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HOUSING NEEDS ASSESSMENT OF PERSONS WITH DISABILITIES IN RHODE ISLAND

Sudhakar Hedge
University of Rhode Island

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HOUSING NEEDS ASSESSMENT OF
PERSONS WITH DISABILITIES IN
RHODE ISLAND

BY
SUDHAKAR HEGDE

A RESEARCH PROJECT SUBMITTED IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF MASTERS OF
COMMUNITY PLANNING AND AREA DEVELOPMENT

UNIVERSITY OF RHODE ISLAND

1990

MASTER OF COMMUNITY PLANNING AND AREA DEVELOPMENT

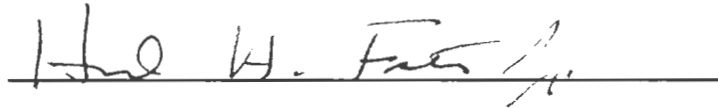
RESEARCH PROJECT

OF

SUDHAKAR HEGDE

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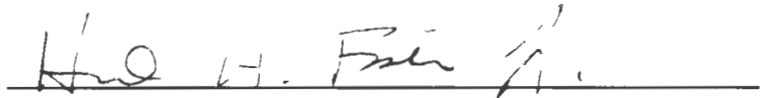
MAJOR PROFESSOR

A handwritten signature in cursive script, appearing to read "Howard H. Foster, Jr.", is written over a horizontal line.

HOWARD H. FOSTER, Jr.

ACKNOWLEDGED:

DIRECTOR

A handwritten signature in cursive script, appearing to read "Howard H. Foster, Jr.", is written over a horizontal line.

HOWARD H. FOSTER, Jr.

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The study concerns persons with disabilities and this work is dedicated to known and unknown disabled fellowmen.

CHAPTER ONE - INTRODUCTION

I. Introduction

It is estimated that there are thirty six million Americans who have limited mobility due to a temporary or permanent physical disability. Yet a disabled person need not be handicapped. "Handicappism" is a concept generated and perpetuated by the nondisabled community and its institutions. The word "handicap" implies irreparable damage. However, people with disabilities often view their physical limitations more in terms of the inconveniences imposed upon them by an environment designed for the able bodied.

Institutionalization once hid the needs of the disabled from our view, but changing attitudes, improved medical care, and technical advancements have made it possible for the aged and the handicapped to remain at home or in community care. This population has serious needs in regard to the removal of social and environmental barriers which hamper them in their daily living.

Housing options for the disabled are as varied as individuals. The types of disabilities to be served greatly influence the development process. The need for specific supports for people with disabilities are, of course, much more varied, but most of these are held in common as well: a stable income, transportation, a strong social network,

meaningful work, and so forth. Thus what really distinguishes people's needs are a small number of essentially technical differences in accommodation by housers, employers, public facilities and adaptation to improve mobility or emotional stability.

The availability of these specific supports make all the difference in a disabled person's successful participation in the community. Now it is known that housing problems, across disability groups, are less closely related to a specific disability than they are to larger economic and social factors such as poverty, the decline in affordable housing stock, and discrimination. There exists a substantial difference of opinion between professionals and "consumers" about people's abilities, and therefore about their specific needs for housing and supports.

Those in the disability field, in general, have rejected congregate living, often with other disability groups, as well as segregated housing and services. Now, the emphasis is on the use of normal housing, and there is keen awareness of the dangers of transforming one's home into a service setting simply because of one's special needs. The overwhelming preferences of people with special needs is for regular, integrated housing. These preferences are also clearly reflected in the shift in emphasis, within the physical disability movement, from "accessible housing" to "adaptable housing". This approach, already mandated for new

residential construction in several states, establishes common design standards for people with and without disabilities. This approach is far more cost-effective than having to retrofit units or entire buildings after they are constructed. This is also a significant departure from the traditional federal approach of requiring that a percentage of units be specially designed and "set aside" for "handicapped" people, usually in projects for senior citizens.

A major barrier to housing access is the two-edged sword of a decade-long decline in affordable housing stock, and the rising cost of housing in relation to income. This is accompanied by a cut of over 70 percent in federally assisted housing for low-income and special needs groups since 1981, and a dramatic increase in homelessness in all parts of the country. Because accessible housing units are scarce, people with physical challenges have been affected even more adversely. Because housing is so closely related to the economic conditions people face, and because it reflects our social policy on community action, it is little wonder that the issue of housing has become a major priority among virtually all of the disability advocacy groups.

CHAPTER TWO - SCOPE AND ORGANIZATION OF STUDY

II. Scope and Organization of Study

During the past several decades, researchers have examined problems related to the way in which a variety of population groups evaluate their housing environments. The research conducted by the University of Illinois Department of Housing Research and Development has attempted to identify those design and management factors that were most likely to contribute to user satisfaction.(1) Other studies have focused on the environmental quality of housing and have investigated users preferences for locational amenities. In a study by Knight and Menchik, they measured user preferences for housing that include attributes of the natural environment.(2) Peterson, Clark and Cadwallader, Wilkinson, and Hoinville have focused their attention on individual perceptions of the locational quality of residential environments.(3) In most cases, the methodologies employed involved the use of a variety of survey research techniques and statistical procedures.

Much of the research conducted by social scientists has been limited to the study of residential environments used by normative population groups. Little is known about the housing attributes desired by persons having limited functional abilities. These attributes include the location of housing, the mix of amenities desired, the character of

neighborhood, and the design of housing units which would facilitate a disabled person's ability to perform daily activities. Methodologically, evaluating the housing needs of the physically disabled is difficult because of the heterogeneity of the population and the diversity of their physical limitations. As a result, policy makers and planners have developed housing policy and programs for the disabled in response to an emotional rhetoric of advocates rather than basing decisions on a critical analysis of real need.

Objectives of the Study

The present study is undertaken in response to a Housing Needs Project Proposal submitted to the Rhode Island Housing and Mortgage Finance Corporation and which is funded by them. In Rhode Island there has been no previous needs assessment study conducted to identify the housing needs of persons with disabilities. Though Rhode Island Housing has been involved in affordable housing in the state since 1973, it was not until a few years ago that the realities of housing needs of persons with disabilities were seriously being considered. Now Rhode Island Housing has initiated this research project designed to meet the following objectives:

1. To determine the number of persons with disabilities in the state of Rhode Island.
2. To determine the population characteristics of disabled

persons who are in need of housing.

3. To enquire how the housing needs of persons with disabilities are presently being met.
4. To recommend ways and means of effectively marketing the present programs of Rhode Island Housing to the disabled population.

Scope of the Study

With the passage and implementation of Fair Housing Amendments Act, it is becoming increasingly urgent and important for the communities all across the country to integrate the handicapped population in meeting their housing needs. As the apex housing agency in the state, Rhode Island Housing is responding to this need as a first step to assess the housing needs of persons with disabilities. The scope of the study covers:

1. The number of persons with disabilities in the state who are in need of housing and the characteristics of this population in relation to housing affordability, housing design and related support services.
2. The extent to which Rhode Island Housing has met the housing needs of persons with disabilities and the degree of acceptability of existing housing provided to them.
3. To determine the reasons for vacancies if any in the existing handicapped housing units, and to establish future directions for meeting the housing demands of

persons with disabilities in the state.

4. Strategies which could be adopted by the Rhode Island Housing to meet the housing needs of handicapped persons in terms of marketing/affordability/design/support services.

Organization of the Study

The study is organized into four parts:

1. Extensive literature survey covering the disabled population and its characteristics in the United States and in Rhode Island, an overview of housing policies and programs evolved overtime at the national level, enactment of laws and legislation for accessible housing in the United States and the response of Rhode Island Housing in meeting the housing needs of persons with disabilities in the state is carried out. Various reports and books are reviewed to present manifestations of disabilities, categorization of physical impairments and architectural needs of disabled individuals.
2. After having a holistic view of the housing needs of persons with disabilities, a survey of housing management agents of Rhode Island Housing, advocacy groups, client spokespersons and professionals involved in housing in the state is conducted to assess the housing needs of disabled Rhode Islanders.
3. Findings of the survey research are presented in Chapter

V based on the responses received from housing management agents, service providers, advocacy groups and government agencies. Two disabled residents were interviewed by the researcher to find out their assessment of housing and accessibility needs for disabled persons in the state.

4. Recommendations are offered in Section VI covering various issues that are to be considered by Rhode Island Housing to provide decent, affordable and accessible housing to persons with disabilities in the state.

Footnotes

1. Richard D. Burke, " The Nature of Disability," Journal of Rehabilitation, November - December, 1967.
2. Robert L. Knight and Mark D. Menchick. Residential Environment and Preferences (Madison: Institute for Environmental Studies, University of Wisconsin, 1974).
3. George L. Peterson. " A Model of Preference: Quantitative Analysis of Visual Appearance of Residential Neighborhoods," Journal of Regional Science, 7, Summer, 1967; W.A.U. Clark and M. Cadwallader. " Residential Preferences: An ALternative View of Intra-Urban Space," Environment and Planning, November-December, 1973.

CHAPTER THREE - HOUSING THE DISABLED - AN OVERVIEW

III. Housing the Disabled - An Overview

During the past decade, the rapidly growing literature focussing attention on the needs of the physically disabled has viewed housing from the view point that their needs could be effectively met through major modification and alterations of the built environment. Specialists in physical and rehabilitation medicine, as well as the proponents and lobbyists for the disabled felt that the design of a prosthetic living environment would allow the disabled to cope with their limitations. Because of a preoccupation with issues related to alterations of the built environment, housing for the physically disabled has been viewed as an architectural problem rather than one of housing. As a result, housing policies and programs which have been initiated have become unrealistic and costly.

It is the intent of this Chapter to examine the role of federal government and the state of Rhode Island in developing housing policies and programs for the physically disabled. In so doing, the needs which have been ascribed to physically disabled within the general context of housing will be examined.

What is Housing?

Housing can simply be viewed as a form of shelter for an individual from the natural elements. As Smith points out, this is only one way of defining housing. "Housing is a

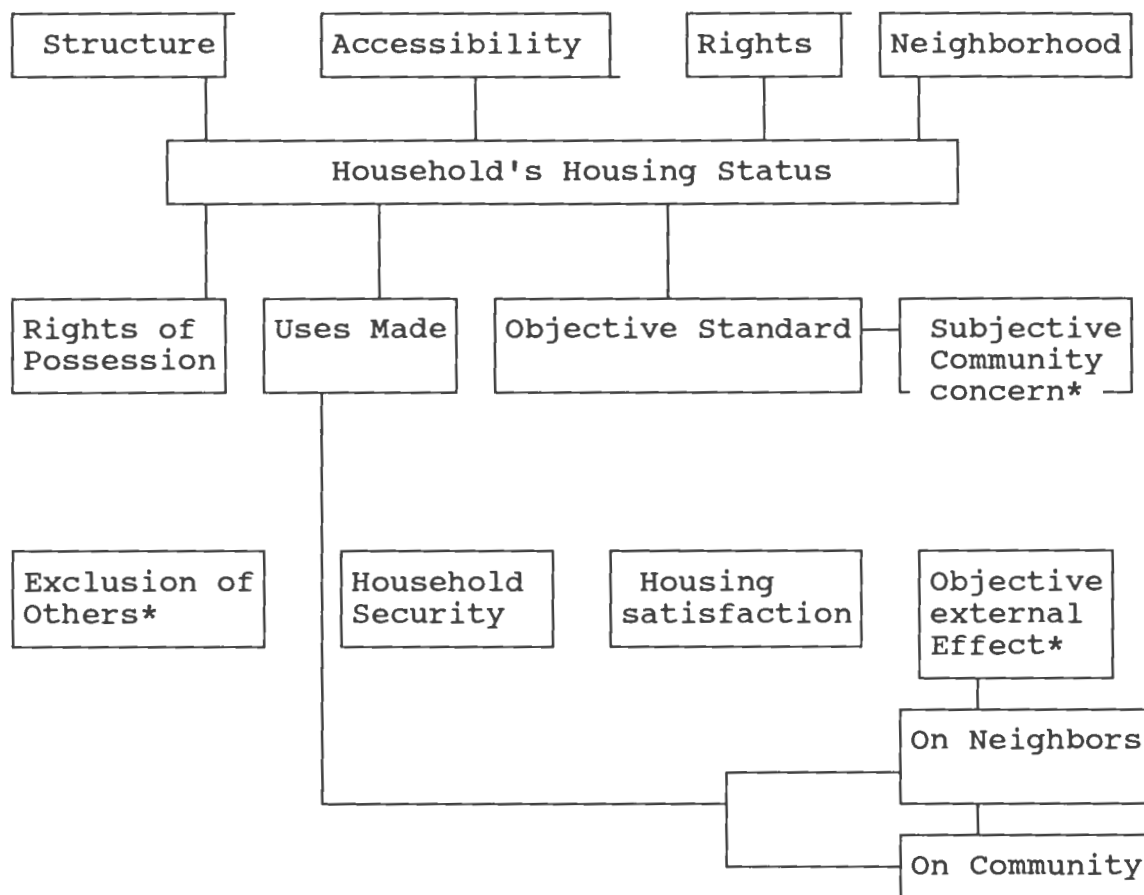
commodity which is inextricably intertwined within a system of interrelated factors".(1) Coleman has defined housing as man-made physical environment in which families live, grow and decline. Yet it is also a dynamic process:

As a process housing again is more than construction..... It is also a dwelling design, neighborhood layout, materials manufacture and distribution, mortgage, finance, city and regional planning, public controls, aids and enterprises through such things as buildings and housing codes, mortgage insurance, housing and redevelopment authorities. It includes maintenance, repair, remodelling, neighborhood services and neighborhood conservation. It requires technical and social research; fact finding and analyzing; individual, family, and business public policy decisions.(2)

In Smith's discussion of the function of housing, he clarifies and expands concepts used by many housing experts. According to Smith, the housing bundle is composed of locational characteristics, environmental amenities, investment potential, shelter and privacy. The qualities associated with the housing unit have been designated by Smith as "housing status". (Figure 1)

Figure 1

Components and Effects of Housing Status



* Effects which are external to individual decision

Source: W.F. Smith, Housing: The Social and Economic Elements, cited in Daniel R. Mandlekar and Roger Montgomery, Eds., Housing in America: Problems and Perspectives, p. 12.

