included were conjectured to have a possible relationship to satisfaction.

Various methods of scoring were discussed with the consulting statistician. The consultant recommended a zero to five scale as best for statistical analysis. The same scoring procedure was used for both instruments. In the Housing Standards Questionnaire, possible responses and corresponding scoring were:

- 0 - situation does not apply
- 1 - situation does not exist
- 2 - situation only slightly exists
- 3 - situation partially exists
- 4 - situation exists almost perfectly

5 - situation exists perfectly.

Response alternatives and method of scoring for the Housing Satisfaction Questionnaire were:

0 - the situation does not apply

1 - the individual is very unsatisfied

2 - the individual is unsatisfied

3 - the individual is partially satisfied

4 - the individual is satisfied

5 - the individual is very satisfied.

Field Testing

Instruments were pre-tested at a federally subsidized housing complex containing 24 apartments in a small rural community in South Dakota. The community was chosen because of its convenient location. The pre-test site was the only subsidized housing complex for the elderly in the community.

The manager in the field test site apartments was contacted by telephone to solicit cooperation in the research project. The manager agreed to help by informing the elderly residents about the research and their role, should they agree to participate.

The researcher contacted 10 elderly persons by going to every other door in the complex. The 10 individuals were interviewed to determine the degree of satisfaction with their housing. The apartments were also critiqued by the researcher using the Housing Standards Questionnaire.

The pre-test revealed that only a few minor changes needed to be

made in the instruments. One demographic question was changed from "What is the approximate number of friends or relatives you have living in this area?" to "Do most of your friends live within 5, 25, 50, or 100 plus miles?" An item on buzzers or emergency buttons was added to both questionnaires. Pre-testing revealed that insulation of pipes was not a criteria for elderly housing, but rather one for wheelchair handicapped persons. Therefore, that item was removed from both questionnaires. The last correction made was that of adding a space for additional comments after each subset. The corrected instruments appear in Appendix 1.

One satisfaction questionnaire was completed per apartment. Only one Housing Standards Questionnaire was completed for the entire complex since all the apartments in the complex were structurally identical.

Administering the questionnaire took 30 to 45 minutes depending on the amount of time elderly reminisced. If elderly had difficulty answering a question the researcher rephrased it. At times an element of judgment on the researcher's part may have entered in due to non-committal responses from elderly. The researcher took note not only of the elderly's verbal response to the questions, but also their tone of voice and facial expressions.

Sample Selection

Sample selection was complicated by a variety of factors and sampling procedures were altered many times before arriving at the final selection scheme. Initially a cluster sampling technique was to be used with South Dakota federally subsidized housing for the elderly

and the elderly residents as the population. A complete listing of all subsidized housing in South Dakota was sought from the regional division of the U.S. Department of Housing and Urban Development office in Denver, Colorado. No complete listing was received after repeated attempts over a four-month period.

The South Dakota Housing Development Authority (SDHDA) in Pierre, South Dakota, was contacted to obtain a total listing of South Dakota subsidized housing. Again, the information was not available and the researcher was advised that unless the study was limited to a small geographic area of the state, no listing of public housing for elderly could be made available by anyone in the state. Based on a strong recommendation from the Housing Management Officer of the SDHDA, the decision was made to limit the study to a single county.

Brown County, South Dakota, was chosen as the site for obtaining the sample because of county characteristics and its convenience to the researcher in collecting the data. Brown County is located in the northeastern part of South Dakota and has 15 towns. The total population of the county is 37,446. Data was obtained from the three towns of Hecla, Groton, and Aberdeen with populations of 400, 2,000 and 25,000, respectively. The complexes ranged in age from one and one-half to 10 years. At the time of data collection only six complexes for the elderly existed in Brown County. All six of these complexes were included in the study.

The researcher chose to evaluate only one-bedroom apartments though some complexes contained efficiency and two-bedroom apartments. Alternatives and/or additional items would have been needed to evaluate

the different types of apartments in these complexes. For example, minimum space standards would differ depending on the number of bedrooms per apartment.

The revised questionnaires were administered to 75 elderly individuals (65 years and over). All questionnaires were administered by the interviewer. Six different complexes were included in the sample; however, seven different types of apartments were evaluated because one complex had two different types of one-bedroom apartments.

Sampling in the two largest complexes was done by putting all apartment numbers in a hat and drawing out 25 for each apartment. However, every apartment was approached in the smaller complexes. In both the large and small complexes, elderly that were not home were omitted from the sample.

Most apartments had a manager living in the complex. Managers who lived in the complexes were 65 years old or over and qualified to be living in elderly public housing.

Apartments differed in the safety devices, whether or not air conditioning was available, floor plans, amount of space per apartment and number of steps. Other differences noted were amount of storage, windows, floor coverings, and surrounding environment of complexes.

The six HUD programs which subsidize rent for elderly housing were explained in Chapter Two. In the county used to select the sample, rentals were funded by only two of the six programs, Public Housing and Section 202/8 of the Housing and Community Development Act of 1974.

Data Collection and Analyses

All data were collected by the researcher during May 1980. The Housing Satisfaction Questionnaire was completed by 75 elderly individuals and the Housing Standards Questionnaire was completed for seven different apartment units.

Problems encountered by the researcher dealt with finding and persuading the managers to cooperate with the research project. The list of managers' names obtained from the South Dakota Housing Authority was incorrect, identifying many owners rather than managers. Some owners were very hard to locate. One of the managers contacted did not want to participate in the project, but decided to leave the decision of participation up to the elderly residents.

The majority of elderly were very happy to answer the questionnaire. Individuals who were hesitant or skeptical about completing the questionnaire were not pressured to participate.

Frequent statistical consultation was received throughout the study. Data were analyzed to obtain total mean satisfaction score, mean satisfaction score by complex, and total mean housing standards score. Correlational analysis examined the relationship between housing satisfaction and housing standards. Multiple linear regression was used to determine extent of contribution of various subsets to housing satisfaction. Analysis of variance was used to test the statistical significance of the hypotheses. Data were analyzed through the use of the South Dakota State University Computer Center.

Hypotheses

The following null hypotheses were developed to be tested and evaluated.

1. There is no significant relationship between building characteristics and satisfaction of residents.
2. There is no significant relationship between housing satisfaction and the length of time one has lived in the unit.
3. There is no significant relationship between housing satisfaction and whether or not one lives alone.
4. There is no significant relationship between housing satisfaction and reason for moving into subsidized housing.
5. There is no significant relationship between housing satisfaction and having friends within walking distance.
6. There is no significant relationship between housing satisfaction and distance from friends or relatives.
7. There is no significant relationship between housing satisfaction and distance from previous home.
8. There is no significant relationship between housing satisfaction and the type of community lived in most of one's life.
9. There is no significant relationship between housing satisfaction and previous apartment living experience.
10. There is no significant relationship between housing satisfaction and number of times one has moved.
11. There is no significant relationship between housing satisfaction and having access to a car.

Chapter 4

RESULTS AND DISCUSSION

The purpose of the study was to investigate the extent to which elderly persons were satisfied with the subsidized housing in which they lived. Additional evidence on personal background and physical characteristics of elderly subsidized housing was collected and analyzed for their relationship to satisfaction. The following chapter describes the findings obtained from analysis of the data and a discussion of those findings.

Description of the Sample

Seventy-five elderly individuals living in subsidized housing units served as the sample for the study. Each was personally interviewed to insure completion of the Housing Standards Questionnaire and the Housing Satisfaction Questionnaire. Ten questions were attached to the Housing Satisfaction Questionnaire to enable a description of the sample and to serve as a source of independent variables in testing the hypotheses. A summary of the background information obtained through these questions is shown in Table 1.

Since most of the living units investigated were relatively new, the finding that almost half of the 75 elderly individuals interviewed had lived in public housing for two years or less was expected. Over 75 percent of those interviewed had lived in subsidized housing for five years or less. Only four persons had a residence tenure of 10 or more years. Many of these elderly had waited years to get into

Table 1

A Summary of the Demographic Data Obtained from 75 Elderly
Residents of Public Housing in Brown County, South Dakota

Background Variable	Number	Percent
Length of time lived in present unit		
1-2 years	41	54.6
3-5 years	16	21.3
5-10 years	14	18.6
10+ years	4	5.3
Live alone		
yes	58	77.3
no	17	22.6
Reason for moving into present housing		
health	24	32.0
finances	24	32.0
convenience	5	6.6
combination	9	12.0
other	13	17.3
Friends within walking distance		
yes	72	96.0
no	3	4.0
Distance from friends		
5 miles	57	76.0
25 miles	5	6.6
50 miles	2	2.6
100+ miles	11	14.6
Distance from previous dwelling		
1-10 miles	46	61.3
11-25 miles	5	6.6
26-50 miles	8	10.6
51+ miles	16	21.3
Type of community lived in for most of life		
farm	14	18.6
small town (up to 2,500)	29	38.6
large town (2,500-25,000)	15	20.0
small city (25,001-100,000)	13	17.3
suburbs of large city (over 100,000)	3	4.0
large inner city (over 100,000)	1	1.3

Table 1 cont.

Background Variable	Number	Percent
Previous apartment dwelling		
yes	44	58.6
no	31	41.3
Number of times moved during one's life		
1-3	15	20.0
4-6	35	46.6
7+	25	33.3
Drive a car		
yes	41	54.6
no	34	45.3

the apartments and the complexes still had long waiting lists. These findings are indicative of the great need for more elderly housing in the United States, especially in small towns.

Elderly individuals often tend to be left alone due to earlier deaths of other family members. The finding that over half of the elderly subjects were living alone was consistent with that information. However, use of only one-bedroom apartments in the sampling process could have contributed to this finding.

Health and finances were the major reasons given for moving into an apartment with each of these variables accounting for nearly one-fourth of the sample. The elderly who chose a combination of reasons for moving usually stated health and finances as the two reasons. Reasons given in the "other" category, a choice giving opportunity to state a reason, were to be closer to relatives, condemning of past housing, desire to get out of the city to retire, inability to maintain previous dwelling and death of spouse.

Ninety-six percent of the elderly in this sample had good friends within walking distance. In talking with the subjects, many commented on new friends made within the same housing complex after moving into it.

A little over three-fourths of the elderly had most of their friends within five miles of the complex. This finding implies that if elderly did move from a distant town or community they already had friends or made friends in the new locale. The big problem of loneliness among the elderly cited in the literature review would not seem to be applicable to the majority of the subjects in this sample.

From visiting with elderly the researcher found that the majority of the aged had moved within 50 miles or less from their previous home. Subsequently, finding that most people had lived in small towns for most of their lives with large towns and farms following, respectively, was not surprising considering the types of communities which are dominant in South Dakota.

Almost half of the elderly subjects had moved between four to six times in their lives with one-third having moved more than seven times in their life. This finding seems contrary to the notion that high mobility is a trend of only the past two or three decades, although knowing when the moves occurred might confirm the observed trend. A second characteristic that was somewhat surprising was that the majority of those interviewed had previously lived in an apartment. Apartment living is often viewed as a contemporary housing alternative.

Most of the elderly people questioned drove a car. However, those who did not drive reported that friends and neighbors provided transportation as needed.

Of the 75 elderly interviewed the majority were very happy to take time to answer a questionnaire. The one problem the researcher had was keeping the subjects "on the track." Many seemed eager to talk at length about past experiences. The researcher also found that several of the subjects were not at home. Neighbors informed the researcher that these aged were in hospitals, nursing homes, visiting relatives or doing volunteer work.

Individuals frequently commented on their concern for safety. Informal comments revealed that most aged never went out at night

or walked any distance at all. Many older people kept track of their neighbors to make sure they were safe. Several persons expressed concern about falling in their apartments. A number of elderly felt that these apartments were one of the nicest places they had ever lived and that the prices were very reasonable, yet would not be able to afford more. Elderly seemed to adjust well to their surroundings, but felt they were forced to do so because alternatives were lacking.

Many of the subjects complained of being lonesome which was not consistent with the finding that most had friends within close proximity. At the same time many expressed a hesitancy or refusal to visit neighbors, participate in the senior citizen center activities, or attend other specific functions for the elderly. One of the complexes had a common recreation room which seemed to pull elderly out of their apartments. The recreation room consisted of some card tables, a few chairs in a group, a stereo, and the mailboxes. A general meeting grounds seemed to provide a positive setting for those aged that wanted to get out of their apartments but did not want to spend hours visiting neighbors. Subjects would exchange daily news and get acquainted with other elderly people.

Housing Satisfaction

Satisfaction scores were obtained from an 83-item questionnaire entitled "The Housing Satisfaction Questionnaire." The questions were organized into three sets relating to exterior, interior and electrical/lighting. Each of the three sets was further divided into

16 subsets within the questionnaire. Those subsets were parking, apartment location, lot, space standards, floor covering, temperature control, steps, doors, floor plan, telephone, locks, safety devices, storage, outlets/switches, lighting and windows. Each question had a possible score range of zero to five with five representing a response of very satisfied, and four, three, two, one and zero indicating, respectively, satisfied, partially satisfied, unsatisfied, very unsatisfied, and does not apply. The complete questionnaire can be found in Appendix 1.

Description of Scores by Complex. Questionnaires were administered in seven complexes and scores were initially analyzed by complex set and subset for descriptive purposes. The number of subjects per complex varied. Table 2 shows mean scores on the total housing satisfaction questionnaire according to complex. As the data indicate, respondents' scores in each of the seven complexes clustered around a score of three or partially satisfied. Though some variation was evident, no complex mean satisfaction score reached the satisfied, or very satisfied category and none of the means dropped to the unsatisfied category. Analysis of variance revealed that the differences in the total mean satisfaction score by complex was significant ($p < .01$).