The diagram developed by Smith illustrates the arrangement of the components of housing status. A household's housing status is an assemblage of physical, financial, legal and social elements. Therefore housing choices of the disabled persons, like the able bodied, are

multidimensional and must be viewed as such.

Housing Policy for the Physically Disabled Persons

Since the enactment of the Housing Act of 1937 the federal government has taken on a greater responsibility for providing housing to those individuals who cannot find affordable or amenable housing. Initially, the poor were the beneficiaries of public housing. Gradually, these programs were expanded to include the elderly and the disabled. In 1956, the elderly became the first special-user group to benefit from Federal Public Housing programs. In 1964, the Housing Act was amended to include the physically disabled persons who were entitled to participate in Federal Housing programs and included only those persons having:

..... a physical impairment which is:

- a) expected to be of long, continued and indefinite duration.
- b) substantially impedes ones ability to live independently; and
- c) is of such a nature that such ability could be improved by more suitable housing conditions.(3)

Prior to 1968, the disabled were eligible to participate in most federally sponsored housing programs. However, these units had not been designed to meet the special needs of these individuals. In order to increase the housing stock accessible to

physically disabled persons, the federal government provided financial assistance for the development of eight housing projects using the 202, 221(d) (3) and 236 low rent housing programs. The total number of accessible units for the disabled for the period 1964 to 1974 was 1,086 units. The number of units designated and designed for the physically disabled was still a small number compared to the 500,000 units developed for the elderly during the same period. As a result of the increased interest in the housing needs of the physically disabled, HUD funded 33 special housing projects in 1976 that added 2,571 special units.

Almost all of the housing units designated for use by the disabled and financed by HUD have been residential facilities where housing was more representative of an institutional environment. Many of these projects were developed in conjunction with a hospital based rehabilitation center or were designed to meet the specific needs of a population like the severely disabled cerebral palsied. Although the original intent of these facilities was to create housing that would facilitate independent living, they often became what Goffman has referred to as a total institution, "a social hybrid, part residential community, part formal organization".(4)

In a study entitled Residential Environments for the Functionally Disabled, the authors attempted to evaluate a

representative sample of HUD funded housing for the physically disabled.(5) The objectives of this study were to evaluate these housing units; the characteristics and persons being served; the types of services offered; and the utility of design features.(6) The evaluation of the four housing projects included in this study indicated the following:

1. In one instance, many of the original design features planned to meet the needs of the disabled persons were cut out from the final plans because of budgetary reasons. The resulting facility appears as higher quality building for the elderly..... early experiences indicated some difficulties in interpersonal relationships, especially regarding time schedules and social patterns, between older and younger tenants.
2. Another facility is quite large, by comparison, and there is some difficulty filling units with younger disabled or elderly disabled persons.
3. A third facility serves all age groups, and is being phased in as a building for disabled, particularly wheelchair users. As people in other housing projects, particularly buildings for the elderly, require wheelchairs they are being transferred to this site.
4. A fourth facility serves those who are disabled, regardless of age. About half are over 62 years of age."

Prior to 1977, the only housing units available to the moderately and severely disabled were contained in projects designed for the disabled or in housing for the elderly. In an address before the 1977 White House Conference on Handicapped individuals in Washington, D.C., HUD Secretary Patricia Harris stated that:

HUD is establishing a goal that 5 percent of all family housing units constructed under the Section 8 and Public Housing programs will be designed for use by the disabled..... This new housing goal will mark the first of a series of steps by HUD to provide properly designed, accessible housing for the nonelderly handicapped.(7)

The housing policies outlined by Secretary Harris at the White House Conference was officially adopted by December, 1978, when regulations defining the scope of these programs were published in the Federal Register.(8)

Accessible Housing - Laws and Legislation

The enactment of the Architectural Barriers Act of 1968 (P.L. 94-80) changed the focus of federal policy towards the disabled; a policy which had emphasized rehabilitation and employment to one of making the physical environment more accessible. However, it is impossible to define the social and political factors that prompted the federal government to enact laws and promulgate regulations requiring public places and spaces to be made accessible to the physically disabled.

From 1968 to 1989 the physically disabled made a number of legislative gains: the passage of the Rehabilitation Act of 1973 with the inclusion of Section 503 and 504, the establishment of the Architectural and Transportation Compliance Board (503), a Civil Rights Act (504), and the inclusion of housing for persons with handicaps in the 1974 Housing and Community Development Act. It was apparent that the physically disabled were effective in the development of public policy; public policy directed at the remediation of these primary grievances regarding the delivery of services to the severely disabled and the elimination of environmental barriers. Still the passage of legislation was only a symbolic gesture by the federal government since sufficient funds were not appropriated, nor was there a mechanism for the implementation of desired program objectives.

The establishment of the Architectural and Transportation Barriers Compliance Board in 1973 provided a means for the physically disabled to lobby for special housing.(9) In June 1975, the Architectural and Transportation Barriers Compliance Board conducted public hearings on housing for handicapped individuals in Chicago. During these hearings a number of handicapped individuals, representing a variety of consumer and social service agencies, presented testimony on the need for housing the disabled. In testimony presented by Max Starkloff, executive

director of Paragrad, he indicated:

"For some disabled persons, physical barriers to performing everyday activities like bathing, eating or dressing can be overwhelmingly difficult. To other disabled persons, the mobility problem has been overcome to an extent. But the real problem is not the door for the wheelchair or the building accessible only by stairs. It is the isolation, both physical and psychological that surrounds disabled people".(10)

Charles Campbell, board member of the National Easter Seal Society for crippled children and adults indicated:

"In studying approaches to the housing problems of our handicapped citizens, the difficulties a person with a handicap faces in getting adequate housing cannot be isolated from the problems he encounters in his whole physical and social environment. He also is likely not to have money for housing".(11)

Finally, Larry Allison, Supervisor of Public Information for the Division of Rehabilitation and Crippled Children Service for the State of Alabama stated:

"Any person with a severe physical limitation who's tried to live independently in the almost totally hostile architectural environment of our nation is agonizingly aware of the frustrating non-existence of accessible housing. He has but to look about him, at his own home, his neighbors down the street, in the next town, or the furthest corner of

America. He looks for something that does not exist".(12)

Beginning in 1974, as a result of intense lobbying by the disabled, perhaps, housing policy and programs began to reflect the interests of the physically disabled. The Housing and Community Development Act of 1974 reflected several major changes in regard to the housing needs of the disabled. The Section 202 housing program, which was formerly designed to assist not-for-profit organizations developing housing for the elderly could also be used to develop housing for the disabled.(13) In addition, a disabled person could receive Section 8 assistance in existing housing which is suitable for occupancy by a handicapped person.(14)

Although the needs of the disabled were symbolically recognized in the 1974 Housing and Community Development Act, a report prepared by HUD's Division of Special Studies indicated that the 202 program didn't provide a significant number of new housing units for the physically disabled. The report concluded "that most Section 202 projects incorporated some design elements that reflect the special needs of elderly tenants, but few are equipped to accommodate the special needs of the handicapped".(15)

More recently a report on the hearing before the subcommittee on Housing and Urban Affairs indicate that there are between 35,000 and 45,000 units of Section 202 housing for the elderly and mobility impaired, which HUD has

granted fund reservations for, but has not yet approved the start of construction. At a time when affordable housing for the elderly and mobility impaired is urgently needed, the limited funding which Congress has already appropriated for Section 202 is often stalled by restrictive HUD policies. During the hearing, the National Association of State Mental Health Program Directors came up with the following policy changes of HUD programs.(16)

1. Emphasize permanent rather than transitional housing options for persons with disabilities.
2. Emphasize greatly expanded rental subsidy support, such as the Section 8 rent subsidy program rather than the development of separate or congregate facilities, such as those developed through the Section 202 loan program.
3. Convert Section 202 program funding for the non-elderly handicapped population from a congregate or group facilities orientation to a block grant to the states to develop an equivalent number of units of housing through a state determined capital program. Section 8 rent subsidies must continue to be available to each housing unit as through the current program.

Besides HUD assisted Section 8 and Section 202 housing programs for the disabled persons, other recent activities on behalf of the disabled include: (17).

* Clearing final regulations stipulating that projects

financed by Community Development Block Grants and related programs must be accessible to disabled individuals. If CDBG funds are used for newly constructed housing, at least 5 percent of the units must be accessible to the disabled in projects of 15 or more units.

- * Sponsoring development of a resource guide to assist local groups in assessing housing needs of the disabled.
- * Developing standards and criteria to promote housing for the chronically mental ill and the developmentally disabled through the Section 202 program.
- * Sponsoring a manual to provide general and technical information on designing and building adaptable housing.
- * Participating in the formulation of Uniform Federal Accessibility Standards in conjunction with other Federal standard setting agencies.
- * Creating an Office of Special Advisor for the Handicapped to promote awareness of the housing needs of people with disabilities and to assure adequate access by handicapped persons to HUD assisted housing.

Rhode Island Housing and Mortgage Finance Corporation

Meeting the Housing Needs of Disabled Persons

Rhode Island Housing was created in 1973 by an Act of the state Legislature. It was charged with the following mandate: (18)

"..... It is necessary to create a state housing and mortgage finance corporation to encourage the investment of private capital and stimulate the construction and rehabilitation of residential housing and health care facilities through the use of public financing....."

Until 1985, it fulfilled the mission of increasing the opportunities for low- and moderate-income housing. During the last three years, however, the Corporation has altered its traditional role to offer 19 different programs which assist first-time homebuyers, create new homes and apartments, preserve existing housing, and serve Rhode Island's elderly and special needs population.

Rental Housing Shortage

Although the state's total population is relatively stable, rapid growth of households headed by single parents, unrelated individuals, people living alone, and the elderly population has greatly increased household demand. Because most of these new households are renters, a substantial gap

has developed in rental housing supply. Average rents in Rhode Island rose by 181 percent between 1980 and 1986. One-fifth of Rhode Island's renters now spend more than 35 percent of their income on rent.

Renters vying for assisted rental units have fared no better, as federal funding for affordable housing has dropped by 70 percent during the past nine years. Resources for rehabilitating existing units have been sharply reduced, and new construction has virtually ended. The vast majority of housing developments of Rhode Island Housing were built under the Federal Section 8 Housing Program. The program was designed to be a "production" program to bring on-line new subsidized housing units. The federal government made available a subsidy to project owners so that no tenant pays more than 25-30 percent of his or her income toward rent.

Under Section 8 Housing, an overwhelming emphasis is on elderly housing. Figures show that 86 percent of the residents served by the Corporation's 110 multi-unit development projects were elderly.

In its Agenda for the Future- Meeting the Housing Needs of the Citizens of Rhode Island, the Corporation calls for the following: (19)

Assistance in meeting the special housing needs of the mentally and physically handicapped. Alternative community-based residential programs need to be financed to ensure safe and affordable housing for handicapped individuals.

Assistance for the elderly in meeting their housing and health-care needs.

Currently, Rhode Island Housing meets the housing needs of persons with disabilities only through Section 8 Elderly and Family Housing program. The Corporation monitors the management of 85 Section 8 developments located throughout the state, having more than 8,500 units. Persons 62 years or older, handicapped persons as defined by the Social Security Act and families meeting a prescribed income guideline are eligible to live in Section 8 Housing. In addition there are 16 Federal Housing Administration (FHA) insured Section 8 developments, five Section 236 FHA insured developments, two moderate rehabilitation Section 8 developments, two State Rent Subsidized developments and five developments currently under construction.

As of May 1989, the average tenant rent of subsidized housing was \$177 and average income of residents was \$8,284. 9.1 percent of the residents were minorities and 14.3 percent of the residents were handicapped. The vacancy rate was 1 percent.

Footnotes

1. W.F. Smith, "Housing: The Social and Economic Elements," cited in Daniel R. Mandlekar and Roger Montgomery, eds., Housing in America: Problems and Perspectives (Indianapolis: Bobbs-Morrill Educational Publishers, 1977).
2. Ibid., p.5, cited in Mandlekar
3. Marie McGuire Thomson, Housing and Handicapped People (Washington, D.C.: The Presidents Committee on Employment of the Handicapped, 1976) p. 6.
4. S.W. Zisook, "Housing for the Physically Disabled: A Public Policy Analysis" A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, University of Washington, 1981.
5. Residential Environments for the Functionally Disabled. (Washington, D.C.: The Gerontological Society, 1975).
6. Ibid., pp. 167-168
7. HUD Programs that can Help the Handicapped. (Washington, D.C.: U.S. Department of Housing and Urban Development, 1978).
8. Community Development Block Grants, Federal Register, Part III, March 1, 1978; Loans for Housing the Elderly or Handicapped, Federal Register, Part IV, March 1, 1978; Nondiscrimination Based on Handicaps in Federally Assisted Programs and Activities. (Washington, D.C.: U.S. Department of Housing and Urban Development, 1978)
9. Housing Needs of Handicapped Individuals, Report to the President and Congress on the housing needs of handicapped individuals (Washington, D.C.: Architectural and Transportation Barriers Compliance Board, 1976).
10. Ibid., p.21
11. Ibid., p.2
12. Ibid., p.74
13. Freedom of Choice, p.93, Section 202: Title II, Section 7

14. Ibid., Section, Title II, Section 8; Summary of the Housing and Community Development Act of 1977 (Washington, D.C.: U.S. Department of Housing and Urban Development, 1977).
15. Section 202: Housing for the Elderly or Handicapped (Washington, D.C.: U.S. Department of Housing and Urban Development, Office of Policy Development and Evaluation, Division of Special studies, 1978).
16. Federal Register, Part III, April 9, 1978; Community Development Block Grants, eligible activities, Department of Housing and Urban Development, Federal Register, Part III, March 1, 1978; existing housing, Section 8 housing assistance payment program. (Washington, D.C.: U.S. Department of Urban Development, 1978).
17. Housing Special Populations: A Resource Guide (Washington, D.C.: U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 1987).
18. Rhode Island Housing - A New Beginning: A Draft Working Document Prepared for Public Review and Comment (Providence: Rhode Island Housing, 1986).
19. Ibid., pp. 18-19.