Calculation of the complex item mean scores for the three sets indicated the least overall satisfaction with the exterior aspects of the apartment and the most with electrical/lighting. The greatest difference between high and low mean scores was found in set two,

Table 2

Set and Total Item Mean Satisfaction Scores by Complex

Complex	N	Exterior	Interior	Electrical	Total
Complex 1	20	3.15	3.11	3.55	3.23
Complex 2	10	3.09	3.47	3.43	3.39
Complex 3	20	2.95	3.24	3.51	3.26
Complex 4	10	2.62	2.88	3.20	2.91
Complex 5	5	2.77	2.73	3.36	2.90
Complex 6	5	2.80	3.43	3.26	3.27
Complex 7	5	2.95	3.12	3.55	3.20
Total Mean Set Score		2.96	3.16	3.45	3.19

interior, with a range of .74. The lowest mean range was .35 on electrical/lighting or set three. Mean scores for each complex on each of the three sets are found in Table 2.

Visual analysis of the mean subset scores by complex in Table 3 shows that subjects were most satisfied with outlets/switches and least satisfied with floor coverings. There was considerable variation in the range of scores from a .08 for steps to 3.00 for floor covering. Scores on floor coverings were extremely low in complexes without carpeting. Greater continuity of scores was found in the subsets steps, doors, locks, safety devices, outlets/switches, and windows. Scores in these subsets were consistently between the satisfied (3.0) or very satisfied (4.0) levels.

Only three of the apartment complexes examined had steps. Professionals recommend no steps in housing for the elderly. However, the mean satisfaction score of the subjects in apartments with stairways was relatively high. This finding might be due to the fact that elderly who could not climb steps would never move into a housing complex with that characteristic.

Mean item scores were examined separately (see Appendix 3) for each of the 83 items. Elderly were most satisfied with height, number and location of electrical switches/outlets, and width of the doors. Scores on height and location of temperature control buttons also showed high satisfaction. All of the above items rated greater than 4.0. Items obtaining the lowest satisfaction scores were sidewalks leading to parking, lighting of exterior, carpeting provided, and the distance parking was from the apartment. All of

Table 3

Set and Subset Item Mean Satisfaction Score by Complex

Set and subset name	Complex Number							Mean
	1	2	3	4	5	6	7	
Exterior	3.15	3.09	2.95	2.62	2.77	2.80	2.95	2.96
Parking	2.62	3.00	2.54	2.29	3.00	3.06	2.75	2.75
Apartment location	4.21	3.55	3.78	3.17	2.87	2.43	3.43	3.61
Lot	3.91	3.40	3.76	2.85	3.60	3.70	3.55	3.60
Interior	3.11	3.47	3.24	2.88	2.73	3.43	3.12	3.16
Space standards	3.85	4.00	4.00	3.70	3.05	3.60	3.85	3.82
Floor coverings	3.15	0.90	3.45	1.20	0.70	0.70	3.70	2.38
Temperature control	3.63	3.43	3.92	3.77	3.77	3.60	3.63	3.70
Steps	DNA	3.75	DNA	DNA	DNA	3.67	DNA	3.72
Doors	3.93	3.61	3.85	3.82	3.50	3.83	3.83	3.81
Floor plan	3.75	3.80	3.85	3.33	2.73	2.73	3.80	3.59
Telephone/buzzer	3.45	3.10	3.88	3.03	2.67	3.20	3.27	3.38
Locks	3.94	3.88	3.99	3.83	3.90	4.00	3.70	3.91
Safety devices	3.64	3.25	3.43	3.15	3.45	3.70	3.60	3.45
Storage	2.78	3.60	3.78	2.80	3.30	3.10	3.40	3.25
Electrical/lighting	3.55	3.43	3.51	3.20	3.36	3.26	3.55	3.45
Outlets/switches	4.10	3.91	4.01	3.90	4.00	4.00	4.00	4.00
Lighting	2.80	2.76	2.82	2.22	2.88	2.20	3.28	2.72
Windows	3.61	3.50	3.59	3.31	3.17	3.40	3.37	3.49

the above items scored less than 2.0. Informal comments revealed that the safety of the exterior lighting and distance of parking from the apartment concerned the elderly. This factor may contribute to the low satisfaction. Very few elderly were satisfied with the carpeting that existed. Elderly peoples' comments on carpeting showed a dislike in thickness or thinness, pattern, color and more. Wide variation in personal preference seemed to have a big effect on the rating of floor coverings.

Housing Characteristics

The Housing Standards Questionnaire was completed for each of the seven complexes. The 99 items dealt with the same housing characteristics as the satisfaction scale. Scores were assigned by the researcher after an independent inspection of each complex. Basis of scoring was the extent to which the particular complex met the standards imposed by authorities in the field of elderly housing. Rating was on a five-point scale. One meant the situation did not exist at all, two meant the situation slightly existed, three showed the situation existed partially, four meant the situation did exist but not perfectly, and five showed that the situation existed perfectly.

Description of Scores for Housing Standards Questionnaire. Set and subset item mean scores on the Housing Standards Questionnaire are shown in Table 4. As the data indicate, none of the seven complexes perfectly met the expected standards.

When total mean set scores were calculated, the interior set scored highest (3.87) and the exterior set lowest (2.80). There was least

Table 4

Set and Subset Mean Item Scores by Complex on the Housing Standards Questionnaire

Set and subset name	Complex Number							Mean
	1	2	3	4	5	6	7	
Exterior	3.53	2.47	2.10	2.10	2.28	2.28	2.76	2.80
Parking	2.20	3.40	1.40	2.00	2.60	2.60	2.60	2.12
Apartment location	3.40	1.00	1.00	2.80	1.00	1.00	2.69	1.99
Lot	5.00	3.00	3.50	1.50	3.25	3.25	3.00	3.50
Interior	4.06	3.37	4.32	3.22	3.43	3.41	3.93	3.87
Space standards	4.20	4.20	4.20	3.80	1.60	1.60	4.80	3.84
Floor coverings	5.00	1.80	4.20	2.20	2.60	2.60	4.60	3.53
Temperature control	4.20	4.20	5.00	3.40	4.20	4.20	4.20	4.31
Steps	DNA	2.63	DNA	DNA	DNA	3.50	DNA	4.10
Doors	3.33	3.17	3.75	3.08	4.08	3.75	3.58	3.54
Floor plan	5.00	4.50	5.00	3.50	5.00	5.00	5.00	4.73
Telephone/buzzer	3.50	2.25	3.75	4.00	3.75	3.75	4.00	3.53
Locks	5.00	5.00	5.00	3.00	5.00	5.00	3.20	4.67
Safety devices	3.33	1.66	3.66	3.00	2.33	2.33	2.67	2.98
Storage	3.00	4.33	4.33	3.00	2.33	2.33	3.33	3.46
Electrical/lighting	3.71	3.40	3.73	3.51	2.75	2.75	2.85	3.53
Outlets/switches	4.38	3.77	4.69	3.77	3.46	3.46	2.66	4.13
Lighting	2.43	3.00	2.29	2.86	2.14	2.14	2.57	2.64
Windows	4.33	3.44	4.22	3.89	2.66	2.66	3.33	3.82

continuity in mean set scores among complexes on the exterior set.

Visual analysis of Table 4 shows that subsets floor plans, locks, temperature control, outlets/switches, and steps, respectively, came closest to meeting the professional standards established for elderly housing. Apartment location scored the lowest on housing standards with parking a close second. There was some variation in the range of scores from a .86 for lighting to a 3.50 for subset lot.

Relationship Between Standards and Satisfaction

Table 5 compares the ranking of the subsets on resident satisfaction and standards. Visual analysis indicates that some of the subsets of the satisfaction score ranked the same or very close with the housing standards score. The subsets with very similar scores were parking, steps, telephone/buzzer, locks, safety devices, storage and lighting. Subsets with the greatest differences between the rankings were apartment location, floor coverings, and floor plans.

Outlets/switches ranked first with locks a close second on the Housing Satisfaction Questionnaire. The Housing Standards Questionnaire showed floor plans first and locks also second. Floor coverings received the lowest subset rank on the satisfaction questionnaire with apartment location ranking the lowest on standards questionnaire.

Correlational Analysis. Many agencies and authorities in the field of elderly housing have set up standards for housing, such as those identified in the literature review. While these characteristics are usually determined on the basis of need, no research has been conducted to see if a relationship exists between housing meeting

Table 5

Comparison of Item Mean Satisfaction
Score with Housing Standards Score

Subset Name	Satisfaction Score	Rank	Standards Score	Rank
Parking	2.75	14	2.12	15
Apartment Location	3.61	7	1.99	16
Lot	3.60	8	3.50	11
Space Standards	3.82	3	3.84	6
Floor Coverings	2.38	16	3.53	9
Temperature Control	3.70	6	4.31	3
Steps	3.72	5	4.10	5
Doors	3.81	4	3.54	8
Floor Plan	3.59	9	4.73	1
Telephone/Buzzer	3.38	12	3.53	10
Locks	3.91	2	4.67	2
Safety Devices	3.45	11	2.98	13
Storage	3.25	13	3.46	12
Outlets/Switches	4.00	1	4.13	4
Lighting	2.72	15	2.64	14
Windows	3.49	10	3.82	7

criteria and the degree of satisfaction with that housing.

Subset scores on the Housing Satisfaction Questionnaire and the Housing Standards Questionnaire were correlated to determine their relationship. Analysis indicates that eight of the 16 subsets had a significant positive correlation. None of the subsets showed negative correlations. Table 6 shows the significant variables and the extent of significance.

Since only half of the subset scores on the two measures were significantly related, meeting prescribed building standards cannot be viewed as the major factor in providing satisfactory housing for the elderly. When considering level of satisfaction with one's environment several considerations must be made. As discussed in the literature review, social as well as psychological factors contribute to satisfaction with housing. Therefore, the physical environment is only one of the predictors of housing satisfaction.

While a pleasant physical environment would seem to increase rather than decrease a person's level of housing satisfaction, individual preferences must be considered. The physical features to which elderly are accustomed may affect their satisfaction. Unfamiliarity with such things as air conditioning, fire alarms, smoke alarms and new types of windows may create some adjustment, anxiety, and dissatisfaction even though they make the apartments safer and more pleasant.

Table 6

Significant Subset Correlations Between
Housing Satisfaction and Housing Standards

Variable (subset)	Correlational Value	Probability
Parking	.263	.0226
Apartment location	.270	.0191
Lot	.534	.0001
Space standards	.281	.0146
Floor coverings	.795	.0001
Steps	.946	.0001
Storage	.373	.0010
Windows	.255	.0271

Testing the Relationship Between Housing Satisfaction and the Independent Variables

Analysis of variance was done to determine the extent of interaction between housing satisfaction and certain demographic variables. The minimum level of probability acceptable for significance was set at .05. Table 7 shows a summary of the statistical findings used as a basis for testing the hypotheses.

Hypothesis One

There is no significant relationship between housing satisfaction and length of time a resident has lived in the housing unit.

Though mean satisfaction increased as length of time in the housing unit increased in three of the categories, the changes were not significant. Therefore, the hypothesis could not be rejected.

Hypothesis Two

There is no significant relationship between housing satisfaction and living alone.

Since loneliness is often mentioned as a source of elderly discontent, the researcher felt that those who lived alone might tend to be less satisfied. Results indicated no significant difference between housing satisfaction and whether or not the elderly person lived alone so the hypothesis was not rejected. Contrary to expectations, those living alone had a slightly higher satisfaction score.

Hypothesis Three

There is no significant relationship between housing

Table 7

Analysis of Variance Summary for Relationship Between
Housing Satisfaction and Independent Variables

Independent Variable	Total Item Mean	Sum of Squares	F Value	Prob.
Length of time lived in present unit		.027	.20	.896
1-2 years	3.19			
3-5 years	3.23			
6-10 years	3.23			
10+ years	3.40			
Live alone		.021	.48	.489
yes	3.17			
no	3.15			
Reason for moving into present unit		.068	.42	.791
health	3.22			
finances	3.10			
convenience	3.07			
combination	3.25			
other	3.14			
Friends within walking distance		.224	5.69	.020*
yes	3.17			
no	3.04			
Friends live within		.042	.42	.746
5 miles	3.15			
25 miles	3.23			
50 miles	3.28			
100 miles	3.15			
Distance apartment is from previous home		.151	1.32	.275
1-10 miles	3.16			
11-25 miles	2.88			
26-50 miles	3.11			
51+ miles	3.18			

Table 7 cont.

Independent Variable	Total Item Mean	Sum of Squares	F Value	Prob.
Type of community lived in most of one's life		.384	2.01	.093
farm	3.11			
small town - up to 2,500	3.13			
large town - 2,500-25,000	3.15			
small city - 25,001-100,000	3.44			
suburb of large city over 100,000	3.33			
central part of large city - over 100,000	3.38			
Previous lived in apartment		.151	3.76	.057
yes	3.22			
no	3.11			
Number of times moved in lifetime		.041	.44	.646
1-3	3.20			
4-6	3.18			
7+	3.10			
Drive a car		.090	2.05	.157
yes	3.19			
no	3.10			

satisfaction and the individual's reason for moving into the complex.

The analysis of variance revealed that satisfaction has little relationship to reason for moving into the housing unit. Therefore, the hypothesis was not rejected.

Hypothesis Four

There is no significant relationship between housing satisfaction and having good friends within walking distance.