CHAPTER FOUR - METHODOLOGY

IV. METHODOLOGY

4.1 Methodology: Research Design

This research project was designed to be comprehensive to answer the specific questions raised by the Rhode Island Housing and Mortgage Finance Corporation. The questions addressed in the study were:

1. What are the housing needs of the disabled population of Rhode Island in terms of number of housing units and the quality of housing?
2. Is Rhode Island Housing meeting the housing needs of disabled individuals in the state?
3. What are the strategies that could be adopted by Rhode Island Housing in meeting the housing needs of disabled?
4. How could Rhode Island Housing make the existing handicapped units more accessible to the disabled persons?
5. How effectively could Rhode Island Housing market the handicapped units in its existing Section 8 housing to disabled consumers?
6. Is transportation a need or a problem for the handicapped residents?

The study had to be both elaborate and detailed as no such study has been undertaken in the state to assess the housing needs of disabled persons and it also had to be specific in terms of answering the research questions raised

by the Rhode Island Housing.

The research included the following components.

1. Literature Search

A literature search was conducted in order to define various aspects and manifestations of disability, to determine historical basis for accessible housing, and to understand the evolution of various laws and legislation enacted at the federal level from time to time in meeting the housing needs of persons with disabilities. Population estimation of disabled persons in the state of Rhode Island was made referring to the 1980 Census data, and need for handicapped housing was established based on these data.

2. Development of a Survey Instrument

A survey questionnaire was developed to assess the housing needs of handicapped in Rhode Island. The questionnaire was designed to elicit information from Housing Management Agents of Rhode Island Housing, professionals involved in housing the disabled in the state, and disabled advocacy groups. The questionnaire was divided into three sections, the first part eliciting information about the agency, the second part requesting information about characteristics of client population and their housing needs, and the third part requesting more specific information about the issues related to housing the disabled persons in the state.

3. Interviews

The researcher had one-to-one interviews with the representatives of Housing Management Agents of Rhode Island Housing, Client Spokespersons, and professionals involved in housing the disabled. Besides, the researcher also had interviews with two disabled individuals currently living in the Rhode Island Housing developments. The interviews were arranged to have a discussion of the issues relating to housing the disabled in the state.

5. Recommendations

Recommendations have been made in terms of changes in the marketing of programs and units. Low-cost physical adaptations/modifications to existing housing units are made to provide sufficient accessibility relative to the handicapped/disabled person's need. With Fair Housing Amendments Act in place, recommendations have also been made to undertake adaptable housing initiative in a time-bound and cost effective manner.

4.2. Methodology: Literature Search

The purpose of the literature search was to review materials on the disabled population in order to gather the following information for use in the housing needs assessment of disabled population:

1. Collection of population and Demographic Data
 - Who is designated as a disabled person?
 - How many people are disabled?
 - What are the demographic characteristics of the disabled population?
2. Categorization of physical disabilities for use in the Needs Assessment
3. Determination of functional limitations within disability categories
 - What are the functional limitations within disability categories?
 - What are the factors that affect physical level of functioning?
4. General Architectural Requirements of Disabled Persons.

The literature search began with a review of materials available at the University of Rhode Island Library and Graduate Curriculum in Community Planning Library. References utilized included:

1. Dissertation Abstracts
2. Population Census 1970 and 1980
3. Statistical Abstracts of United States 1980

4. Rhode Island Census of Disabled Persons 1980
5. HUD Publications
6. Federal Register
7. RIHMFC Annual Reports
8. CPL Bibliographies
9. Journal of Rehabilitation
10. American Demographics
11. Rhode Island Statewide Planning Program Reports

Bibliography of material reviewed in the literature search appears in Section VII.

A review of literature was attempted to define various terms used in the area of disability research, selection of target population and number and characteristics of the disabled population on both national and state level, categorization of various kinds of disabilities and the general architectural requirement of disabled persons.

Evaluation of housing needs for persons with disabilities was complicated by two problems. The first was that little research exists on the housing needs of disabled persons. Most previous research on housing needs had been limited to the study of residential requirements of able-bodied population groups. Housing needs study of persons with disabilities is a recent effort and such studies exist for only few cities/counties. In the state of Rhode Island, housing needs study of persons with disabilities has not been conducted so far, and the present study could at best

be an initial effort toward that.

Secondly, the heterogeneity of the disabled population and the diversity of their physical limitations has led to a variety of conclusions and recommendations in research that has been initiated on housing attributes desired by persons having various kinds of disabilities. The wide variety of statistics and perspectives presented often conflicted with one another.

4.3. Methodology: Survey

The needs assessment survey was designed to elicit information from the Housing Management Agents of Rhode Island Housing, Client Spokespersons, Professionals involved in housing design for the physically handicapped and government officials who are involved in working for the general welfare of the handicapped population. It was hoped that a variety of persons involved in housing the disabled population in Rhode Island would come forward with information to realistically estimate the housing needs of Rhode Island disabled population. Conducting a consumer survey was not felt necessary at this point in time as it was felt that enough information would come from housing management agents, advocacy groups and housing professionals.

The survey was designed to collect information on the following:

- How many persons between the ages of 16 and 64 with various disabilities live in Rhode Island?
- How do their physical limitations impact upon their housing needs?
- How does your agency meet the housing needs of disabled individuals?
- Whether the agency works with Rhode Island Housing in meeting the housing needs of disabled?
- What type of items are needed to improve

accessibility and liveability of current units?

- What would make the handicapped units more attractive to clients?
- Is transportation a need or a problem?
- How accessible is homemaker service to handicapped residents?
- What modifications should be made to existing marketing procedures by Rhode Island Housing?
- What impact do state laws and the new Federal Fair Housing Act have on Rhode Island Housing's ability to serve disabled clients?

The survey instrument was designed to utilize both open and closed response categories. Open ended questions would allow respondents to utilize their own perceptions and offer comments. The respondents could make suggestions in an unrestricted manner. Closed response categories were meant to gather information so that an estimation of disabled persons and their housing needs could be made for the state.

The survey format began with an introduction communicating the objectives of the study and the purpose for which the study has been undertaken. A letter of introduction from Rhode Island Housing was enclosed along with the researcher's self-introduction to establish the credibility of the work undertaken. Letter of Introduction from Rhode Island Housing was necessary to inform the

respondents, most of them Housing Management Agents of RIHMFC, the importance of conducting a handicapped housing needs study in the state. A list of potential respondents for the survey questionnaire was obtained from Ms. Jean Robertson of Rhode Island Housing. Additional names were added to the list by the researcher by obtaining names and addresses of agencies involved in handicapped housing from the Resource Directory: Information for the Mobility Impaired Population.

The survey questionnaire is divided into three sections. The first section contains questions 1 - 6. These questions are of general nature, requesting the respondent to tell about his/her agency and how they are involved in housing the disabled in the state. All the questions are open ended so that the respondent feels comfortable in explaining the agency's programs and activities in relation to housing.

Section two includes questions 1 - 9. The first five questions were designed to collect factual information regarding population characteristics of disabled in Rhode Island. These questions are of closed response category, and were thought to be useful in assessing the number of handicapped persons in the state who are in need of housing. Questions 6 - 9 are aimed at housing agencies working in association with Rhode Island Housing. These questions are designed to elicit information about handicapped housing

programs the agency has undertaken and procedural and policy details of such programs.

Section three of the survey questionnaire includes questions 1 - 14. These questions were both closed response and open ended. Section three was designed specifically to receive responses to the issues raised by Rhode Island Housing and to answer the research questions. The issues ranged from design aspects of handicapped housing units to effective marketing strategies that could be adopted by Rhode Island Housing. Other issues in the nature of open-ended questions were:

Is transportation a need or a problem?

How accessible is homemaker service to handicapped residents? What items are needed to improve accessibility in the existing units?

Finally, suggestions were solicited from respondents in regard to future housing needs of handicapped and elderly population in the state and policy changes/guidelines that may have to be adopted by Rhode Island Housing to effectively meet the sharp rise in the demand for elderly and handicapped housing.

Appendix A contains a copy of the survey questionnaire designed and administered to the respondents.

Administration of the Survey Questionnaire

The survey questionnaire was administered to a total of 18 respondents. As mentioned earlier, the respondents

consisted of Housing Management Agents (4), Officials of the government (2), Client Spokespersons (6), Advocacy groups (4), and Professionals involved in housing design (2). The survey questionnaires were mailed to each of these respondents and after two weeks, they were contacted to find out their response to the instrument. A majority of the respondents returned the survey questionnaire with their responses. However, a few of them had difficulty in answering some of the questions and the researcher scheduled meetings with them for discussion and on-site visits.

As the population of respondents was small, sampling and statistical analysis were found not necessary. Completed questionnaires from respondents were analyzed to determine the need for handicapped housing in the state, number of units needed, design/architectural modifications desired and comments and suggestions for Rhode Island Housing to develop future housing developments for handicapped Rhode Islanders.

4.4 Methodology: Consumer Interview

Disabled consumers are the persons who either presently live in the handicapped housing units provided by the Rhode Island Housing or who lives in the community owning or renting a handicapped unit. The interviews with disabled housing consumers were necessary to determine:

1. The process through which the consumer got the handicapped unit.
2. Acceptability of the unit where the disabled person lives in terms of meeting his/her accessibility needs.
3. Locational utility of the housing in terms of medical facility, and service needs.
4. Accessibility to transportation network.
5. Accesibilty to homemaker service and social service needs.

It was felt that the input from the disabled persons would be important in view of their experiences and aspirations of having a place to live and the extent to which the present housing programs help in integrating the disabled community into the normal communities. The interview process was not included in the original research proposal. The researcher felt that the information gathered directly from the disabled consumers by interacting with them would help in making a general assessment of accessibility needs of persons with disabilities.

Housing Management Agents of Rhode Island Housing were

helpful in arranging interviews with the disabled residents in their developments. Social Services Directors of Ferland Properties in East Greenwich and Harwool Properties in Warwick identified two disabled residents who agreed to be interviewed. The interviews were held at the houses of the handicapped consumers. The respondents were selected on the following criteria:

1. The resident should be between the age of 16-64.
2. The respondent should have different degree of mobility impairment. i.e. mild, medium and severe.

As a part of the interviewing process, the residents also volunteered to show the accessible features of their units. This enabled the researcher to make an assessment of existing facilities and future needs.

CHAPTER FIVE - FINDINGS

V. FINDINGS

5.1 Findings: Literature Search

Definitions

In order to deal with the problem of disability, it was necessary to define it, to account for the conditions associated with it, and to understand the distribution and numbers involved. These parameters are still unclear. First, the definition of disability, upon which estimates, surveys, planning and policy are based, vary enormously. Often such terms as impairment, disability and handicap are used interchangeably.

In an attempt to clarify the situation, the World Health Organization (WHO) drew upon a manual, International Classification of Impairments, Disabilities and Handicaps: A manual of Classification relating to the Consequences of Diseases, providing classification schemes and definitions of basic terms.(1) In this manual, three sequential schemes were suggested as possible consequences to a disease or disorder as follows:

Impairment: Concerned with abnormalities of body structure and appearance and with organ or system function resulting from any cause; in principal, impairments represent disturbances at the organ level.

Disability: Reflecting the consequences of impairment in terms of functional performance and activity by the

individual; disabilities thus represent disturbances at the individual level of the person.

Handicap: Concerned with the disadvantages experienced by the individual as a result of impairments and disabilities; handicaps thus reflect interaction with and adaptation to the individual's surroundings.

Physically Disabled Person: An individual who experiences a chronic or progressive physical condition, which inconveniences, or limits activity/mobility.

Handicapped Person: An individual whose physical disability limits his/her utilization of the environment and inhibits his/her performance of major life activities such as physical movement, ambulation, self care, communication, socialization, education or employment.

Handicapped Population

Physical disability is a national problem affecting millions of people in all parts of the country, in all age groups, and in all occupations. Degree of disability ranges from the wheelchair bound paraplegic to the athlete temporarily on crutches with a broken leg. Those whose mobility is impaired- wheelchair and crutch users, the arthritic aged, blind and deaf- comprise about 13 percent of the US population, a minority of significant proportions.

The term "physically handicapped", includes persons in the following categories.(2)

1. Non-ambulatory disabilities- those which confine the

individual to a wheelchair.

2. Semi-ambulatory disabilities- those which allow the individual to walk with difficulty, perhaps with the aid of braces or crutches. This may include amputees, arthritics, victims of stroke and partial paralysis, cardiac and pulmonary patients, and the grossly overweight.
3. Disabilities in coordination or palsy due to brain or nerve injury, which impair the individual's mobility.
4. Sight Disabilities- blindness or impaired visual ability to perceive signals or dangerous situations.
5. Hearing Disabilities- deafness or impaired ability to hear warning signals or communicate.
6. General Disabilities due to aging, which reduce the individuals mobility, perception, and coordination.

How Many People are Disabled?