Hypothesis four was rejected at the .05 level of significance. Individuals who had friends within walking distance of the complex had a significantly higher level of satisfaction with their housing. This finding illustrates how socio-psychological factors may influence feelings about the physical aspects of the environment. It also confirms the importance of elderly having friends within an accessible distance.

Hypothesis Five

There is no significant relationship between housing satisfaction and distance from friends.

Originally the researcher felt that in addition to having friends within walking distance of the apartment, friends within close proximity would also increase the level of satisfaction. Analysis of variance shows no significant difference between housing satisfaction and distance from friends; therefore, the hypothesis could not be rejected.

Hypothesis Six

There is no significant relationship between housing satisfaction and distance complex is from previous dwelling.

Analysis of variance showed no difference between distance elderly's apartment was from their previous dwelling and housing satisfaction; therefore, the hypothesis could not be rejected. Table 7 shows that the highest level of satisfaction occurred with the individuals living over 50 miles from their previous home which was contrary to expectations.

Hypothesis Seven

There is no significant relationship between housing satisfaction and type of community in which the aged spent most of their life in.

The highest levels of satisfaction were found with elderly that spent most of their life in cities and lowest scores were elderly from farms or towns. This finding may indicate a greater level of adjustment by elderly who lived most of their lives on farms or small towns. No significant difference was found between scores so the hypothesis was not rejected.

Hypothesis Eight

There is no significant relationship between housing satisfaction and previous experience in apartment living.

Elderly individuals with previous apartment living experience showed greater levels of housing satisfaction. However, the magnitude of the difference was not sufficient to reject the hypothesis.

Hypothesis Nine

There is no significant relationship between housing satisfaction and number of times moved in one's lifetime.

Levels of housing satisfaction decreased as the number of times moved in one's lifetime increased. Therefore, moving experience was not a factor which related to housing satisfaction with this sample.

Hypothesis Ten

There is no significant relationship between housing satisfaction and having a car for travel.

Elderly's housing satisfaction increased when the individuals had a car. Maintaining independence is of great importance to elderly and having a car would increase their level of independence. Analysis of variance did not show the differences to be significant so hypothesis ten was not rejected.

Multiple Regression

Multiple regression was used in this study to explain how much variation of the total satisfaction score could be attributed to each of the 16 subsets. The researcher analyzed all 16 variables for an explanation of 100 percent of the variability.

Results presented in Table 8 indicate that four variables explained a significant amount of variability with each of the four variables explaining 10 or more percent of the variability. Subsets explaining the largest amount of variability in the satisfaction score were, respectively, windows (32 percent), space standards (14 percent), outlets/switches (11 percent), and steps (11 percent). The remaining 12 subsets explained very little of the satisfaction score.

Table 8

Variability Explained by Each of the 16 Subsets Variables

Variable Solution ^x	Variable Name	Percent Variability	Cummulative Percent Variability
1	windows	31.633	31.633
2	space standards	14.182	45.815
3	steps	10.552	56.367
3 ^a	floor coverings	5.125	61.492
4	outlets/switches	10.747	72.239
5	parking	6.533	78.772
6	space standards	5.672	84.444
7	apartment location	4.054	88.497
8	lighting	3.339	91.836
8	temperature control	2.490	94.323
8 ^b	lot	0.269	94.592
9 ^c	telephone	0.460	95.052
10	doors	1.218	96.270
11	floor coverings	1.108	97.378
12	outlets/switches	0.974	98.351
12	storage	0.639	98.990
13 ^d	safety devices	0.009	99.000
14	outlets/switches	0.514	99.514
15	locks	0.200	99.714
16	floor plan	0.286	100.000

x = indicates number of variables used in analyzing

a = variable 4 replaced by variable 5

b = variable 14 replaced by variable 3

c = variable 5 replaced by variable 10

d = variable 14 replaced by variable 12

Limitations to the Study

The biggest limitation of the study was that the sample was not selected on a random basis. Subjects observed were from a rural area (the largest city having a population of 25,000). Also, the complexes sampled contained 75 apartments or less. None of the complexes could be considered large. The age of the complexes sampled ranged from one to 10 years. These facts limit the findings to only smaller complexes which are less than 10 years old and located in a rural community. Lindamood and Hanna (1979) states that only 30 percent of all public housing is in communities of 50,000 or less. Subjects from subsidized housing in large cities could have much different results if this same study was repeated. Urban low-income units tend to house a large percentage of minority groups. Also, many of the apartments tend to be in poor areas of town with high crime rates. These factors would seem to have the affect of lowering the level of housing satisfaction.

There were also limitations on the areas of satisfaction investigated. To measure housing satisfaction many factors have to be examined, i.e. physical, social and psychological aspects. The researcher was not able to look at all these factors so only physical aspects were examined for their influence on housing satisfaction. Investigation of physical attributes was limited to general exterior and interior features as well as the electrical aspects of the apartment. Apartments could be evaluated in more depth by examining each room separately, i.e. kitchen, bath, bedroom and living room.

Chapter 5

SUMMARY, IMPLICATIONS, AND RECOMMENDATIONS

The two-fold purpose of the study was to see how satisfied elderly were with subsidized housing and to investigate the extent to which satisfaction was related to prescribed housing standards. The subjects were 75 elderly individuals living in six housing complexes in Brown County, South Dakota.

Two questionnaires were developed by the researcher to obtain the data. The Housing Satisfaction Questionnaire was used to determine elderly's level of satisfaction with their present housing. The Housing Standards Questionnaire measured how apartments met specified physical criteria for elderly housing. Each of the questionnaires was subdivided into three sets and 16 subsets.

As a whole, elderly were partially satisfied with their housing. Satisfaction scores were highest on the subsets of outlets/switches, locks and space standards and lowest on floor coverings. Of the three set scores, subjects were most satisfied with electrical/lighting followed by interior and exterior, respectively.

Data from the Housing Standards Questionnaire revealed that floor plans, locks, temperature controls, outlets/switches, and steps, respectively, came closest to meeting the professional standards established by housing authorities. Scoring on apartment location was lowest with parking a close second.

Data analysis revealed a relationship between housing satisfaction and housing standards. Of the total 16 subsets, significant

positive correlations ($p < .05$) were found for parking, apartment location, lot, space standards, floor coverings, steps, storage and windows. The correlation between selected areas of the two questionnaires implies that physical aspects of elderly subsidized housing does influence housing satisfaction. However, as previously noted, other factors, such as socio-psychological aspects of housing, are also important in helping to determine elderly's satisfaction with their living environment.

Analysis of variance showed that little interaction existed between specific demographic variables and housing satisfaction. Having friends within walking distance of the apartment was the only independent variable having a significant positive relationship to satisfaction. Level of housing satisfaction was significantly higher for those with friends within walking distance. Findings from the multiple regression data showed that 72 percent of the variability in the total satisfaction score could be explained by the five variables of windows, amount of space, steps, floor coverings and outlets/switches.