The 1980 Census shows that 12,320,000 Americans between the ages of 16 and 64 who are not in institutions report a disability which limit the amount or kind of work they can do or prevents them from working altogether. This group represents 8.5 percent of the 144,667,000 Americans of working age, or slightly more than one in twelve. These numbers include only persons aged 16-64; they exclude the two out of every five Americans under age 16 or over age 64. We know from the Social Security Administration, the National Center for Health Statistics, and other government

studies that several million children under age 16 are disabled and that several million persons over age 65 are disabled. The 1982 Current Population Survey estimates that, in the nation's 65-74 non-institutionalized population, some 2,125,000 men and 2,533,000 women were disabled. They represented 31.4 percent of all men and 28.4 percent of all women in that age range.(3)

According to the National Center for Health Statistics' 1988 Health Interview Survey, approximately 33 million Americans have some type of activity limitation that results from a chronic condition. While one-third of people with activity limitations are aged 65 and older, more than half are of working age. About 27 percent are aged 18-24, and 31 percent are aged 45-64. Over 13 million people aged 16-64 are limited in the kind or amount of work they can do because of a disability, according to the Census Bureau.

Characteristics of Disabled Population

The 1981 and 1982 Current Population Survey studies data tell us that disabled Americans are, on average, much older than working-age persons without disabilities. While the average non-disabled working-age American is 34 years of age, the typical disabled person of working age is 50 years old.

Disabled persons are much less well-educated than are others of working age. Only one disabled adult in every five has attended some college, compared with one in three non-

disabled individuals in the 16-64 age range. Given that most persons with disabilities became disabled later in life, this is an intriguing finding. But the probable explanation for this is: persons with little education tend to enter highly physical occupational categories; they also tend to be poor. In other words, those individuals who are less well-educated and less well-off financially are the ones most susceptible to disability.(4)

Residence

Persons with disabilities are somewhat less likely than are other adults of working age to live in cities. While two in three disabled adults reside in metropolitan areas, almost seven in ten nondisabled adults do. Of those who live in cities, disabled persons are somewhat more likely to reside in the "central city" areas. Almost half of all disabled adults who live in metropolitan areas have a central-city residence, as against fewer than four in ten non-disabled adults. About one-third of all disabled adults aged 16-64 and not in institutions reside in the Southeastern quarter of the country, as do about one-third of other individuals of working age. Slightly more than one-fifth in both populations live in the Northeast; about one in five in both groups live in the West.

Income and Economic Status

People with disabilities are more likely than others to be high school dropouts. But the educational attainment of the 7.5 million disabled people aged 16-64 who are not severely disabled compares well with the general population. About 40 percent have completed four years of high school, and another 30 percent have gone on to college. Still, one in five adults with a work disability has an income that falls below the poverty level.

While half of all Americans aged 16-64 had at least \$8,000 in income from all sources in 1980, only three disabled persons in ten reached that level. Among women, one-third without disabilities reached that much but only 13 percent with work disabilities did. One disabled person in five had income below the 1980 poverty level; by contrast, only one non-disabled person in ten had so low an income. Among disabled males, one in five was below the poverty level, compared with one non-disabled male in twelve. Three disabled women in every ten fell below the poverty line in 1980, compared to one in eight non-disabled women. Among people aged 16-64 with a work disability, only 36 percent of men and 28 percent of women are in the labor force. Fourteen percent are unemployed. Disabled workers who work full-time, year-round earn about 20 percent less than others. In 1987, men without disabilities who worked full-time earned an average of \$30,000, while men with disabilities averaged

\$24,000. Among women, those without disabilities earned \$19,000, compared with \$16,000 for women with disabilities. It is observed that labor force participation rates for people with work disabilities have declined while their population has grown. Between 1981 and 1988, the number of people with work disabilities grew by 2.5 percent, while their labor force participation rate slipped from 33 to 32 percent.

The Bureau of the Census statistics are based upon response of 5 percent of the general population to two questions:

- 1.a. Does this person have a health or physical condition which limits amount or kind of work he can do on a job?
- b. Does his health or physical condition keep him from holding a job at all?
- c. If yes to either: How long has he been limited in his ability to work?
- 2.a. Did this person work at any time last week?
- b. How many hours did he work last week?
- c. Where did he work last week?

The Bureau Survey is designed to measure ability of an individual to hold employment outside of the home. Therefore, it is likely that census information fails to identify all individuals who have disabilities. It is not an entirely accurate instrument for use in determining the number of persons who are handicapped, yet it is the one

most often utilized.

TABLE 5.1

**United States Disabled Population Between 17 and 64 Years old
By Sex**

Population	Total	Sex	
		Male	Female
General Population			
Number	125,838,000	61,166,600	64,177,400
Percent	100	49	51
Disabled Population			
Number	16,234,000	8,604,000	7,792,000
Percent	100	53	48
Percent of general Population	12.9	13.7	12.4

Source: Based on 1972 National Center for Health Statistics
Survey, 1976 update

Disabled Population in Rhode Island

The 1980 U.S. Census found 52,445 handicapped persons in the state of Rhode Island between the ages of 16 and 64. The Census defines a handicapped person as one who has a health condition or disability that limits the kind of work one can do on a job or prevents one from doing any work at all. Since it is an employment-related definition, only the working age population is considered. Those 52,445 persons represent approximately nine percent of the total population in that age group, 11.3 percent of the total labor force

(age 16 and older) and 5.5 percent of the total state population. (5)

An estimate of the handicapped population in Rhode Island was made in 1979 by the Governor's Committee on Employment of the Handicapped. According to this study, there were approximately 166,200 disabled persons in Rhode Island (17.6 percent of the total state population). The broad definition from the Rehabilitation Act of 1973 was used for this study: a physical or mental impairment that substantially limits one or more major life activities. Many of those counted as disabled were elderly (59 percent were age 55 or over; 38 percent were age 65 or over) (6).

Although the project did not collect data on individual and family income, or poverty status of disabled Rhode Islanders, statistics were collected on sources of income. Almost three quarters of the disabled population were receiving income from social security, public assistance or pensions.

TABLE 5.2

PRIMARY SOURCES OF INCOME
Rhode Island Disabled Population

Income Source	Estimated Number 1980	Percentage
Total	166,200	100
Own earnings	9,972	6.0
Family earnings	31,744	19.1
Agency Assistance	123,154	74.1
Other	1,330	0.8

Source: Census of Disabled in Rhode Island, 1980 Governor's
Committee on the Employment of Handicapped

Table 5.2 indicates that many persons with disability had only limited income: 74 percent listed "agency assistance" as their primary source of income. Almost 53 percent said that they used mobility aids such as canes, wheelchairs, and guide dogs. While 38 percent of disabled persons needed specialized transportation services, 3.5 percent requested housing related assistance. This study did not provide a number on wheelchair users in the state, but the Governor's Committee estimates it to be approximately 4,300 persons.

TABLE 5.3

Population Distribution of Disabled in Rhode Island *
1980

City/Town	Number of Disabled Persons	Percent of R.I. Disabled Pop.
Providence	33,637	20.2
Warwick	19,513	11.7
Cranston	12,201	7.3
Pawtucket	10,984	6.6
Johnston	9,481	5.7
Woonsocket	7,929	4.8
East Providence	7,139	4.3
West Warwick	5,944	3.6
South Kingstown	5,478	3.3
North Providence	5,460	3.3
Lincoln	5,411	3.3
Cumberland	4,921	3.0
Bristol	4,130	2.5
Central Falls	4,003	2.4
Coventry	3,902	2.4
Burrillville	3,073	1.9
North Kingstown	2,939	1.8
Middletown	2,640	1.6
Tiverton	2,366	1.4

Source: Adapted from Rhode Island Census of Disabled Persons, 1980. Governor's Committee on Employment of the Handicapped.

* Towns and Cities with significant number of disabled persons only included.

Categorization of Physical Disabilities

A review of existing literature indicated that much inconsistency in disability classification existed from one study to another. In order to understand the complexity of problems related to the physically disabled population, one must examine the causes and the extent of a debilitating condition. Recent surveys of the disabled population indicate that the major causes of disability are muscular-skeletal disorders. Table 5.4 indicates that diseases of the bones, and of organs of movement, and circulatory disorders account for more than fifty percent of the major disabling conditions.

TABLE 5.4

**Most Commonly Reported Chronic Conditions
Among the General Population**

(People with chronic conditions per 1,000 persons by age group)

	Total	Under 18	18 to 44	45 to 64	65+
Arthritis	139.7	61.4	157.5	188.0	173.0
High blood press	121.5	2.3	64.7	257.8	373.0
Orthopedic impair	111.6	28.8	131.4	150.9	161.1
Hearing impair.	90.8	17.0	48.7	147.6	315.2
Visual impair.	34.7	9.1	29.2	47.7	90.7

Source: National Center for Health Statistics, Current estimates from the National Health Interview Survey, 1988.

Although the disabled suffer from a wide range of chronic conditions, in most cases their ability to carry out normal activities is not severely impaired. For the purposes of this study, the population being addressed is one of individuals who are considered to be severely disabled, those individuals whose normal activities are significantly restricted by physical impairment.

Some sources have grouped disabilities according to etiology of impairment, such as traumatic paraplegia, rheumatoid arthritis or congenital blindness. Other sources categorized by functional limitation, i.e. semi-ambulant, manual dexterity impaired or visually impaired. A few sources utilized dynamic dysfunction categories, indicating that the individual "cannot walk unaided, cannot grasp, or cannot identify visual cues."

ACTION HOUSING Inc. of Pittsburgh have attempted to provide a simple classification of disabilities for the purpose of indicating accessible needs of each group of disabled individuals. Primary and secondary bodily disorders are classified into four major categories by ACTION HOUSING Inc. (7)

1. Neuromuscular Disorders

These disorders comprise approximately 20 percent of all disabilities

2. Orthopedic Conditions

These conditions account for about 25 percent of all

disabilities.

3. Sensory Impairments

These impairments constitute nearly 10 percent of all disabilities.

4. Chronic Medical Conditions

These conditions account for approximately 30 percent of all disabilities.

GENERAL ARCHITECTURAL REQUIREMENTS OF DISABLED PERSONS

A building or a site designed to accommodate ambulant disabled persons is equally convenient for able bodied people. This is because design criteria for the ambulant disabled are essentially no different from those for the able bodied population; they are only more pronounced. Before discussing the building design requirements of persons with disabilities, it may be necessary to distinguish between three terms often used in the literature on Disabled Housing.

Barrier Free Housing: Barrier free housing denotes housing which has been constructed or adapted in a manner which presents no barriers to any member of the general population. It is assumed that, if buildings and facilities are made accessible to people who use wheelchairs, then people with other disabilities will be able to gain access and use as well. This assumption is not founded in fact. Actually, a few barrier-free features, if designed solely for accessibility by wheelchair users, can be hazardous and

unusable by others.

Accessible Housing: Accessible housing is one which can be reached and utilized by disabled individuals. This includes existing housing with barriers that can be modified, if not eliminated, within budgetary restrictions. It can denote housing which has only met the needs of a specific disabled occupant.

Adaptable Housing: Adaptable housing is accessible housing that does not look different from other housing and which has features that in only minutes can be adjusted, added, or removed as needed to suit the occupants whether they are disabled, older, or non-disabled.(8)

Adaptable housing has many potential benefits both for disabled people who need accessible housing and for developers, builders, and managers of housing. By creating housing that can fit any occupant, the adaptable design approach opens up the possibility for mass produced, attractive, and universally usable housing in all sizes, price ranges, and locations.

For the past 15 years the concept of adaptable housing has been continuously developing into a method for residential design. Adaptable housing features are now specified in the national and federal standards for accessibility which have been adopted into many state and local building codes. Adaptable housing incorporates the American National Standard Specifications for Making

Buildings and Facilities Accessible to and Usable by Physically Handicapped People. These standards are the American National Standards Institute A117.1 - 1986 (ANSI 1986), and the 1988 Uniform Federal Accessibility Standards. American National Standards Institute is a standard setting agency and the Department of Housing and Urban Development as a participant has prescribed standards for residential structures covered by Architectural Barriers Act. These standards are to be applied during the design, construction, and alteration of buildings and facilities.

It is estimated that 1.69 persons per hundred population would benefit from removal of architectural barriers. This would include approximately 16,000 persons in the state of Rhode Island between the ages of 16 - 64.

This group is comprised primarily of those with impairments of the lower extremities. These individuals have difficulty entering, exiting or changing levels in the average home. Persons in wheelchairs are most handicapped by architectural barriers. Not only do they share the difficulties of ambulatory persons with limitations of lower extremities, they are further disadvantaged by the shortened stature and increased width that results from confinement to a wheelchair. They cannot reach standardized heights, nor can they maneuver through narrow halls or small rooms.

Individuals with incoordination or reaching/manipulation limitations have special modification

needs which can often be met by adaptation devices. Those with vision or hearing impairments are less inconvenienced by standard architecture and can often utilize technology to overcome barriers. Persons with decreased stamina or strength also need fewer home modification than the severely disabled. A summary of desirable architectural adaptations for persons with functional limitations is provided in Appendix B.

Table 5.5 estimates the number of disabled persons in the United States who are affected by selected impairments.

Table 5.6 outlines general architectural features and adaptive devices to be considered for individuals with disabilities.

Table 5.7 suggests appropriate housing for individuals with selected functional limitations.

TABLE 5.5

 UNITED STATES
 ESTIMATES OF PERSONS WITH SELECTED
 DISABILITIES BY SEX, 1977

Type of Disability	ALL AGES			AGES 17 - 64		
	Disabled Total	Male	Female	Disabled Total	Male	Female
Orthopedic Disability Upper Extremities	2,500,000 100%	1,486,000 59%	1,014,000 41%	1,761,000 100%	1,150,000 65%	612,000 35%
Orthopedic Disability Lower Extremities	7,147,000 100%	3,643,000 51%	3,503,000 49%	4,405,000 100%	2,417,000 55%	1,988,000 45%
Paralysis	1,532,000 100%	803,000 52%	729,000 48%	823,000 100%	458,000 56%	365,000 44%
Absence of Major Extremities	358,000 100%	252,000 70%	106,000 30%	206,000 100%	162,000 78%	44,000 22%
Blind or Visually Impaired	11,415,000 100%	5,910,000 52%	5,505,000 48%	5,836,000 100%	3,593,000 62%	2,243,000 38%
Deaf or Hearing Impaired	16,219,000 100%	8,925,000 55%	7,294,000 45%	8,845,000 100%	5,326,000 60%	3,520,000 40%

Source: National Center for Health Statistics
1977 Health Interview Survey

TABLE 5.6

Methods of Support for Activities of Daily Living

Activity	Architecture/Interior Design	Adaptive Devices & Equipment
<u>Cleaning Activities</u>		
Wipe up spills from counter	Counter heights, depths, material, color, gutter	Sponge, reachers, glove/sponge mitt
Pick up objects from floor		Reachers, sit in chair, use "step" chair
Make bed	Furniture design, clear space around bed	Elevate/lower bed, casters, method, human assistance
Dusting high surfaces	Low shelving, air purifiers	Reachers, vacuum attachment, broom, mop
Mop kitchen floor	Surface material, color selection	Mop
Carry cleaning tools	Multiple storage areas, centralized vacuum	Cart, basket, lap board
Clean bathtub	Faucet control location, hose spray, height of ledge	Mop, toilet brush, reachers, spray
Carry pail of water	Multiple faucets	Hose, cart, lap board
<u>Meal Preparation</u>		
Turn on water	Water mixing valve, location, identification	Built-up handle, lever handles, reachers
Turn on stove	Front controls, redesign cueing, arrangement, front access	Built-up controls, tape markings, portable cook top
Cut vegetables	Adjustable open-front work station, ledges	Spike cutting board, french knife
Carry pan with water	Hose spray, proximity of functions, level counter	Lap board, cart
Remove items from refrigerator	Pull-out rest board, proximity of functions	Cart
Reach to base cabinets	Storage in easily reached racks and shelves	Counter top racks, multi-use cookware
Carry pan to oven	Level counters, proximity to preparation and storage areas	Oven shovel, lap board
Use oven	Door swing, window shelves, height	Mitt with grip surfaces
<u>Laundry</u>		
Operate automatic washing machine	Front loading machine, front controls, control type	Built-up controls, adjustable height of washer
Hang wet clothes	Dryer service	Dryer, pulley clothesline, reachers, cart
Transfer clothes from machine	Rest area, machines adjacent on same plane	Cart, table, basket
<u>Personal Hygiene</u>		
<u>Combing hair</u>		
Washing extremities	Tilt mirror, lighting, mirror height, vanity height	Hand/neck held mirror, built-up handles, assistance
Washing face	Shower, no threshold, seat	Hose spray, sponge on extension, assistance
	Open sink front, sink height, faucet control type and location	Sponge glove/mitt
Using shower	Grab bars, no threshold, door width, area, controls, seat	Hose spray, use bath, assistance
Getting into bathtub	Grab bars, seat, faucet control/location, ledge height	Bathmat, bath seat, transfer board
Getting onto toilet	Space at sides and front, seat height, grab bars, trapeze	Built-up seat, seat with grab bars, commode seat, bedpan
Washing hair	Sink height, open front design, contour sink	Hose spray, rinse tray
<u>Mobility Problems</u>		
Enter apartment lobby from street	Ramp, curb cuts, railings, automatic doors, hardware, etc.	
Entering and operating elevator	Door width, control panel height, type, railings	Mouth stick, extender, pointer
Climbing curbs or steps	Ramp, grade, railings	Cane block, walking aid

From: Adaptable Dwellings
 U.S. Department of Housing and Urban Development
 Office of Policy Development, 1979

TABLE 5. 7

Handicaps, Disabilities, Service and Housing Needs

Physically Handicapped Persons

Handicap	Disability	Service Needs	Appropriate Housing
Mild Ambulant	Some limitations such as walking with a cane, braces, or other orthopedic devices. Usually relatively independent.	None or very few. Perhaps fitting with devices to make mobility possible and training in their use. Occasional medical checkups, some rehabilitation, financial aid for low income.	Normal range of housing options. Special design features desirable but not essential. Residential group home is an option (small), of project type or free-standing.
Mid- or Moderate-Semi-Ambulant	Impairments that cause individuals to walk with difficulty or insecurity and with assistance of mechanical aids, such as prosthetic devices, metal braces, artificial limbs, canes, walkers, crutches (e.g., disabilities caused by amputation, polio, arthritis, spastic conditions, cardiac ills). Relative independence possible with proper training in use of supportive devices.	Training for independent living, provision of appropriate supportive devices. Some personal care needed in some cases. Regular physical checkups and ready availability of emergency medical assistance. Financial help for low income.	Independent living in normal housing with special design features and some personal care available as well as emergency medical assistance. Some occupational training may be necessary. Housing options: normal home or apartment, or small group homes properly designed and serviced. Excessive concentrations of the handicapped undesirable. Integration of small groups with more normal people.
Severe Non-Ambulatory	Impairments that, regardless of cause, for all practical purposes confine individuals to wheelchairs (e.g., paraplegia). Relative independence possible with training and a degree of personal care.	Training for independent living and use of wheelchair. More or less regular personal care, counseling. Supply or filling of needed orthopedic and other devices. Regular treatment of disability if needed. Opportunities for recreation and socialization. Vocational rehabilitation and training. Regular medical checkups and emergency medical service. Financial help for low income.	May live in own home, a group home or apartment; new or existing if adapted or specially designed; and, if needed, social, medical, and other services are provided, including vocational rehabilitation and transportation. Barrier-free environment essential. Housing integrated into community desirable, whether existing or new, large or small structure.
Visual Disability	Total blindness or impairments affecting sight so that individual is insecure or exposed to danger.	Training for relatively independent living. Secure mobility, training in braille, some personal care, opportunities for recreation and socialization. Vocational rehabilitation. Regular medical service. Financial help for low income.	May live in own home, a group home, or apartment, new or existing, if appropriately designed to help blind find way around and gain security and if appropriate care is provided. Integration with community desirable. Large groupings of blind to be avoided.
Aural Disability	Deafness or hearing handicaps that might make an individual insecure because he is unable to communicate or hear warning signals.	Training for independent living and security. Some personal care. Vocational rehabilitation, recreation, and socialization. Training in lip reading. Regular medical checkups and emergency medical service. Financial help for low income.	May live in own home, a group home, or apartment, new or existing or with family, if appropriate care and training are provided. Integration into community desirable. Large groupings of deaf to be avoided.

Source: Compiled by M. Carter McFarland.

From: Housing for the Handicapped and Disabled, Marie McGuire Thompson, 1977

FINDINGS: Literature Search

Footnotes

1. Disability: Situation, Strategies and Policies., (New York: Department of International Economic and Social Affairs, United Nations, 1986). p. 6-8.
2. Ibid., p. 5.
3. Bowe, Frank, Disabled Adults in America: A Statistical Report drawn from Census Bureau Data (Washington, D.C. 1986)
4. Ibid., p.23.
5. Statistical Abstract of the United States (Washington, D.C.: United States Department of Commerce., 1980)
6. Rhode Island Census of Disabled Persons (Providence: Governors Committee on the Employment of the Handicapped., 1980). p. 8
7. Action Housing Inc. Residential Accessibility for persons between the age 18-64 in Pittsburgh and Allegheny County: A Needs Assessment (Pittsburgh: Harmarville Rehabilitation Center., 1982). pp. 73-75.
8. Barrier Free Environments Inc. Adaptable Housing: A Technical Manual. (Washington, D.C., U.S. Department of Housing and Urban Development., 1987) pp. 1-2.

5.2 Findings: Survey

A survey questionnaire was administered to the Housing Management Agents of Rhode Island Housing, Client Spokespersons, Advocacy groups and Professionals involved in the housing design for handicapped individuals in the state. Survey questionnaires were either received in the mail or personally collected by the researcher when he called on them. Out of a total of 18 questionnaires sent out for responses, 15 were received with the responses. Even the ones received did not provide enough information to have an objective assessment of housing needs of the handicapped. The low level of response is probably indicative of not many people/agencies directly involved in housing issues related to persons with disabilities in the state.

The survey questionnaires were aimed at three respondent groups and the responses received reflect each groups perceptions about housing the disabled in the state. The three groups of respondents from whom answers were sought on specific issues related to handicapped housing were:

1. Housing Management Agents of Rhode Island Housing and Mortgage Finance Corporation. These are private, for-profit companies managing commercial and multifamily developments. They manage federally assisted section 8 housing developments throughout the state which are

financed by Rhode Island Housing.

2. Client Spokespersons and Advocacy groups - Agencies such as Multiple Sclerosis Society, Shake-a-Leg, United Cerebral Palsy, Easter Seal Society of Rhode Island and St. Martin de Pares Center were approached for their input.
3. Officials of Federal and State Governments - Department of Housing and Urban Development in Providence, the Governor's Commission on the Handicapped, PARI and the Rhode Island Building Code Commission were provided with the survey questionnaire for their responses.
4. Professionals involved in the design of handicapped housing - Access Development Group of East Providence was provided with the survey questionnaire for their input.

A survey instrument was designed and it was reviewed by the Coordinator of Research, Rhode Island Housing and the researcher's major Professor, Dr. Howard Foster. During the months of March and April 1990 survey questionnaires were administered to the above group of respondents with the objective of getting answers to the following questions.

- * How many persons between the ages of 16 - 64 with various kinds of disabilities reside in Rhode Island?
- * How do you meet the housing needs of disabled individuals in the state of Rhode Island?
- * Do you work in association with Rhode Island Housing to

meet the housing needs of disabled?

If you are working to house the disabled in the state with Rhode Island Housing:

- * What type of items are needed to improve the accessibility in the Rhode Island Housing financed units?
- * What would make the handicapped units more attractive to the clients in terms of liveability and support services?
- * Is transportation a need or a problem?
- * What type of households are in need of handicapped housing in the state?
- * How accessible is homemaker service to handicapped residents?
- * Are income qualifications a problem for home repair/rental?
- * What modifications should be made to existing marketing procedure of Rhode Island Housing?
- * What impact do state laws and the new Federal Fair Housing Act have on Rhode Island Housing's ability to serve the clients?

Following are the major findings from the survey.

A. Number of Disabled Persons in Rhode Island

Section Two of the survey was intended to estimate the number of persons with various kinds of disabilities in the state. Population figures for disabled males, disabled females and disabled children belonging to different age groups were asked to be estimated by the respondents. The idea was to determine the number of persons with disabilities in the working-age group of 16 - 64, so that a numerical estimation of housing units needed for this population group could be made. However, this has not been possible to the extent desired, as different sets of data are available from different sources like Bureau of Census, National Center for Health Statistics and Social Security Administration.

The Governor's Committee on Employment of the Handicapped conducted a Census of Disabled Persons in 1980, and this source provides a good idea of persons with various types of disabilities in the state. According to this study, the total disabled population in the state was 166,200 with approximately 90,500 persons between the ages of 16 - 64 with various kinds of disabilities. There were 44,369 males and 46,131 females in the working age group. It was also estimated that there were 62,519 disabled elderly persons in the state. The specific categories of disfunction and the number of people in each category were as follows.

TABLE 5.8

Frequency of Disability Within the Rhode Island Population

Type of Disability	Estimated Number	Percentage Disabled within the Total Pop
Cardiovascular	27,640	3.0
Arthritis	20,916	2.2
Non-Paralytic Ortho.Imp.	20,752	2.2
Vision Impairment	12,880	1.4
Blind & Legally Blind	4,748	0.5
Hearing Impaired	9,768	1.1
Profoundly Deaf	2,884	0.3
Mental Retardation	10,092	1.1
Respiratory Problems	7,140	0.8
Stroke(Paralysis)	6,320	0.7
Diabetes	6,156	0.6
Cancer	5,336	0.6
Spinal Cord Injury	3,860	0.4
Amputee	3,696	0.4
Cerebral Palsy	3,204	0.3
Muscular Dystrophy	3,040	0.3
Polio	2,380	0.2
Speech Impairment	2,220	0.2
Multiple Sclerosis	908	0.1
Others	9,704	1.0

Source: Census of Disabled Persons in Rhode Island, 1980.
Governor's Committee on Employment of the Handicapped.

The survey respondents have reported varying estimations of disabled persons in the state. As the figures vary widely, it is reasonable to adopt the statistics provided by the Governor's Committee on Employment of the Handicapped and arrive at the number of housing units needed by this population group.

What is the Need for Handicapped Housing

It is estimated that there were 90,453 persons with disabilities between the ages of 16 and 64 and 62,519 persons with disabilities over 65 years of age. According to one estimate, one percent of the disabled population is in institutions. These persons are mostly those who are mentally retarded and terminally ill. Thus it appears that we need to think about housing programs for 151,450 persons with disabilities in Rhode Island. Within this population subgroup, 41 percent constitute disabled elderly who are afflicted with some or other kind of disability.

The Census of Disabled Persons by the Governor's Committee on the Employment of Handicapped further indicates that almost three quarters of the disabled population were receiving income from social security, public assistance or pensions. This means that up to 113,000 persons with disabilities may depend upon welfare and public rental housing for their residential needs. Only a small percentage of the working-age population (13.5 percent) were gainfully employed, and the remaining were either employed part-time or were unemployed. (Table 5.9)

Table 5.9

Employment Rate of Disabled in Rhode Island
1979

	Total R.I. Population		R.I. Disabled Population	
	Estimate	Percentage	Estimate	Percentage
Total Employed	478,000	100	76,120	100
Full Time Employed	*	*	10,352	13.6
Part Time	*	*	5,481	7.2
Total Employed	454,500	95.0	15,833	20.8
Unemployed	23,500	5.0	60,287	79.2

* Breakdown not available

Source: Rhode Island Census of Disabled Persons, 1980. The Governor's Committee on Employment of the handicapped.