Recommendations for further research include examining the social and psychological aspects of elderly environments. Investigation of the extent to which different types of elderly housing (nursing homes, retirement communities, motels, individual homes, etc.) meet various socio-psychological needs could be useful to elderly and others in helping to make housing decisions. A possible extension of this research would be comparing the different types of housing for elderly to see how satisfaction levels vary and also investigating other areas of elderly housing satisfaction.

Several recommendations for use of the instrument should be noted. Preferably only one person should distribute the questionnaires to improve on the accuracy of the information gathered. The interviewer is needed to help read the questionnaire for elderly individuals that have sight difficulties. Also the interviewer can explain any questions that might arise. The interviewer should be careful not to make judgments and be ready to restate the question whenever the need arises.

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Resident Satisfaction Questionnaire

1. How long have you lived on this public housing unit?

- Less than 1 year
- 1-2 years
- 3-5 years
- 6-10 years
- More than 10 years

2. Do you intend to stay here? Yes No

3. What was the main reason for moving to these apartment?

- Better location
- Better rent
- Better facilities
- Better management
- Other

4. Do you prefer to have good friends within walking distance?

- Yes
- No

5. Do you prefer to live within

- 5 miles
- 10 miles
- 15 miles
- 20 miles

Appendix A

Instruments

6. How do you compare your present home with your previous home?

- Much better
- Somewhat better
- About the same
- Somewhat worse
- Much worse

7. How do you compare your present home with your previous home?

- Much better
- Somewhat better
- About the same
- Somewhat worse
- Much worse

8. Have you ever lived in an apartment before? Yes No

9. How many times have you moved in your life?

- 0-1
- 2-3
- 4-5
- 6-7
- 8-9
- 10 or more

10. Do you have a car which you drive? Yes No

Housing Satisfaction Questionnaire

1. How long have you lived in this public housing unit?
 - 1-2 years
 - 3-5 years
 - 5-10 years
 - 10+ years

2. Are you presently living alone? Yes No

3. What was your major reason for moving to these apartments?
 - health
 - finances
 - convenience
 - a combination of the above
 - other (specify)

4. Do you presently have good friends within walking distance?
 - Yes No

5. Do most of your friends live within
 - 5 miles
 - 25 miles
 - 50 miles
 - 100 miles

6. How far is this apartment from your previous home?
 - 1-10 miles
 - 11-25 miles
 - 26-50 miles
 - 51+ miles

7. What type of community did you spend most of your adult life?
 - farm
 - small town - 2,500
 - large town 2,600-25,000
 - small city 26,000-100,000
 - suburb of large city 100,000
 - central part of large city 100,000

8. Have you ever lived in an apartment before? Yes No

9. About how many times have you moved in your life?
 - 1-3
 - 4-6
 - 7+

10. Do you have a car which you drive? Yes No

I am going to read you the following statements concerning the apartments in which you live. After I have read each statement, please rate the apartment as to your satisfaction. Rate the situation as (does not exist-0), (very unsatisfied-1), (unsatisfied-2), (partially satisfied-3), (satisfied-4), and (very satisfied-5).

EXTERIOR

How satisfied are you with.....

- | | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1. Garage - Parking | | | | | | |
| a. Distance from the apartments to the garage/parking? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Sidewalks leading to the garage/parking? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Lighting of the garage/parking area at night? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Doors of the garage? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Comments | | | | | | |
| 2. Location of apartments | | | | | | |
| a. Distance from your apartment to the hospital? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Distance from your apartment to the cafe? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Distance from your apartment to shopping area? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Distance from your apartment to the drugstore? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Distance from your apartment to the doctor's office? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Streets (busy)? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. Comments | | | | | | |
| 3. Lot | | | | | | |
| a. Upkeep of the sidewalks? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. View of apartments from outside? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. The garden space? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Lighting of the building exterior at night? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Comments | | | | | | |

INTERIOR

- | | | | | | | |
|--|---|---|---|---|---|---|
| 4. Minimum space standards | | | | | | |
| a. Amount of space in the living room? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Amount of space in the dining room? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Amount of space in the kitchen? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Amount of space in the bedroom? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Amount of space in the bathroom? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Comments | | | | | | |
| 5. Floor coverings | | | | | | |
| a. Floor coverings which are carpet? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Tile floor coverings? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Comments | | | | | | |
| 6. Temperature control | | | | | | |
| a. Air conditioning system? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Heating system? | 0 | 1 | 2 | 3 | 4 | 5 |

- | | | | | | | | |
|-----|--|---|---|---|---|---|---|
| c. | Apartment being free from breezes? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Apartment maintaining the desired temperature? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. | Temperature control buttons (height)? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. | Temperature control buttons (location)? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. | Comments | | | | | | |
| 7. | Steps | | | | | | |
| a. | Lighting of the staircases? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | Staircase railing? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Stairs (depth)? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Stairs (width)? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. | Number of stairs in apartment? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. | Floor covering on the staircase? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. | Comments | | | | | | |
| 8. | Doors | | | | | | |
| a. | Width of the doors? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | Door handles (ease of grasping)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Weight of the doors (ease of opening)? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Door fit (warped, cracked)? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. | Types of doors on the interior of the apartment? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. | Type of door leading to the exterior? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. | Comments | | | | | | |
| 9. | Floor plan | | | | | | |
| a. | The location of the bathroom? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | The layout of the kitchen? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Location and layout of the bedroom? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Comments | | | | | | |
| 10. | Telephone or buzzer | | | | | | |
| a. | Number of telephones in apartment? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | Location of the telephone (room and height)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Buzzer | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Comments | | | | | | |
| 11. | Locks | | | | | | |
| a. | Number of locks on doors? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | Number of locks on windows? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Location of the locks (height)? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Easability of opening locks? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. | Comments | | | | | | |
| 12. | Safety devices | | | | | | |
| a. | Fire extinguisher (location)? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. | Smoke detector? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. | Apartment being free from sharp objects and corners? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. | Thermostatic controls on the water faucets? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. | Comments | | | | | | |

13. Storage
- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Amount of storage space/room? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Accessibility of the space (easy to reach)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Comments | | | | | | |

ELECTRICAL/LIGHTING

14. Outlets/Switches
- | | | | | | | |
|--------------------------------------|---|---|---|---|---|---|
| a. Height of the electrical outlets? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Number of outlets/room? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Location of the outlets? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Height of the light switches? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Number of light switches/room? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Location of the switches? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. Comments | | | | | | |

15. Lighting
- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Amount of light/room to perform a very general task (eating, T.V.) | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Amount of light available to perform a specific task (sewing, reading)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Location of the light fixtures? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Easability of changing light bulbs? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Master switches at the main entrance? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Comments | | | | | | |

16. Windows
- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Height of the windows? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Location of the window in the rooms? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Number of windows/room? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Shading devices and window coverings? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Height of the curtain and shade cord? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Screens and storm windows? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. Easability of opening the windows? | 0 | 1 | 2 | 3 | 4 | 5 |
| h. Comments | | | | | | |

Housing Standards Questionnaire

Below is a list of recommended items that should exist in housing of elderly. Zero means situation does not apply, 1 means situation does not exist, 2 means the situation slightly exists, 3 means situation partially exists, 4 means the situation exists almost perfectly, 5 means situation exists perfectly.