The Governor's Committee on Employment of the Handicapped further estimated that there were 3,656 persons with disabilities who were in need of housing, and another 2,161 individuals who were in need of accessibility and home repair assistance. These figures seem to be underestimated and probably represent a part of the disabled population who responded for housing assistance during the survey conducted by the Governor's Committee on Employment of the Handicapped. Advocacy groups like the Multiple Sclerosis Society feel that we have so far concentrated on the housing needs of only mobility impaired persons and others are

completely left out of the housing arena.

B. Demand and Supply of Disabled Housing in Rhode Island

Considering the relatively high proportion of persons with disabilities in Rhode Island, the state and its communities have so far shown only a symbolic gesture of housing this special population. This is evident when the first thoughts of conducting a housing needs study took shape. For the collection of data, we could come up with hardly a handful of agencies who were directly involved in housing the disabled in the state. We are yet to identify a not-for-profit agency who is involved in housing the disabled on a large scale in the state.

At present housing needs of persons with disabilities is largely met through HUD's Public Housing and Section 8 Programs. Under Section 8 Program, tenants pay a percentage (generally 30 percent) of their gross monthly income towards rent and HUD makes a subsidy payment to the owner on behalf of the tenant. There are several agencies in Rhode Island who are involved in subsidized housing for the elderly and the handicapped. In addition to HUD, Rhode Island Housing and the Governor's Office of Intergovernmental Relations are involved in subsidized housing. Locally most cities and towns in Rhode Island have a Housing Authority which leases subsidized apartments. As of January, 1989 there were 18,737 elderly and handicapped housing units within the various developments in the state and a majority of these units were

section 8 elderly units.

Rhode Island Housing which has expanded to become the State's primary provider of assisted housing at a time when a housing crisis leaves average families unable to buy homes, finds renters in search of affordable apartments, and threatens existing assisted housing units. As a housing finance agency, Rhode Island Housing has supported 76 section 8 housing developments with 7,451 elderly and handicapped units throughout Rhode Island.

According to one survey respondent, though section 8 housing is meant for persons 62 years or older and handicapped and disabled persons as defined by the Social Security Act, 90 percent of current residents in her development are only elderly persons. While the population estimate of handicapped persons many of whom may be in need of housing in the state is 153,000, current supply of 18,737 units is not even meeting the needs of elderly who are also disabled.

C. Improving the Liveability and Accessibility

Most of the elderly/handicapped developments where the special population lives were constructed some ten years ago and while these developments took place, very little consideration was given for the needs of the people who will live there. The movement for the rights of the disabled and handicapped was still in its infancy at that time and the housing needs of the disabled were not known. Because of

these reasons section 8 housing did not serve its purpose. Persons with disabilities were never attracted to this kind of housing due to the fact that their accessibility needs were not being met. Naturally able bodied elderly persons got the opportunity of moving into these units and the current situation is that section 8 housing is synonymous with elderly housing.

Most of the survey respondents also feel that as these units are ten to twelve years old, they are not meeting the accessibility needs of the handicapped and frail elderly residents. The elderly population has "aged in place", and their living style and mobility needs do change overtime. Accessibility needs could be improved in the following areas of Rhode Island financed developments:

1. Widening the Corridors for better wheelchair movement -
All hallways or passageways shall be at least 3 feet 6 inches in clear width.
2. Reinforced/protected corners where walls meet.
3. Removable base cabinets installed in knee spaces to provide storage in the kitchen.
4. Segments of counters in the kitchen that can be adjusted in height from a standard height of 36 inches to a minimum of 28 inches so that non-disabled and disabled people can use the surfaces.

5. Cooktops in adjustable height counter segments - The controls must be placed along the front or the side of the range so that a seated person need not reach across a hot burner to adjust the controls.
6. Special lights for the hearing impaired should be provided in one of the developments.

Above are only a few of the accessibility items suggested by the representatives of the Property Management Companies. A separate study may be required to look into all the accessibility issues in the handicapped units in view of the requirements of Architectural Barriers Act of 1968 as amended now. One of the respondents reported that additional and less expensive items which facilitate accessibility are provided by the Property Management Company at their expense.

There is a wide variation in the types of accessibility desired by individuals with the same disability. Two people with identical disabilities might prefer completely different types of modifications due to factors such as extent, duration and stability of disability; individual motivation, economic status and personal taste.

Liveability

The location of handicapped/elderly developments seem to be good. Some of the developments which were visited by the researcher are located in quiet aesthetic surroundings

and good neighborhoods. The buildings are accessible to the street though ramps are not provided in some locations. The landscape is even and the general upkeep of the structures is excellent. Most of the developments are high-rise buildings accessible by elevators with elevator control panels of buttons and tactile and visual control indicators.

D. Support Services

The survey results show that there is a minimal provision for support services like medical facility, recreation and educational programs. According to one of the respondents, since section 8 developments serve primarily elderly populations, the issue of providing support services for the handicapped residents should have been addressed prior to HUD commitment for construction. Another respondent, an advocacy group representative feels that there is lack of support services in these developments and it should be provided at least on a part-time basis.

Now most of the residents in section 8 housing are frail elderly and a section of the population is severely handicapped. Support services like medical facilities nearer to these developments is an essential requirement for this population. Medical assistance and treatment are a frequent need for handicapped individuals. The developments which were visited by the researcher had no provision for medical treatment. The residents are to make their own arrangements to visit doctors/nursing homes. However, in these

developments recreational facilities are organized which help to keep the residents emotionally stable. In another development, reading materials were found by the researcher for the common benefit of all the residents. Community halls are located in all the developments, where the residents gather and spend their free time.

Informed of the issue of support services, Rhode Island Housing started an innovative Resident Services Coordinator Program in 1986 to help elderly and handicapped residents maintain a good quality of living. The Resident Services Program provides support and referral services to the residents. The Resident Services Coordinators act as a liaison between residents, management and various state, local and federal agencies to coordinate a support/referral system of social, medical, and rehabilitative services to provide for resident's non-shelter needs.

The program of Resident Services Coordinators is addressing a critical need and it is working very well. The residents in general find this support to be very useful. Participation by the private management companies has grown from one company funding four on-site coordinators for its 15 developments to ten companies with 17 coordinators serving 61 developments. The Resident Services Coordinators arrange monthly in-service meetings where speakers discuss service programs, insurance options, and issues of resident selection and training. Sessions and workshops on topics

such as mental health and fitness training for elders are conducted. This program introduced by Rhode Island Housing in the section 8 developments appears to be successful in meeting its objective of improving the quality of life of the residents and holds promise for supporting the concept of independent living.

E. Is Transportation a need or a problem?

The survey result brings out the fact that for handicapped persons transportation is both a need and a problem. There is a minimum transportation facility from the development sites to shopping malls, work places and offices. But one respondent felt that transportation is not a serious problem as this service is available through private and public agencies. However, which agencies provide such facility is not known. In another development, transportation is scheduled for residents on a regular basis for shopping and other needs. But most of the respondents answered that the present transportation system takes care of the elderly residents and the handicapped transportation needs are not being met. In one location during the researcher's visit, the Resident Services Coordinator lacked adequate transportation to take the handicapped residents on an outing. She was finding it hard to arrange for a bus with wheelchair lift. An advocacy group responded to the transportation problem of handicapped persons thus " A serious problem and a critical need for all the handicapped

people in the state"

Transportation of handicapped persons is really a serious problem, and this has not been addressed fully in a realistic and objective manner in Rhode Island. The residents of section 8 housing depend on their friends and relatives for their transportation needs. The mobility impaired residents especially the wheel chair bound must be finding it very hard to get from one place to other.

A report on Transportation for the Elderly and Handicapped prepared by the Office of State Planning in 1983 offers the following recommendations to meet the transportation needs of this special population.(1)

- Improve coordination between transit and paratransit service. Feeder Service System, where paratransit vehicles bring passengers to the fixed route has the most potential with careful planning.
- Continue the recent practice of locating housing for the elderly and the handicapped near bus routes. Most of this housing is presently within bus route corridors.

A 1981 housing data report shows that 93 percent of federally assisted housing units for elderly and handicapped in the state are within these bus corridors. Corridors are usually defined for planning purposes as one-quarter mile on either side of a bus route. But one-quarter mile would definitely be too far for most mobility impaired persons.

F. Income Qualification

One of the questions posed to the respondents was: Are income qualifications a problem for persons with disabilities for home repair and rental? Most of the respondents feel that it is not a problem. But advocacy groups for handicapped housing feel otherwise. Almost three quarters of the disabled population were receiving income from social security, public assistance or pensions (i.e. Railroad Retirement, Veterans and Widow's Pensions) and almost 80 percent of disabled Rhode Islanders are unemployed. (2)

The primary sources of income of disabled Rhode Islanders in Table 5.2 shows that a large segment of the disabled population in Rhode Island is unemployed and totally dependent on welfare/agency assistance. It is also true that a large majority of them are below the poverty level. Technically, though the population should have no problem qualifying for section 8 housing and for home repair and rental as they belong to very low income category, not many handicapped individuals could take advantage of section 8 rental housing. An information guide on Section 8 Elderly and Family Housing produced by Rhode Island Housing stipulates two categories of income levels to be eligible for applying for section 8 housing, one Lower Income and another Very Low Income.

There are 23 Rhode Island Housing financed section 8 developments with 7,451 units for the low and very low income individuals and families. In principle, most of the persons with disabilities are eligible to get these units as the income of 75 percent of the handicapped population is at or below low income level. However, the fact is most of the residents are elderly living in these units.

One of the responses to the survey questionnaire indicates that there are many handicapped residents living in the elderly units without any accessibility modifications. Probably the financial position of these handicapped residents is not allowing them to make these units accessible.

H. Modifications to Existing Marketing Procedure

Current procedure in marketing the handicapped units is to send outreach letters to service providers and organizations working for the handicapped. These organizations would be aware of individuals who are looking for handicapped housing. Property Management Companies also receive calls on occasion from these organizations to enquire about the availability of handicapped units. As a procedure, this may look fine; but it seldom works. Outreach letters which the Housing Management Agents are sending don't get enough response from the organizations working for the handicapped. As section 8 housing is for both elderly and handicapped and the Property Management Companies are

profit making ventures, they cannot afford to wait for responses from service providers. A gap exists between the housing providers and handicapped renters.

According to one respondent, marketing of handicapped units to persons with disabilities is not effectively followed. She feels that a close liaison between the housing agency and the service providers is necessary. It may be desirable for Rhode Island Housing to review the current procedure followed by the Property Management Companies in filling the vacancies. If Rhode Island Housing really wishes to have a proportionate number of handicapped persons in its developments, it may need to intervene and seek out disabled tenants by adopting an aggressive marketing strategy.

All the respondents to the survey say that now there is no vacancy in the handicapped units in their developments. It is quite normal for a profit making company not to keep a unit vacant in the hope of having a disabled tenant. Units which become vacant are usually filled with an elderly tenant.

I. Impact of Federal Fair Housing Act

To further the process of fully integrating handicapped and disabled persons into society, a vast spectra of legal machinery has been created. The most recent addition to federal legislation that attempts to deal with problems of access for the handicapped is the Fair Housing Amendments Act of 1988, which was enacted in September 1988

and became effective on March 12, 1989. Title VIII has prohibited discrimination in the sale, rental, and financing of dwellings based on color, religion, sex or national origin. The Fair Housing Act expands the coverage of Title VIII to prohibit discriminatory housing practices based on handicap and familial status. It also establishes design and construction requirements for certain new multifamily dwellings for first occupancy on or after March 13, 1990. The salient features of the new act are: (3).

1. Fair Housing Amendments Act's mandate of nondiscrimination in the sale or rental of dwellings. It is unlawful to discriminate against any person in the sale or rental of, or to otherwise make unavailable or deny, a dwelling to any buyer or renter because of a handicap of that buyer or renter. The Act also provides for failing or refusing to provide municipal services for dwellings or providing such services differently because of race, color, religion, sex, handicap, familial status or national origin is a violation.
2. Reasonable modifications of existing premises
Under Section 804(F)(3)(A) of the Fair Housing Act, it is illegal to refuse to permit a tenant with disabilities to make reasonable modifications, at his or her expense, of existing premises if the proposed modifications are necessary for the full enjoyment of the premises.

3. Reasonable Accommodations

Fair Housing Act makes it unlawful to refuse to make reasonable accommodations in rules, policies, practices or services if necessary to afford a person with handicaps equal opportunity to use and enjoy a dwelling. A housing provider is not required to provide supportive services, eg: counselling, medical or social services that fall outside the scope of the services. But a housing provider is required to make modifications in order to enable a qualified applicant with handicaps to live in the housing.

4. Design and Construction Requirements

Section 100. 205 implements section 804(f)3C of the Fair Housing Act which places accessibility requirements on "covered multifamily dwellings" designed and built for first occupancy 30 months after enactment. The term "covered multifamily dwellings" means building consisting of 4 or more dwelling units if the building has one or more elevators, and "ground floor" dwelling units in other buildings consisting of 4 or more dwelling units.

5. Accessibility Guidelines

Accessibility standards for facilities by physically handicapped persons in the federal and federally funded facilities are contained in the Uniform Federal Accessibility Standards document 1989 prepared jointly by four standard setting agencies. i.e. The General Services

Administration, the Department of Housing and Urban
Development and Defense, and the United States Postal
Service.