EXTERIOR

- | | | |
|----|--|-------------|
| 1. | Garage/Parking Lot | |
| | a. Walking distance? | 0 1 2 3 4 5 |
| | b. Sidewalks available? | 0 1 2 3 4 5 |
| | c. Access to garage or parking is undercover? | 0 1 2 3 4 5 |
| | d. Two-way electrical switch permitting control from inside the house? | 0 1 2 3 4 5 |
| | e. Automatically operated doors? | 0 1 2 3 4 5 |
| | f. Comments | |
| 2. | Location of apartments | |
| | a. Within 6 blocks of the hospital? | 0 1 2 3 4 5 |
| | b. Within 6 blocks of the cafe? | 0 1 2 3 4 5 |
| | c. Within 6 blocks of the shopping? | 0 1 2 3 4 5 |
| | d. Within 6 blocks of the drugstore? | 0 1 2 3 4 5 |
| | e. Within 6 blocks of the medical clinic or doctor? | 0 1 2 3 4 5 |
| | f. Comments | |
| 3. | Lot | |
| | a. Sidewalks kept up? | 0 1 2 3 4 5 |
| | b. Nice view from exterior (not next to garbage, sewer)? | 0 1 2 3 4 5 |
| | c. Gardens accessible? | 0 1 2 3 4 5 |
| | d. Lighting around building? | 0 1 2 3 4 5 |
| | e. Comments | |

INTERIOR

- | | | |
|----|--|-------------|
| 4. | Minimum Space Standards | |
| | a. Living room 140 sq. ft.? | 0 1 2 3 4 5 |
| | b. Dining room 80 sq. ft.? | 0 1 2 3 4 5 |
| | c. Kitchen 50 sq. ft.? | 0 1 2 3 4 5 |
| | d. Bedroom 120 sq. ft.? | 0 1 2 3 4 5 |
| | e. Bathroom 35 sq. ft.? | 0 1 2 3 4 5 |
| | f. Comments | |
| 5. | Floor Coverings | |
| | a. Carpet-low pile? | 0 1 2 3 4 5 |
| | b. Cushion under carpet? | 0 1 2 3 4 5 |
| | c. Tile-non-slippery? | 0 1 2 3 4 5 |
| | d. Tile (low gloss finish)? | 0 1 2 3 4 5 |
| | e. Tile occurring only in bathroom or kitchen? | 0 1 2 3 4 5 |
| | f. Comments | |

- | | | | | | | | | | |
|-----|---------------------|--|---|---|---|---|---|---|--|
| 6. | Temperature Control | | | | | | | | |
| | a. | Air conditioning available? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | b. | Heating system (underfloor heating or blown warm air)? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | c. | Temperature individually controlled? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | d. | Control button (1'9" to 5'4" above floor)? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | e. | System maintains temperature levels of 68° F? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | f. | Comments | | | | | | | |
| 7. | Steps | | | | | | | | |
| | a. | Lighted? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | b. | Railing on each side? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | c. | Depth between 4-7"? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | d. | Width of stairs-9½" minimum? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | e. | Floor covering (non-slippery)? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | f. | Ramps or level approach to entrances of building? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | g. | Ramp width-4'0" minimum? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | h. | No steps within apartment? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | i. | Comments | | | | | | | |
| 8. | Doors | | | | | | | | |
| | a. | Width-2'7" minimum? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | b. | Handle height 3'0"-3'6"? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | c. | Handle levers? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | d. | Handles (ease of opening)? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | e. | Weatherstripping? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | f. | Weight of interior door-resistance not over a 5 ft. lb. force? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | g. | Weight of exterior door-resistance not over 9 ft. lb. force? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | h. | Door fits tight to frame to prevent drafts? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | i. | Bathroom door openable from outside? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | j. | Side-hung doors at entrances? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | k. | Peep hole? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | l. | Two + entrances? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | m. | Comments | | | | | | | |
| 9. | Floor Plan | | | | | | | | |
| | a. | Bathroom near bedroom? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | b. | Appliances near each other in the kitchen? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | c. | Kitchen layout is either L or U shaped? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | d. | Bedroom separate from living area? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | e. | Comments | | | | | | | |
| 10. | Telephone | | | | | | | | |
| | a. | One telephone/apt.? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | b. | Plug-ins located throughout house? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | c. | Location of phone? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | d. | Buzzer or alarm? | 0 | 1 | 2 | 3 | 4 | 5 | |
| | e. | Comments | | | | | | | |

11. Locks
- | | | | | | | |
|--|---|---|---|---|---|---|
| a. On all windows? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. On all doors? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Height-accessible? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Lock in bathroom can open from outside? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Comments | | | | | | |
12. Safety Devices
- | | | | | | | |
|---|---|---|---|---|---|---|
| a. Fire extinguisher (accessible)? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Smoke detector at strategic points? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Non-sharp objects and corners? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Thermostatic controls-faucet water less than 105° F? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Strong colors used to accent hazards? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Location of emergency bell? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. Comments | | | | | | |
13. Storage
- | | | | | | | |
|---|---|---|---|---|---|---|
| a. Accessible (reach without risk)? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Minimum inside storage (1 person = 8 sq. ft., 2 persons = 10 sq. ft.)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Minimum outside storage (1 or 2 persons = 20 sq. ft.)? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Comments | | | | | | |

ELECTRICAL/LIGHTING

14. Outlets/switches
- | | | | | | | |
|---------------------------------------|---|---|---|---|---|---|
| a. Outlets-1'9"-3'0"? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Switches 8'0"-4'0"? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Switches by each entrance? | 0 | 1 | 2 | 3 | 4 | 5 |
| d. Outlets located on opposite walls? | 0 | 1 | 2 | 3 | 4 | 5 |
| e. Outlets in unobstructed positions? | 0 | 1 | 2 | 3 | 4 | 5 |
| f. Luminous switch plates? | 0 | 1 | 2 | 3 | 4 | 5 |
| g. Minimum number of outlets? | | | | | | |
| Kitchen-4 | 0 | 1 | 2 | 3 | 4 | 5 |
| Dining-1 | 0 | 1 | 2 | 3 | 4 | 5 |
| Living-3 | 0 | 1 | 2 | 3 | 4 | 5 |
| Bedrooms-2 | 0 | 1 | 2 | 3 | 4 | 5 |
| Hall-1 | 0 | 1 | 2 | 3 | 4 | 5 |
| Garage-1 | 0 | 1 | 2 | 3 | 4 | 5 |
| Storage room-1 | 0 | 1 | 2 | 3 | 4 | 5 |
| h. Comments | | | | | | |
15. Lighting
- | | | | | | | |
|--|---|---|---|---|---|---|
| a. General lighting in each room? | 0 | 1 | 2 | 3 | 4 | 5 |
| b. Lights easy to reach (pendants, wall brackets)? | 0 | 1 | 2 | 3 | 4 | 5 |
| c. Specific lighting located in areas | | | | | | |
| Kitchen preparation center | 0 | 1 | 2 | 3 | 4 | 5 |
| Sitting room | 0 | 1 | 2 | 3 | 4 | 5 |
| Sewing room | 0 | 1 | 2 | 3 | 4 | 5 |