FINDINGS: Survey

Footnotes

1. Report on the Committee on Transportation for the Elderly and Handicapped (Providence: Office of State Planning, Rhode Island Statewide Planning Program, 1983). p. 24.
2. Rhode Island Census of Disabled Persons (Providence: Governors Committee on the Employment of the Handicapped, 1980) p. 13.
3. Federal Register, Part II, June 2, 1988., Nondiscrimination Based on Handicap in Federally Assisted Programs and Activities, Final Rule (Washington, D.C.: Department of Housing and Urban Developemnt, 1988).

5.3. Findings: Interviews with Disabled Consumers

Two persons with disabilities were interviewed by the researcher in order to obtain firsthand knowledge of their physical limitations and accessibility needs. Identifying details have been altered to preserve the anonymity of respondents.

Personality Profile I: Lisa Dorris

Lisa Dorris, age 62, is one of the residents living in section 8 housing development in Rhode Island. She has been living here since 1983. She is a frail elderly woman afflicted with a rare disease called Myelofibrosis. Person suffering from this disease has an increase in the fibrous connective tissue on the bone marrow. Lisa met with a car accident in 1966 and the resultant trauma caused the onset of disease. Life was normal for Lisa till she met with the auto accident. She is paralysed and her hands are numb. She is able to walk with difficulty as a portion of her body is also affected by the disease. Before the accident, Lisa who was an able bodied person, independent and working in a restaurant suddenly lost the job. She had to confine herself in her mother's home and when her mother died, she had no home.

She lived on welfare and meanwhile applied for a section 8 housing. She says that she was lucky in getting a one room apartment after some waiting period and she moved

in. Today, Lisa looks happy though she is a wheelchair bound mobility impaired person. She says that she had the problem of accessibility earlier but not now. The Property Management Company has met most of her accessibility needs. As per the definition of disability, Lisa can be categorized as semi-ambulant and she is not a severely disabled person. Her movements are restricted but she is mobile. I first met her on the corridor of the housing complex and she could move in her wheelchair faster than me.

Lisa took me inside her apartment and showed what a typical handicapped unit in her development looks like. She has many friends in her apartment complex and she told me that she has no problem relating either to other handicapped residents or elderly residents in the development. She spoke well of the recently introduced residential services program.

With fairly good services and adaptations made to her house, Lisa still has to confront some of the accessibility problems. In the kitchen, she is not able to reach the storage space and the counter top. In the bathroom, grab bars are needed. Her bedroom is overcrowded with furniture and she has an electric bed which takes more space than a conventional one. This overcrowding has resulted in very little room for the movement of her wheelchair. Lisa is fortunate in having homemaker service. Her food is prepared by the homemaker and it is delivered to Lisa. However,

warming the food on the electric stove or oven poses some problem for her.

Lisa doesn't seem to be having much of a problem in transportation as her friend comes and takes her shopping and for other social visits. Lisa seemed to be living quite comfortable and she is facing the physical challenges bravely.

Personality Profile II. David Coleman

David Coleman is a 25 year old paraplegic. Five years ago while working at a construction site, he lost balance and fell 30 feet down on the ground. He was in the hospital for five months for the treatment of a spinal cord injury. Though his life was saved, after the accident David was disabled for life. He has no sensation in his lower extremities and he is able to move around only in a wheelchair.

David was a skilled carpenter once in his lifetime but today his disability has made him to stay within the four walls of his small one room apartment in one of the Rhode Island Housing financed section 8 units. When he came out of the hospital he had no place to go and he had no job. He got support from a service provider agency and he was institutionalized. After some time he applied for a rental housing and got a unit in a section 8 development. He recalls that he was very happy to move out of the nursing home as the conditions in these settings make a person more sick.

To a question as to how happy he is now, David said that he is definitely much happier than he was in the nursing home. But here he has to confront a different set of problem. One of the problems he has is living among the elderly population. As 80 percent of the residents are elderly and many of them able bodied, David feels out of

place in their company. He is an young adult and his life style and tastes are different than theirs. Because of this generation gap, David spends most of his time inside his apartment. He is alone, secluded and gradually losing his self-confidence.

David has quite a few accessibility problems in his apartment. His house is a one room apartment on the second floor. Inside his house he can not move around freely and maneuver his wheelchair as there isn't much room. In the kitchen, the refrigerator is not easily accessible to him, the counter top is too high and the electric stove and oven are not easy to operate. In the bathroom, grab bars are not fixed and David has problem transferring himself from his wheelchair to the transfer seat.

David's major concern seems to be spending the whole day in his one room apartment. He is employable but needs some training and transportation. Even if he gets a job, he can not get to his place of work as the development is far away from any public transport facility.

CHAPTER SIX - RECOMMENDATIONS

VI. Recommendations and Conclusion

This study has established that there are an estimated 153,000 disabled Rhode Islanders above 16 years of age. Of that number, there are an estimated 62,500 disabled elderly in the state. The Governor's Commission on the Handicapped estimates that almost 60 percent or 88,600 of them have mobility impairments, which require architectural modification to their homes and apartments in order to achieve a reasonable level of independent functioning. This is an important community problem which needs to be addressed by both public and private agencies, advocacy groups and interested citizens to provide accessibility in the homes of the disabled.

The exact number of disabled individuals who need accessible housing could not be determined in this study. The number of disabled persons who need habilitative equipment estimated to be 88,600 by the Governor's Commission on the Handicapped in 1980. At the minimum these people need accessible housing because of their disabilities. It is further established that three quarters of working-age disabled population is unemployed and depend upon government support for living. This is the population sub-group who are apt to need rental housing to meet their shelter needs.

The study determined that the rental housing units

produced under section 8 program meet the housing needs of only a portion of the disabled population in the state. The cumulative production level of rental housing units under section 8 for the elderly and disabled stood at 18,737 as of January 1989 in the state. Of these, Rhode Island Housing financed elderly and handicapped units number 7,451. However, most of these units for which both the elderly and handicapped are eligible to apply, are occupied by the elderly.(1) Thus a large segment of the handicapped population are deprived of living in public housing and the system has either forced them to live in the institutions or become homeless.

The housing situation for persons with disabilities looks dismal at a time when the need for assisted housing has increased and federal funding for low income housing has been reduced by 70 percent since 1981. Now, the state is faced with the possibility of loosing 6,734 assisted housing units due to expiring section 8 contracts or prepayment of mortgages. New construction under section 8 program has been virtually non-existent and resources for rehabilitation and adaptation of existing stock have been reduced.

Rhode Island Housing, as the state's premier housing agency has taken upon itself the task of resolving the affordable housing crisis and is committed to the construction and financing of low and moderate housing. Towards the goal of meeting the housing needs of low income

and mobility impaired Rhode Islanders, the present study, conducted with the support of Rhode Island Housing, offers the following recommendations:

Recommendations

1. Increase the Rental Home Production

To meet the large gap of housing supply and demand for handicapped housing in the state, Rhode Island Housing should gear itself to increase the rental home production. At present Rhode Island Housing is involved in the construction and permanent financing for multi-family developments in the state so as to increase the supply of affordable rental housing. A certain percentage of housing within these developments should be reserved for persons with disabilities.

A large number of persons with disabilities are not in a position to own a house because of their economic status. For some time to come, this population will exclusively depend upon rental housing. Again because of the very low income and the societal stigma attached to this population, it is quite difficult to obtain rental housing in the open market. Therefore, affordable rental units have to be produced in significant numbers and persons with disabilities should be given the first opportunity to rent these houses. As Rhode Island Housing pursues greater a greater social role in recent years, affordable rental housing for the disabled has to be conceived and

operationalized with the prime objective of integrating the disabled population with the non disabled populations.

To help those with special housing needs, Rhode Island Housing has provided funding for transitional and permanent housing to community groups and non-profit developers. This program needs strengthening and more and more community groups and non-profit developers should be provided with funds for special needs housing program. Rhode Island Housing can take advantage of the Section 202 HUD program to produce more number of rental units for the handicapped people. Beginning in fiscal year 1989, rental assistance is provided by HUD for 100 percent of the units for handicapped people. A private non-profit entity may be set up by Rhode Island Housing to receive federal funds and to initiate Section 202 housing.

2. Initiate Statewide Home Modification Program

There is a considerable number of handicapped individuals who presently stay at their homes. These persons are young adults who do not wish to be lumped together with the elderly population in the public housing. This is because the young adult with a disability does not "fit in" with the social environment available in public housing developments. Besides, as a broader goal, we should seriously be working toward integrating the disabled with the normal communities. Our goal should be to enable these individuals to remain as independent as possible by allowing

them to live in society and contribute to community life.

A statewide home modification program would serve as a useful tool to address the housing needs of the disabled in their communities and achieve the overall goal of independent living. Nevertheless a Statewide Home Modification Program has certain advantages and disadvantages. Before embarking on this program, a careful assessment of real demand for home modification is required. While the definite advantage of the program is that it could serve large number of disabled people in a much more cost effective manner than the creation of additional accessible units. By sponsoring such a program Rhode Island Housing would be in an excellent position to educate private builders and developers, state legislators, and other interested parties about the housing needs of disabled people, costs involved in responding to these needs and the state and local resources which are available to support accessibility modifications. With a Fair Housing Amendments Act in operation, it may be necessary for public housing agencies to become seriously involved in home modification programs in the federally assisted units.

3. Meet Accessibility Needs in Current Units

It was observed that many of the Rhode Island Housing financed section 8 housing units where persons with disabilities currently reside do not meet the accessibility needs. As the accessibility requirement of each disabled

resident vary, an overall assessment was conducted. A sample of handicapped units were visited by the researcher and found that they need to have modifications in the kitchen and bathrooms. The items needed to make these units accessible cost very little. Accessibility needs of the severely handicapped residents is a priority and Rhode Island Housing may in cooperation with the Property Management Companies carry out these need based cost effective modifications. However, major structural changes to make passageways wider for easy movement of wheelchairs may not be possible now.

4. Encourage Adaptable Housing Design for Future

Construction

Adaptable housing, a little understood design approach, appears to be one solution to meet the accessibility needs of disabled people and accessibility standards requirements of the Federal Fair Housing Act. It holds promise of more universally usable housing in the future at little or no extra cost. This approach is currently being tried in other parts of the country. It involves persuading home builders and remodelling contractors to make some minor modifications in the normal construction process so that a home or apartment could be more easily converted for use by a physically disabled person at any time in the future. The changes include installation of kitchen cabinets which can easily be

lowered, wider doorways and halls to accommodate wheelchairs, placing framing studs slightly closer together for future installation of handrails and other similar features. The Housing Consortium for Disabled Individuals (HCDI) in Philadelphia has determined that the inclusion of these modifications in a typical single family home will add about one percent to the cost of construction.(1) An adaptable housing design is presented in Appendix C.

Rhode Island Housing could proceed immediately to require use of these standards for all of its current production programs. This would be the most inexpensive way in which the Corporation could expand housing opportunities for physically disabled Rhode Islanders. As a state agency, Rhode Island Housing might lobby for the introduction of a bill in the State General Assembly proposing the adaptability standards for accessibility in all new and substantially rehabilitated residential construction.

5. Develop an Effective Marketing Plan for Handicapped Units

The survey research brings out the fact that there is no effective plan in place either by the Property Management Companies or Rhode Island Housing to inform the handicapped clients of the availability of housing unit desired by them. On occasion Housing Managers send outreach letters to service agencies and organizations working for the handicapped. These outreach letters are many times misplaced or do not reach the right person to take appropriate action.

An effective system to identify and place handicapped persons in the units is wanting. It will be desirable to develop a clearing house facility for the state to match the persons with disabilities with their housing need. This facility will be able to provide information including number of persons seeking housing, nature and degree of handicap, type of housing desired etc. and the details of handicapped housing stock available now and in future. One of the keys to an effective marketing program would be the establishment of closer working relationships between Rhode Island Housing and non-profit disabled service provider agencies across the state.

A tenant selection plan is an effective way of providing housing to the handicapped persons both in the existing developments and future developments. A cross disciplinary team consisting of representatives of service provider organizations, Property Management Companies, Rhode Island Housing and the disabled community could be formed for the selection of tenants. Priorities in the selection of tenants may be given in the following order:(2)

1. Severely disabled, requiring wheelchair employed or employable individuals with most economic need.
2. Moderately disabled requiring wheelchair and with less economic need.
3. Dischargee from hospital or institution and undergoing rehabilitation, pursuing employment, training or

education.

4. Disabilities other than requiring wheelchair use.
5. Nonhandicapped, low income.

6. Supportive Services

This is a particularly relevant issue for persons with severe disabilities who require personal care attendants to assist them with bathing, dressing, food preparation and other related needs. As the handicapped units are one bedroom units, there is inadequate space for live-in personal care attendants. This situation has to be addressed in the future construction of handicapped housing. It is also found that there are many complaints about the availability and quality of homemaker services. This service is available only to such of those residents who qualify under medicaid or if resident is directly involved with an agency providing homemakers as part of their programs.

Conclusion

The housing needs study of disabled Rhode Islanders point to the following conclusion.

1. There exists a large gap between those disabled persons who are in need of housing and the number of handicapped units available.
2. Rhode Island Housing which is the state's apex housing agency is striving to solve the gigantic task of providing affordable housing to handicapped and elderly populations of the state.

3. As the task of providing housing to persons with disabilities is too big for a single agency, RIHMFC might enlist the support of other agencies like HUD and public housing agencies in the state.
4. In the existing units, RIHMFC may identify such of those handicapped units requiring accessibility needs, and provide them as needed by the disabled residents. Special funds from HUD may be requested for this purpose.
5. Marketing procedure of existing section 8 housing could be streamlined by creating a Clearing House facility. Close coordination with disabled advocacy groups and service providers will help in identifying the needy and eligible handicapped renters.
6. Development of handicapped units in future has to meet the accessibility standards as provided in the Fair Housing Amendments Act. A study may be initiated to recommend cost effective ways of carrying out modifications in the existing units to meet the accessibility standards.
7. Overall goal of Rhode Island Housing and all those involved in housing the disabled in the state should be to integrate persons with disabilities with nondisabled communities. Adaptable housing is the best medium through which this could be achieved. Towards the goal of integration and independent living of

disabled persons, Rhode Island Housing should support the development of adaptable housing. A statewide home modification program could also be good solution to meet the housing needs of persons with disabilities.

Footnote

1. Action Housing, Inc. The Housing Needs of Persons with Mental Retardation, Mental Illness and Physical Disabilities in Pennsylvania (Pittsburgh: The Pennsylvania Housing Finance Agency., 1988) p. 65.
2. Thompson, Marie McGuire. Housing for the Handicapped and Disabled: A Guide for Local Action. Washington, D.C.: The National Association of Redevelopment Officials, 1977. p. 68.

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CHAPTER EIGHT - APPENDICES

APPENDIX A.

HANDICAPPED HOUSING SURVEY

The survey is divided into three parts, and each part with a definite objective of establishing the present condition of handicapped housing in the State, Future goals and strategies for housing the handicapped, and how these objectives could be implemented.

SECTION ONE

1. Name of the agency
2. Address
3. Type of Organization, its mission and objectives
4. Job title of the respondent
5. Brief description of the current programs and activities in relation to handicapped housing in Rhode Island
6. Number of disabled/handicapped clients your agency is serving

SECTION TWO

1. Your estimate of total handicapped individuals in Rhode Island
 - Males
 - Females
 - Children (under 16 years of age)
 - Elderly (above 64 years of age)
2. Number of handicapped in the workforce
 - Manufacturing
 - Service
 - Professionals
3. Number of handicapped in the Institutions
4. Number of handicapped persons who received assistance from your agency to meet their housing needs
5. Brief details of the program

6. Which, if any of these programs are done in association with Rhode Island Housing?
If yes, please give the details of the program

7. Which, if any of these programs are covered under HUD programs?
If yes, please give details

8. Qualifications/income criteria/disability criteria to receive housing assistance from your agency

9. Please explain the procedural details of the agency in identifying a client, processing the application for housing, and finally in administering the program.

SECTION THREE

1. Number of housing units provided through your agency to date

Average number of persons living in those housing units.

Number of vacant houses meant for the handicapped persons

2. What were the design modifications necessary for the handicapped housing?

Kitchen

Bathroom

Ramps

Other

What was the expenditure involved in the modification?

3. What is your estimation of handicapped housing need in Rhode Island?

4. Are you familiar with the handicapped housing units in Rhode Island Housing financed developments?

If yes

- a. What type of items are needed to improve accessibility and liveability of current units? (eg: construction, location within development)

- b. What would make these units more attractive to handicapped households? (eg: proximity to support services such as medical centers or a support group)

- c. Is transportation a need or a problem?

- d. How accessible is home maker service to handicapped residents?

- e. Are income qualifications a problem? (Home Repair/Rental)

- f. What modifications should be made to existing marketing procedures?

5. If you are not familiar with the existence of handicapped housing units in Rhode Island Housing financed developments, what modifications do you suggest to make the marketing strategies more effective?

6. What is the need for handicapped housing units?
Number of units
Type of units

7. What type of households are in need?
Single Individuals
Married Couples
Couples with Children

8. What are the reasons for the present vacancies in the handicapped houses?

9. What design modifications of existing housing units or future units are necessary to meet the demands of clients of handicapped housing?

10. What policy changes/guidelines would you recommend for the effective implementation of handicapped housing program by Rhode Island Housing?

11. Can you please describe the future housing needs of handicapped in the State considering the increasing population of elderly?

12. How could Rhode Island Housing and your agency cooperate in the task of providing housing for the handicapped to avoid possible homelessness/institutionalization among this segment of the population?

13. What impact do state laws and the new federal Fair Housing Act have on Rhode Island Housing's ability to serve clients?

14. Please offer any additional comment which you may wish to make

Appendix B

Summary of Desirable Architectural Adaptations

For Persons with Functional Limitations

I. Mobility Impairments

1. Accessible entrance routes with:
 - a. Curb ramps (40" wide, 1:12 maximum slope)
 - b. Walks a minimum of 48" wide with a smooth, hard surface
2. Stairs for persons with ambulatory difficulty
 - a. Non-protruding nosings
 - b. Rails on both sides
 - c. No slippery surfaces
3. Doors
 - a. 32" minimum clear door openings
 - b. 18" - 24" space to side of door for wheelchair maneuverability
 - c. 1/2" maximum threshold height
 - d. door close pressure: 8 - 15 pounds maximum
 - f. 10" to 12" kickplates on doors
4. Floor surfaces
 - a. Smooth, hard, slip resistant
 - b. Carpets tightly woven and low
 - c. 1/2" maximum change in level of floors unless ramp, lift or elevator is used
5. Corridors and Closets
 - a. Corridors at least 48" wide
 - b. Closets with lowered clothes bars

6. Elevators

- a. Adequate maneuvering space for wheelchairs
- b. Top of controls 48" - 54" maximum

7. Toilets

- a. Clear 5'*5' maximum clear floor space
- b. 1 1/2" grab bar on walls next to toilet, 1 1/2" from wall
- c. Toilet seat raised 1'8" from floor
- d. Controls within easy reach

8. Sinks

- a. 29" to 30" clearance to bottom of leverotary
- b. 34" to 35" to top of rim
- c. Insulated pipes
- d. Hot water temperature 120 degrees maximum
- e. Lever faucets preferred
- f. Mirrors 38" from floor maximum

g. Spray hose

9. Bath accessories

- a. No higher than 40" to 45" maximum

10. Showers and tubs

a. Transfer type 3'*3'

L - shaped seat

L - shaped grab bar

Controls opposite seat 6" above grab bar

Roll in approach

Hand held shower option

b. Roll in type

5' * 5' clear floor space

No threshold

Standard grab bars

Hand held shower option

c. Tub seat with back

Hand held shower option

Grab bars

11. Telephones

a. 48" - 54" to operating mechanisms

12. Kitchens

a. 5' * 5' clear floor space

b. 26" - 30" knee clearance under sink and work surface

c. Lever faucets

d. Up-front controls on appliances

e. Low storage cabinets for wheelchairs

f. U shaped handles

g. Counters 30" from floor or pull out work surfaces at that height

h. Lazy susans or swing out shelves

i. Two door side-by-side refrigerator-freezer combination

j. Self-cleaning, self-defrosting appliances

k. Front loading washers and dryers with easily reached controls

l. Sink no higher than 30" - 32" preferred

II. Visual Impairments

1. Entry
 - a. Paving with textural indicators for the blind
2. Corridors
 - a. Brightly lit for visually impaired
 - b. Textural changes on flooring to guide the blind
3. Elevators
 - a. Audible signals in car
 - b. Control labels in large, raised letters or braille, tactile indicators for the blind, in large high contrast for the visually impaired
4. Stairs
 - a. No protruding nosings
 - b. Handrail extensions of 1' maximum at top and 1' plus 1 treadwidth at bottom
5. Kitchen
 - a. Appliance control marked with raised letters or braille for the blind
 - b. Front controls on stove, oven, refrigerator for all visually impaired
 - b. Self-cleaning, self-defrosting appliances desirable
 - c. Well-lit work area painted in high contrast colors for the visually impaired
6. Danger Areas- Alarms
 - a. Warnings of danger areas by means of textural changes in floor or raised letters, braille on signs for the blind

- b. Large warnings in bright colors for the visually impaired
- c. Audible alarms
- 7. Telephones
 - a. Push button controls or braille dial
 - b. Those with visual impairments may desire large high contrast characters
- 8. Consistency and organization of landscape and design are important for the blind; high contrast design and good lighting are important for visually impaired.

III. Hearing Impairments

- 1. Elevators
 - a. Visible signals in car
- 2. Telephones
 - a. Volume control handset for hearing impaired
 - b. Visible signals
 - c. Special telephone for the deaf:TTY
- 3. Doorbells
 - a. Visible signals
- 4. Danger Areas-Alarms
 - a. Visible signals

Legend

Labels for recommendations are in italics

Labels for adaptable features are in boxes

All other labels refer to accessible and adaptable requirements

the accessible route cannot go up steps or stairs; accessible/adaptable houses must have complete living facilities on one level to avoid lifts or elevators.

windows intended to be operable must not require more than 5 pounds of force; casement windows with large crank operators or push rods are one good choice
ANSI & UFAS 4.12

warning signals, if provided, must be visual and audible
ANSI 4.20, UFAS 4.28

an exit door as the bedroom is an excellent safety recommendation and convenience

electrical receptacles within easy reach and capable of powering alarms for hearing and visually impaired people
ANSI 4.25, UFAS 4.27

all passage doors must provide a 32" clear opening
ANSI & UFAS 4.13

controls easily operable
ANSI 4.25, UFAS 4.27

adjustable heights (adaptable) closet rods

clear floor space for turning and at fixtures
ANSI 4.2 & 4.32.5, UFAS 4.2 & 4.34

adaptable bathrooms (see p. 42)

- removable vanity cabinet
- reinforcing for grab bars at fixtures

standard tub with offset controls and hand held shower head
ANSI & UFAS 4.20 & 4.20.5

appliance controls easy to operate and reach
ANSI 4.32.5, UFAS 4.34.6

clear floor space for turning and at fixtures
ANSI 4.2 & 4.32.5, UFAS 4.2 & 4.34

adaptable kitchen (see p. 18)

- removable base cabinet and adjustable counter segment at work surface and sink

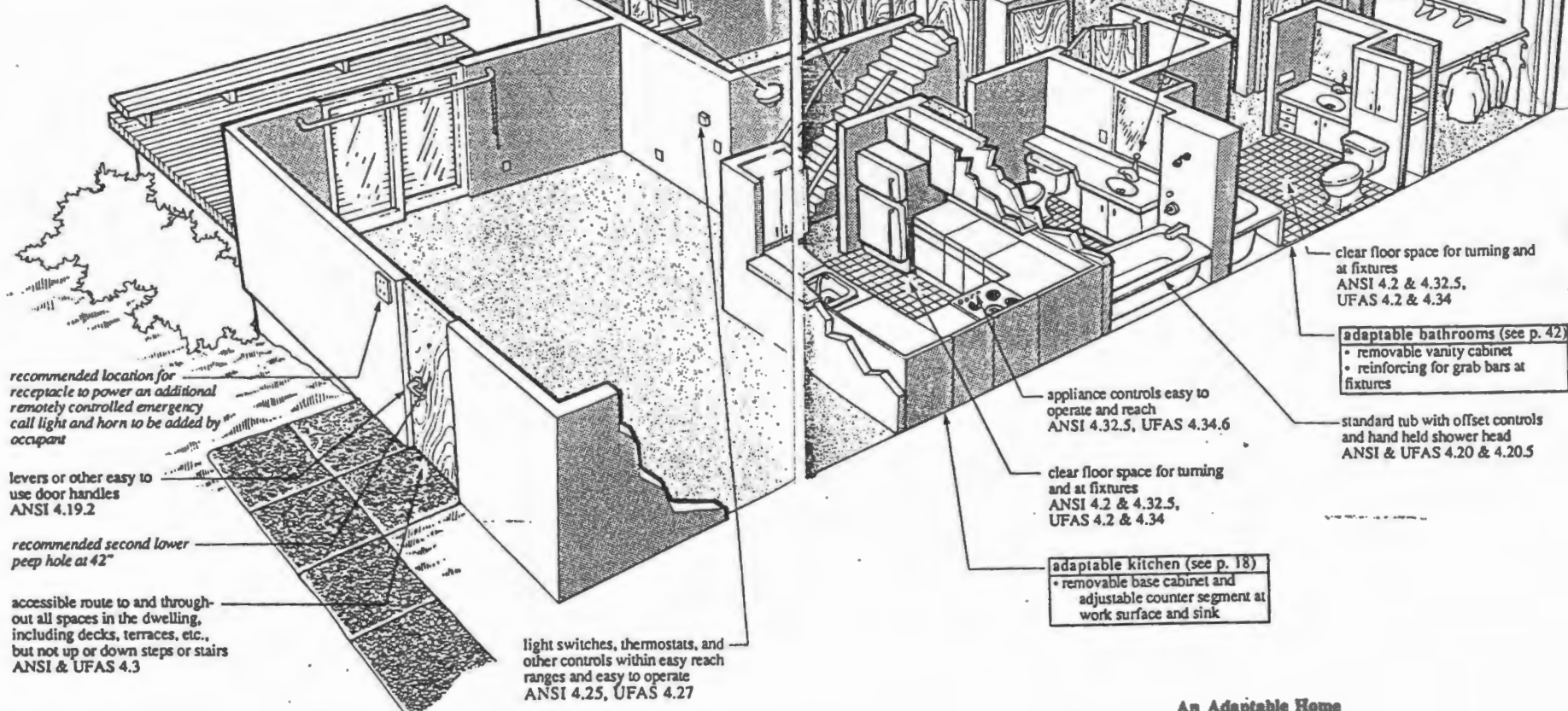
light switches, thermostats, and other controls within easy reach and easy to operate
ANSI 4.25, UFAS 4.27

recommended location for receptacle to power an additional remotely controlled emergency call light and horn to be added by occupant

levers or other easy to use door handles
ANSI 4.19.2

recommended second lower peep hole at 42"

accessible route to and throughout all spaces in the dwelling, including decks, terraces, etc., but not up or down steps or stairs
ANSI & UFAS 4.3



An Adaptable Home

Source: Barrier Free Environments, Inc. Adaptable Housing: A Technical Manual for Implementing Adaptable Dwelling Unit Specifications. U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 1987.