Over bed	0	1	2	3	4	5
Over bathroom mirror	0	1	2	3	4	5
d. Comments						
16. Windows						
a. Sill 30" or lower?	0	1	2	3	4	5
b. Shading devices available?	0	1	2	3	4	5
c. One window/room?	0	1	2	3	4	5
d. Cord-operated curtains or blinds?	0	1	2	3	4	5
e. Storm windows or double glazed?	0	1	2	3	4	5
f. Easability of opening windows-no vertical sliding?	0	1	2	3	4	5
g. Weather-stripping around edge?	0	1	2	3	4	5
h. Window controls-5'1" or less?	0	1	2	3	4	5
i. Easy access for cleaning?	0	1	2	3	4	5
j. Comments						

Appendix II

Letter to Managers

May 13, 1960

Appendix B

Letter to Managers

Sincerely,

Mathias Koellner



SOUTH DAKOTA STATE UNIVERSITY
Brookings, South Dakota 57007

74
College of Home Economics

May 13, 1980

I am a graduate student at South Dakota State University in Brookings. I am studying elderly subsidized housing and would like to talk to some of the elderly individuals within your apartment complex.

If you agree, I will be making the visits the last two weeks of May. Your help in informing the residents of my visit would be greatly appreciated. I will be calling you within the next week to get your response. Any questions you may have can be answered at that time.

Sincerely,

Kathleen Zoellner

KZ/kb

Table 8
Mean Score for each of the Items
on the Housing Satisfaction Questionnaire

Item	Mean Score
Garage/Parking	
Distance from the apartment to the garage/parking	1.91
Distance leading to the garage/parking	1.65
Lighting of the garage/parking area at night	1.71
Door of the garage	2.00
Location of apartment	
Distance from the apartment to the hospital	1.56
Distance from the apartment to the cafe	1.68
Distance from the apartment to shopping area	1.74
Distance from the apartment to the drugstore	1.63
Distance from the apartment to the doctor's office	1.50
Distance (only in winter)	1.80
View of the apartment	
View of apartment from the street	1.82
View of apartment from the balcony	1.85
View of apartment from the window	1.77
View of apartment from the terrace	1.56
Area of the apartment	
Amount of space in the living room	1.84
Amount of space in the dining room	1.87
Amount of space in the kitchen	1.81
Amount of space in the bedroom	1.76
Amount of space in the bathroom	1.82
Floor Coverings	
Light coverings (wall, rug, carpet)	1.80
Dark floor coverings	1.71
Temperature Control	
Heating system	1.77
Cooling system	1.87
Equipment being free from dusts	1.67
Equipment maintaining the desired temperature	1.87
Temperature control buttons (height)	1.01
Temperature control buttons (location)	1.07

Appendix C

Mean Scores for Each of the Items on the Housing Satisfaction Questionnaire

Table 9
Mean Score for each of the Items
on the Housing Satisfaction Questionnaire

Item	Mean Score
Garage/Parking	
Distance from the apartments to the garage/parking	1.91
Sidewalks leading to the garage/parking	1.65
Lighting of the garage/parking area at night	1.71
Doors of the garage	DNA
Location of apartments	
Distance from your apartment to the hospital	3.56
Distance from your apartment to the cafe	3.68
Distance from your apartment to shopping area	3.44
Distance from your apartment to the drugstore	3.68
Distance from your apartment to the doctor's office	3.50
Streets (busy or noisy)	3.80
Lot	
Upkeep of the sidewalks	3.62
View of apartments from outside	3.85
The garden space	3.37
Lighting of the building exterior at night	3.56
Minimum space standards	
Amount of space in the living room	3.84
Amount of space in the dining room	3.87
Amount of space in the kitchen	3.81
Amount of space in the bedroom	3.76
Amount of space in the bathroom	3.92
Floor Coverings	
Floor coverings which are carpet	1.85
Tile floor coverings	2.91
Temperature control	
Air conditioning system	2.77
Heating system	3.91
Apartment being free from breezes	3.65
Apartment maintaining the desired temperature	3.87
Temperature control buttons (height)	4.01
Temperature control buttons (location)	4.01

Table 9 cont.

Item	Mean Score
Steps	
Lighting of the staircase	3.93
Staircase railing	3.60
Stairs (depth)	4.00
Stairs (width)	4.00
Number of stairs in apartment	3.26
Floor covering on the staircase	3.53
Doors	
Width of the doors	4.03
Door handles (ease of grasping)	3.99
Weight of doors (ease of opening)	3.93
Door fit (warped, cracked)	3.59
Types of doors on the interior of the apartment	3.76
Type of door leading to the exterior	3.57
Floor plan	
The location of the bathroom	3.56
The layout of the kitchen	3.25
Location and layout of the bedroom	3.97
Telephone or buzzer	
Number of telephones in apartment	3.80
Location of the telephone (room and height)	3.69
Buzzer	2.65
Locks	
Number of locks on doors	3.80
Number of locks on windows	3.85
Location of the locks (height)	4.00
Easability of opening locks	4.00
Safety devices	
Fire extinguisher (location)	3.39
Smoke detector	3.31
Apartment being free from sharp objects and corners	3.89
Thermostatic controls on the water faucets	3.23
Storage	
Amount of storage space per room	3.36
Accessibility of the space (ease to reach)	3.15

Table 9 cont.

Item	Mean Score
Outlets/Switches	
Height of the electrical outlets	4.01
Number of outlets per room	3.97
Location of the outlets	3.96
Height of the light switches	4.03
Number of light switches per room	4.03
Location of the switches	4.03
Lighting	
Amount of light per room to perform a very general task i.e. eating or watching T.V.	3.23
Amount of light available to perform a specific task i.e. reading or cooking	3.07
Location of the light fixtures	3.52
Easability of changing light bulbs	3.63
Master switches at the main entrance	DNA
Windows	
Height of the windows	3.85
Location of the window in the room	3.33
Number of windows per room	3.77
Shading devices and window coverings	2.95
Height of the curtain and shade cord	3.91
Screens and storm windows	2.91
Easability of opening the windows	3.73